

The lexicon of Proto Oceanic

*The culture and environment of
ancestral Oceanic society*

2 The physical environment

Pacific Linguistics 545

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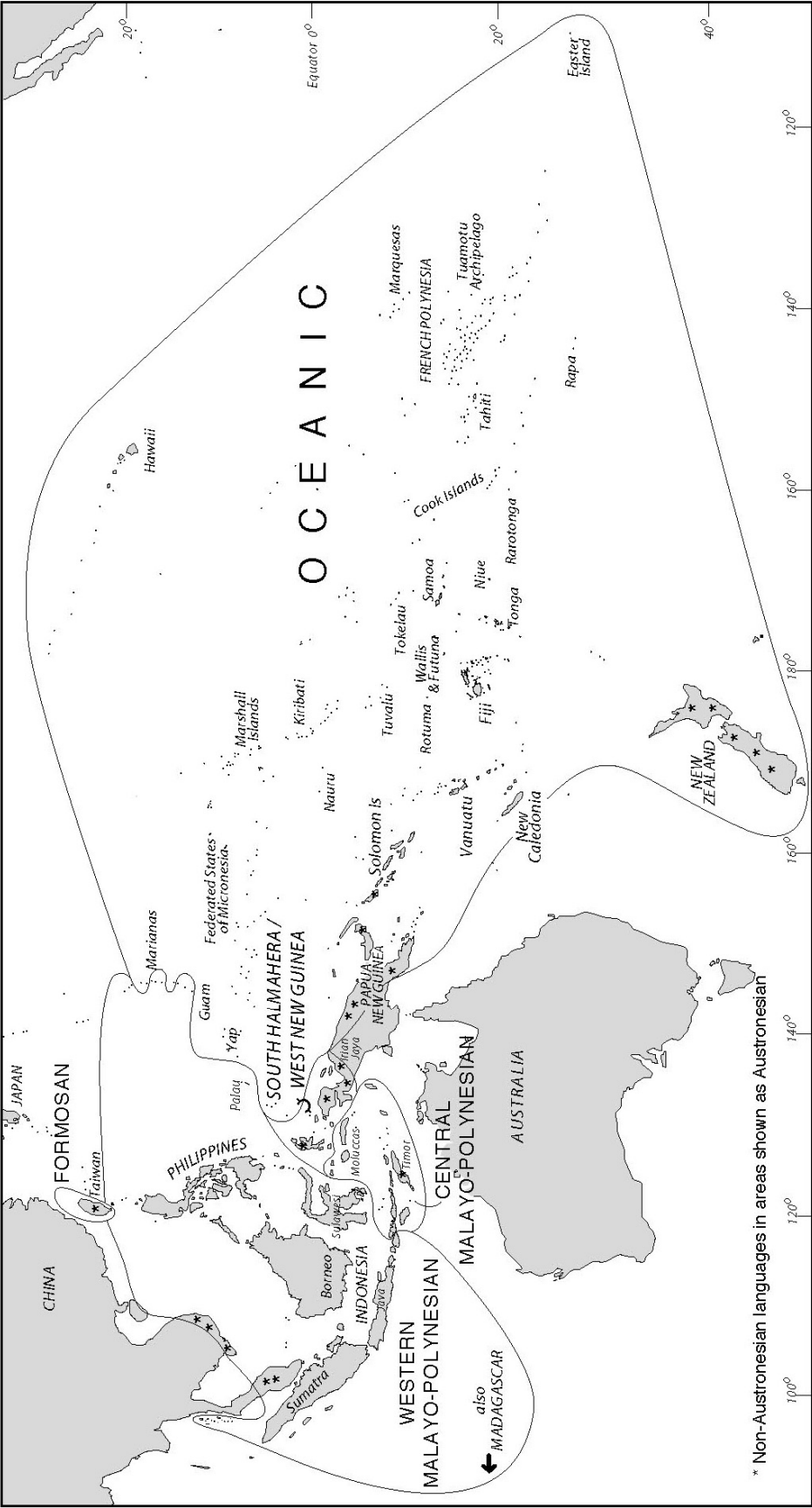
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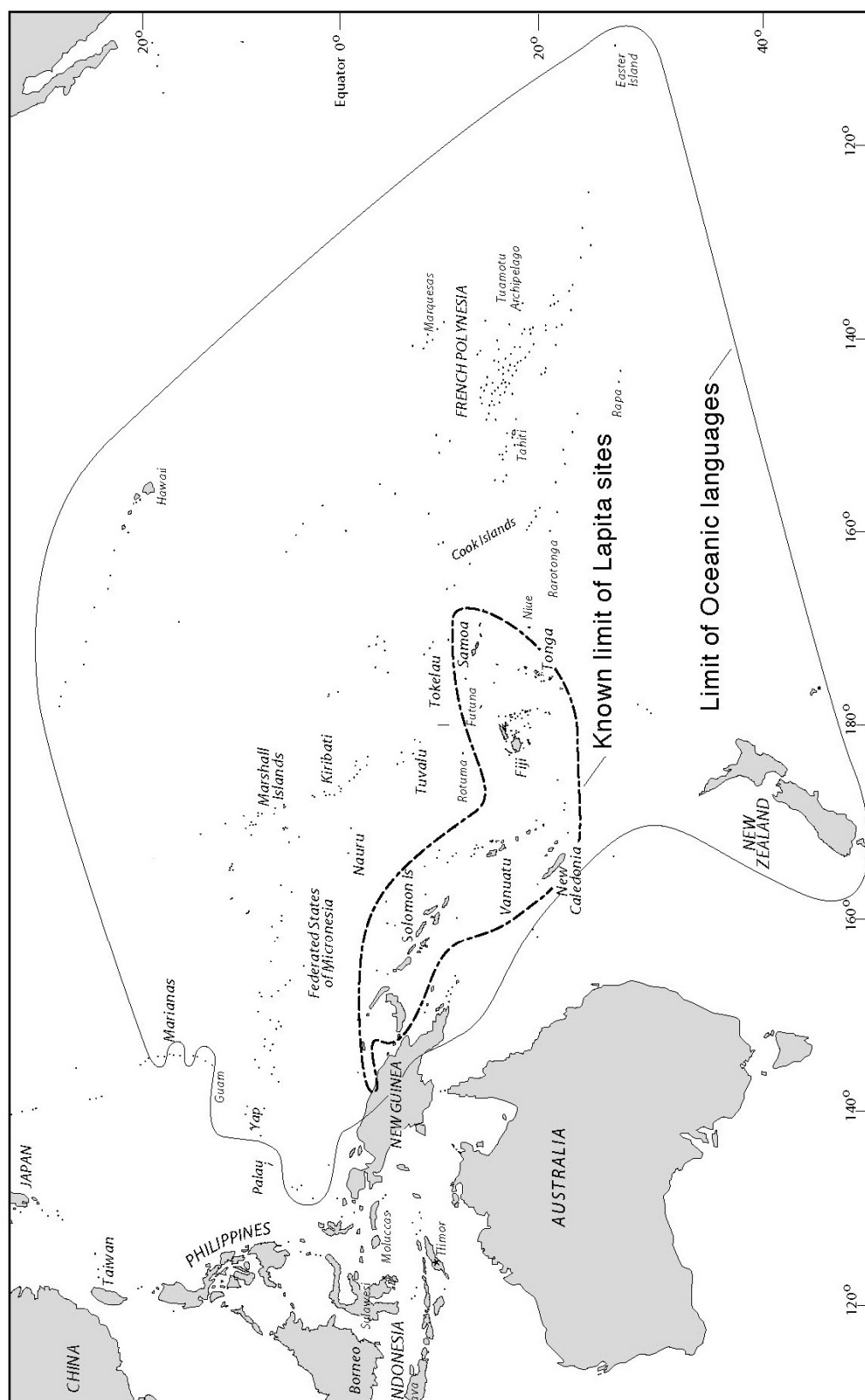
Abbreviations

A	actor
ACD	Blust, Robert A., 1998. <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
CSTR	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
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
VF	final verb
VI	intransitive verb
VT	transitive verb
W.Guad.	West Guadalcanal
WMP	Western Malayo-Polynesian



Map 1: The Austronesian family and major subgroups



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

Preface

This second edition of volume 2 of *The lexicon of Proto Oceanic* has been produced to satisfy three needs which have arisen more or less simultaneously. Firstly, and to our satisfaction, the original 2003 print run sold out more quickly than we expected. Secondly, Pacific Linguistics is moving towards corroborative publishing with ANU ePress, the electronic publishing arm of The Australian National University, and a second edition of a previously published volume was the most straightforward way of troubleshooting this organisational change. Lastly, but nonetheless significantly, the volume needed a number of small revisions, and the E Press edition allows us to make these updates.

Malcolm Ross
Canberra, 1st March 2007

1 *Introduction*

MALCOLM ROSS, ANDREW PAWLEY AND MEREDITH OSMOND

1 Aims

Proto Oceanic (POc) 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.¹ Extensive arguments for the existence of Oceanic as a clearly demarcated branch of Austronesian were first put forward by Otto Dempwolff in the 1920s, and the validity of the subgroup is now recognised by virtually all scholars working in Austronesian historical linguistics.

This is the second of a set of six volumes bringing together the results of recent work on the lexicon of the Proto Oceanic language.² Volume 1 of *The lexicon of Proto Oceanic* dealt with material culture. Volumes 2, 3 and 4 examine relevant sets of cognate terms in order to gain insights into how Proto Oceanic speakers viewed and exploited their environment, volume 2 dealing with the geophysical or inanimate environment, volume 3 treating flora and volume 4 fauna. Volume 5 will deal with terminologies centring on human beings, including the body and basic human conditions and activities, and social organisation, and volume 6 with grammatical (closed) categories including adjectives, pronouns, and number. Volume 6, 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.³

The organisation of the present volume is as follows: Chapter 2 discusses the major biogeographical regions of Oceania and Island Southeast Asia, summarises the evidence for locating the Proto Oceanic speech community in the Bismarck Archipelago, and refers

¹ The listing in Tryon ed. (1995) contains 466 Oceanic languages, many of which are subdivisible into dialects.

² 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.

³ This Introduction incorporates much of the material in the Introduction to Volume 1. We replicate it here in order that each volume can be used independently.

to the range of environments and environmental features to be encountered there. Each of the remaining chapters investigates terms for a different domain of the environment. Chapter 3 deals with landscape, in the broadest sense of the term. It is organised under the following headings: land mass; coastal features; inland landforms; kinds of land; inland water features; mineral substances; fire; destructive events. Chapter 4 deals with the sea and its features—currents, waves and tides—and the reef environment. Chapter 5 deals with meteorology, Chapter 6 with navigation and the heavens, Chapter 7 with the properties of inanimate objects, Chapter 8 with space: terms of location and direction, and Chapter 9 with time.

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 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 and 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 and Chapter 2).

The present project aims to bring together a large corpus of lexical reconstructions for POc, with supporting cognate sets, organised according to semantic fields and using a standard orthography for POc.

We hope that this thesaurus will be a useful resource for culture historians, archaeologists and others interested in the prehistory of the Pacific region. 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 Proto Austronesian (PAN) (1938)—but equivalent in modern terms to Proto Malayo-Polynesian (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.

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 and Clark (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 (1996); for Proto Southern Vanuatu by Lynch (1978b, 1996, 2001); for New Caledonia by Ozanne-Rivierre (1992), Haudricourt and Ozanne-Rivierre (1982) and Geraghty (1989); for Proto Southeast Solomonian by Levy (1980) and Lichtenberk (1988); for Proto Central Pacific by Hockett (1976) and Geraghty (1983, 1986, 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 (1994).

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 1998.

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 and Clark (1993), Clark (1996) 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. 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 (vol.1, pp.291–293):

POc <i>*buku</i>	‘tie (a knot); fasten’
POc <i>*p^wita</i>	‘tie by encircling’
POc <i>*paqu(s)</i> , <i>*paqus-i-</i>	‘bind, lash; construct (canoe +) by lashing together’
POc <i>*pisi</i>	‘bind up, tie up, wind round, wrap’
POc <i>*kiti</i>	‘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’ (vol. 1, p.85). 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 (vol.1, pp.222–224) 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 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 **apij*, POc **apic* ‘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).⁴

⁴ For a commentary on Austronesian subgrouping, see Ross (1995b).

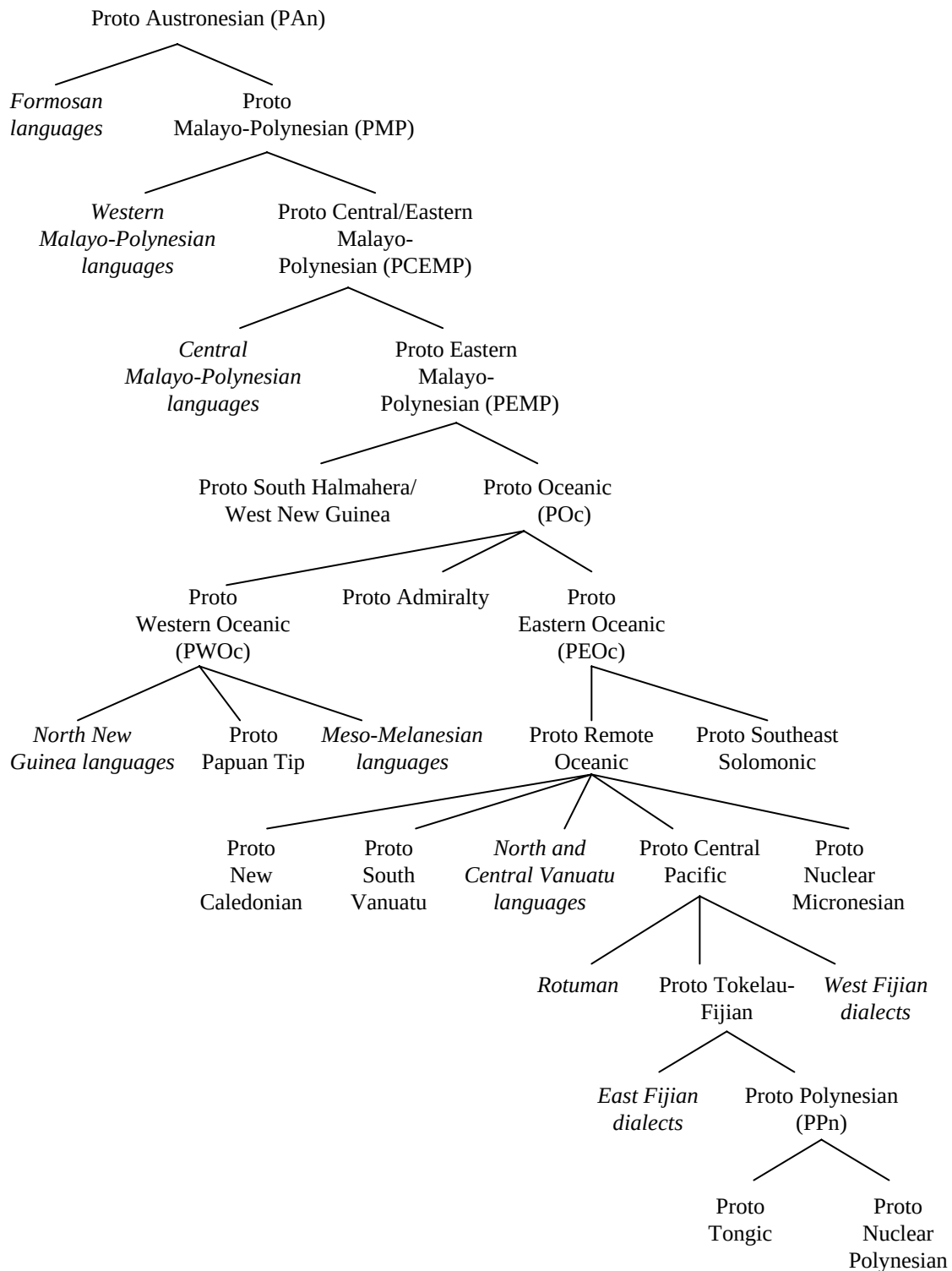
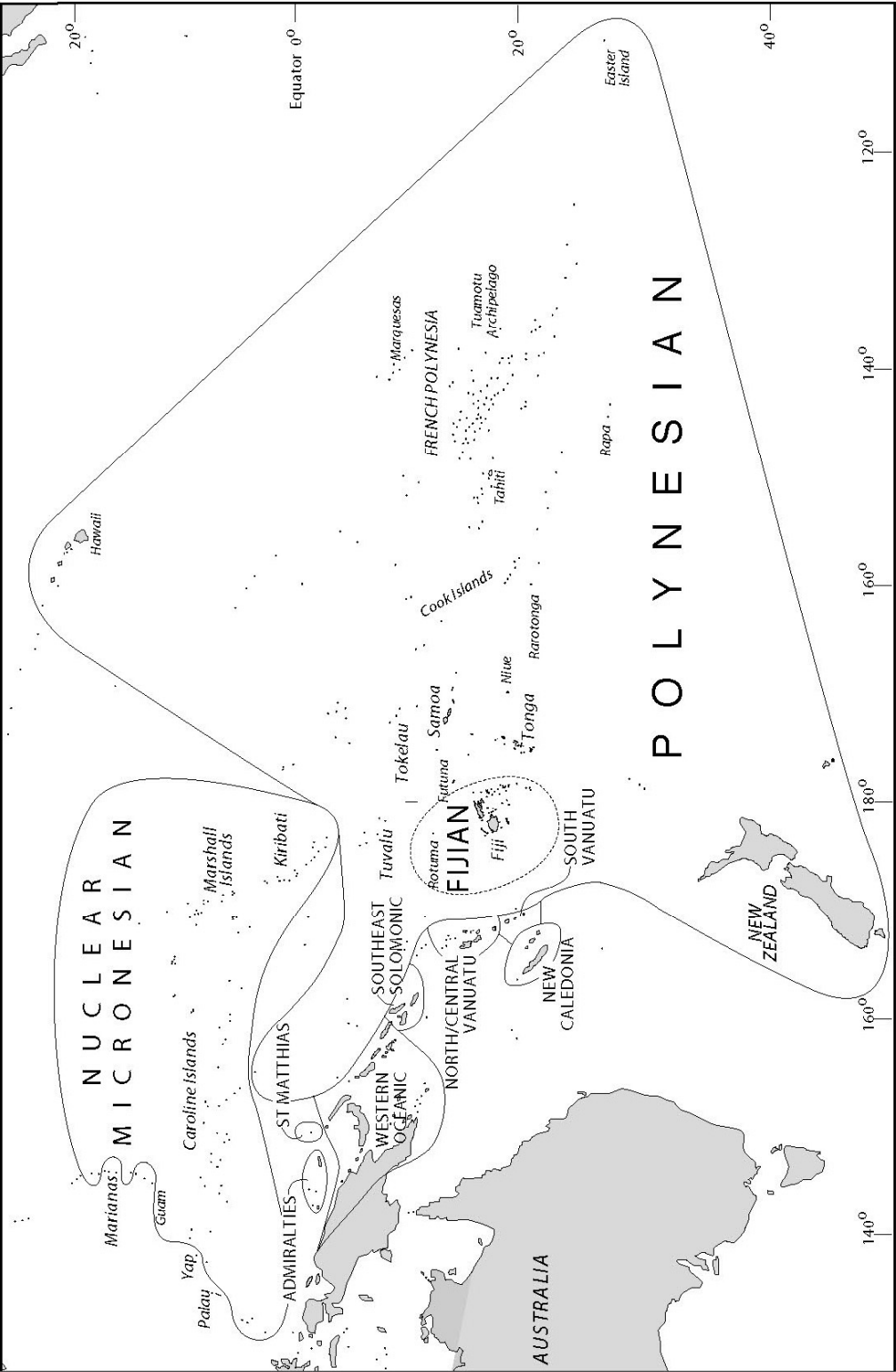


Figure 1: Schematic diagram of the diversification of Austronesian languages (see the text with regard to its interpretation)

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’.



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

Within Oceanic we assume a minimum of three primary subgroups: Admiralties (Adm), Western Oceanic, and Eastern Oceanic (see Map 3). The Admiralties subgroup is well founded, and has been defined by Ross (1988). The St Matthias group, also a possible primary subgroup (represented here only by Mussau), is here included with Admiralties, as there are some indications that St Matthias and Admiralties languages have exclusively shared a period of development.⁵ Western Oceanic (Ross 1988) is an innovation-linked group which appears to derive from an original dialect network that probably extended, originally from New Britain to the western Solomons. Eastern Oceanic ('Central/Eastern Oceanic' in the terminology of Ross (1995b) includes all other Oceanic languages.⁶

Neither Western nor Eastern Oceanic meets normal subgrouping criteria (i.e. in each case no shared innovations define the whole group), but treating each as a unit ensures a rigorous criterion for recognising a reconstruction as POc: a reconstruction must have reflexes in at least two of the subgroups that are generally regarded as primary, or possibly primary, branches of Oceanic.⁷ Both here and at the interstages described below, no reconstruction is made if there are grounds to infer borrowing from one subgroup to another.⁸ 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)

In Chapter 2, Pawley discusses Robert Blust's proposal that the primary split in Oceanic divides the Admiralties subgroup from a subgroup embracing all other Oceanic languages. Pawley dubs the latter 'Nuclear Oceanic'. If Blust's subgrouping were accepted, then an etymon which lacked cognates outside Oceanic would need to be reflected both in an Admiralties language and in a non-Admiralties language for a POc reconstruction to be made. Etyma with reflexes in both Western and Eastern Oceanic, but not in the Admiralties, would be reconstructed as Proto Nuclear Oceanic. Under the criteria outlined in the previous paragraph, however, we attribute these reconstructions to POc. These criteria were used in Volume 1, and we have thought it wise to maintain them throughout all the volumes of this work. The reader who wishes to single out reconstructions attributable to a putative Proto Nuclear Oceanic (rather than to POc) can easily recognise them, however. They are those reconstructions for which (i) there are no Admiralties reflexes, and (ii) there is no higher-order reconstruction (i.e. PEMP, PCEMP, PMP or PAn).

⁵ On the position of Mussau, see Ross (1988:315–316, 331).

⁶ 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.

⁷ 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 except at a very low level in the Oceanic family tree. 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.

⁸ 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 Solomonian languages of EOc or (2) in EOc and only in the Northwest Solomonian languages of WOc, borrowing is likely (and is often reflected in unexpected sound correspondences).

The Western Oceanic languages seem to be the outcome of the gradual and complex diversification of an old dialect network. This network was evidently part of the dialect network into which POC itself diversified (see Chapter 2). It can be argued that these languages have no exclusively shared protolanguage other than POC (this is the approach of Ross 1995b), 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, even if this is something of a convenient fiction. When we reconstruct a PWOC etymon, we are saying that, as far as we know, it is reflected nowhere outside languages descended from the Western Oceanic dialect network.

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). NNG, NGOC and MM have much the same status as WOC. They reflect portions of the WOC dialect network, and may not have exclusively shared protolanguages. The Papuan Tip cluster, on the other hand, is apparently descended from a unitary protolanguage, Proto Papuan Tip.

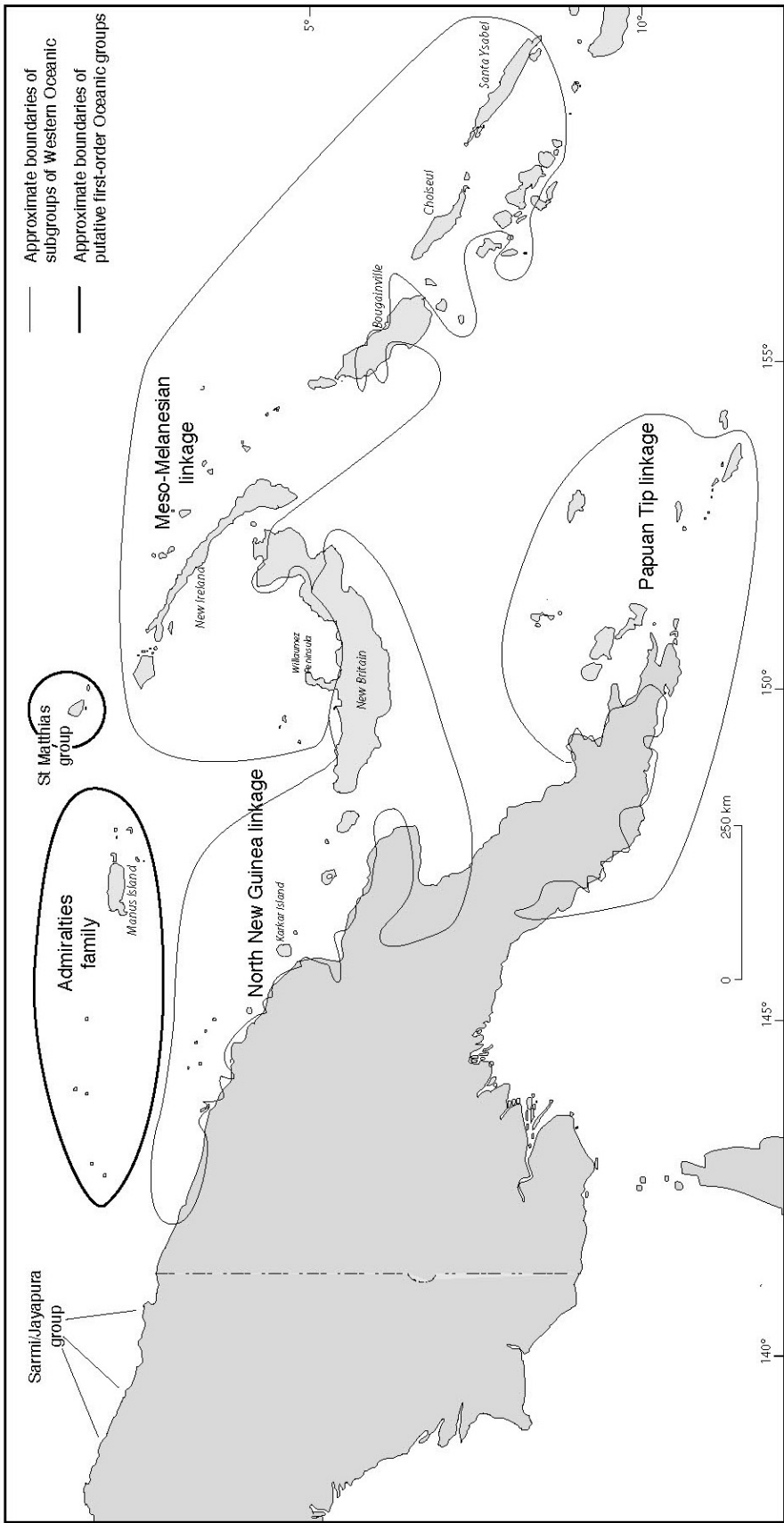
The Admiralties subgroup is treated as having no internal subgrouping. The Eastern Oceanic subgroup is assumed to consist of Southeast Solomonian (SES), North/Central Vanuatu (NCV), South Vanuatu (SV), New Caledonia (NCal), Nuclear Micronesian (Mic), and Central Pacific (divided for convenience into Fijian [Fij] and Polynesian [Pn]) (see Map 3).⁹ Reflexes in any two of these groups are enough to justify reconstruction of a Proto Eastern Oceanic (PEOC) etymon.

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). When we reconstruct a PEOC etymon, we are simply saying that it has no known reflexes outside the subgroups collected together as Eastern Oceanic.

We ask the reader to be mindful of the fact that we have provided Figure 1 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 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.

⁹ This subgrouping may well prove to be somewhat inaccurate, especially with regard to the treatment of North/Central Vanuatu as a subgroup (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

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 (1996) for North/Central Vanuatu; by Lynch (1978b, 2001) 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 (West New Guinea).

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 West New Guinea.

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 and orthography

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

<i>*p^w</i>	<i>*p</i>	<i>*t</i>	<i>*c</i>	<i>*k</i>	<i>*q</i>
<i>*b^w</i>	<i>*b</i>	<i>*d</i>	<i>*j</i>	<i>*g</i>	
		<i>*s</i>			
<i>*m^w</i>	<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 and its relationship to PMP is discussed in greater detail in vol. 1, Chapter 2, §2. Since the publication of vol. 1 of the present work, articles by John Lynch have appeared on POc stress (2000a) and POc labiovelar phonemes (2002e).

Table 1 shows two POc orthographies. The first was established by Biggs (1965), for Proto Eastern Oceanic, and Grace (1969), who applied it to Proto Oceanic, and has been used with a number of variants (separated by a slash) shown below. The second is the one generally used in this work, 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 certain sound changes that occurred between PMP and POc (see vol.1, Ch. 2).

Table 1: POc orthographies

Grace etc.	oral grade	<i>p</i>	<i>pw</i>	<i>t</i>	<i>d/r</i>	<i>s</i>		<i>j</i>	<i>k</i>			
	nasal grade	<i>mp</i>	<i>ɲp/mpw</i>	<i>nt</i>	<i>nd/nr</i>		<i>ɲj</i>		<i>ɲk</i>			
Ross	oral grade	<i>p</i>	<i>p^w</i>	<i>t</i>	<i>r</i>	<i>s</i>		<i>c</i>	<i>k</i>			
	nasal grade	<i>b</i>	<i>b^w</i>	<i>d</i>	<i>dr</i>		<i>j</i>		<i>g</i>			
Grace		<i>m</i>	<i>ɲm/mw</i>	<i>n</i>	<i>ñ</i>	<i>ɲ</i>	<i>w</i>	<i>y</i>	<i>l</i>	<i>q</i>	<i>Ø</i>	<i>R</i>
Ross		<i>m</i>	<i>m^w</i>	<i>n</i>	<i>ñ</i>	<i>ɲ</i>	<i>w</i>	<i>y</i>	<i>l</i>	<i>q</i>	<i>Ø</i>	<i>R</i>
Grace etc.		<i>i</i>	<i>o</i>	<i>e</i>	<i>a</i>	<i>u</i>						
Ross		<i>i</i>	<i>o</i>	<i>e</i>	<i>a</i>	<i>u</i>						

4 Conventions

4.1 Chapter format

Each of the contributions to the present 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.

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 (see discussion in §3.2). 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.

Contributors have usually 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.

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 genealogical except, perhaps, North/Central Vanuatu (abbreviated ‘NCV’) and Fijian (abbreviated ‘Fij:’).¹⁰ 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 (vol.1, 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.

¹⁰ An argument that North/Central Vanuatu does not constitute a genealogical subgroup is made by Lynch (1995) and summarised in Lynch, Ross and Crowley (2002, Ch. 5). The argument that Fijian does not constitute a genealogical 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).

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 and Clark's PPN reconstructions are in any case written in an orthography identical to our standard. Bracketing and segmentation conventions in protoforms are shown in Table 2.

Table 2: Bracketing and segmentation conventions in protoforms

(<i>x</i>)	it cannot be determined whether <i>x</i> was present
(<i>x, y</i>)	either <i>x</i> or <i>y</i> was present
[<i>x</i>]	the item is reconstructable in two forms, one with and one without <i>x</i>
[<i>x, y</i>]	the item is reconstructable in two forms, one with <i>x</i> and one with <i>y</i>
<i>x-y</i>	<i>x</i> and <i>y</i> are separate morphemes
<i>x-</i>	<i>x</i> takes an enclitic or a suffix
⟨ <i>x</i> ⟩	<i>x</i> 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. Some authors 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 of vol. 1, as are issues concerning the derivational morphology which can be reconstructed for POc.

2 *Locating Proto Oceanic*

ANDREW PAWLEY

1 Introduction

This chapter briefly describes the major biogeographical regions of Oceania and Island Southeast Asia, summarises the evidence for locating the Proto Oceanic speech community in the Bismarck Archipelago, and refers to the range of environments and environmental features to be encountered there.¹

2 The major biogeographic regions of Oceania

Oceania is often divided into three main geographic regions: Melanesia, Polynesia and Micronesia. However, a more useful primary division for understanding the history of plants and animals, and, particularly, of humans in the Pacific is between Near Oceania and Remote Oceania.²

Modern Near Oceania consists of Australia and that part of the Pacific Islands whose chief land masses are New Guinea, the Bismarck archipelago and the Solomons archipelago, extending as far east as Makira (formerly known as San Cristobal). Some of the islands in Near Oceania are formidable in their size and rugged terrain. New Guinea is 2300 km long and has a mountainous interior that extends the length of the island, with peaks reaching 4500 m. New Britain is 480 km long and from 50 to 80 km across, mountainous and actively volcanic. New Ireland is 350 km long though never more than 50 km across. Bougainville is more compact but has a landmass similar to New Ireland. The islands of Near Oceania for the most part form an intervisible series of landmasses which served as stepping-stones for the dispersion of plants, animals and people, enhanced at times by lower sea levels during the late Pleistocene.

¹ I am indebted to Roger Green, Meredith Osmond, Malcolm Ross and Christophe Sand for helpful comments on a draft of this chapter. A number of issues to do with locating Proto Oceanic are raised in a paper by Terrell, Hunt and Bradshaw (2002) which came to hand after this paper was written.

² See Green (1991a) for an extended discussion of the Near Oceania vs Remote Oceania division, first proposed in Pawley and Green (1973).

The east-west boundary between Near and Remote Oceania is the ocean gap of 350 km separating the easternmost point of the Solomons chain from the small Santa Cruz group. Beyond the Solomons the landmasses are generally smaller and island groups are separated from each other by long distances of open sea. Along the equator and to its north lie several extensive groups of small islands traditionally grouped under the heading of Micronesia: the Marianas, the Carolines, the Marshalls and Kiribati. The large archipelagoes of Vanuatu and New Caledonia-Loyalties are southeast of the Solomons. Some 900 km east of Vanuatu are the Fiji group and Rotuma. The vast Polynesian Triangle, whose apices are Hawaii, New Zealand and Easter Island, contains some extremely isolated islands and island groups, several being separated by ocean gaps of between 1000 and 3000 kilometres from the nearest inhabited land.

The western landmasses of Near Oceania are close to the easternmost islands of the Indo-Malaysian archipelago. The latter consist of two biogeographical regions: Sundaland and Wallacea. At various times during the last Pleistocene glaciation, beginning about 120,000 years ago, sea levels were much lower than today, with an extreme lowpoint at about 18,000 years ago. For much of this period Sumatra, Java, Borneo and Palawan were connected to continental Southeast Asia by the Sunda shelf. This continental extension, Sundaland, was permanently separated by short ocean gaps from the region known as Wallacea, which includes the Philippines, Sulawesi, the Lesser Sundas and the Moluccas. Wallacea has always been a world of islands, whose flora and fauna are intermediate between the 'Southeast Asian' and the 'Australian' types. During the Upper Pleistocene and until about 8000 years ago New Guinea was linked to Australia, forming the continent known as Sahul. They share a distinctive mammalian and bird fauna and a number of distinctive plant genera. Map 5 shows the major biogeographic regions of island SE Asia and the Pacific.

Within Wallacea, stretches of open sea up to 60–70 km were traversed by the first settlers—very likely the first substantial open sea voyages made by humans. The shortest sea crossings from Wallacea to the Australia-New Guinea continent were between 65 and 100 km. These crossings were made no later than 40,000 BP, because human settlement of Australia and New Guinea is securely dated to that time, and there are earlier, less widely accepted dates, indicating that Australia may have been settled as early as 60,000 BP.

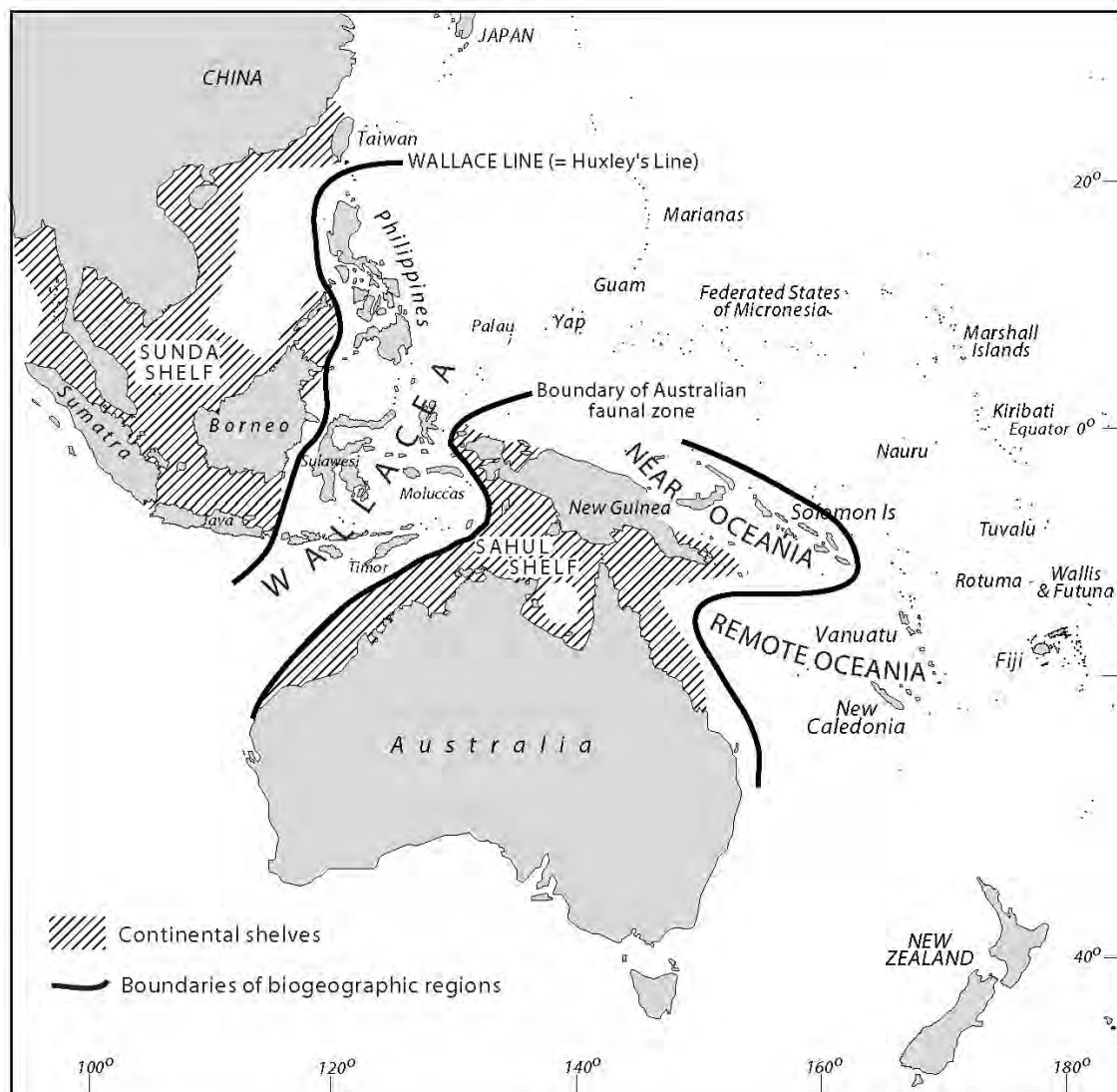
The relatively narrow (70 km) but permanent ocean gap between New Guinea and New Britain has proved an important barrier limiting the spread of plants and animals. New Guinea harbours far more species and genera than any other region of the Pacific. Almost all the plant genera of the Bismarcks (627 of 632) and Solomons (637 of 654) are shared with New Guinea (Mayr & Diamond 2001). However, 800 genera present in New Guinea are lacking in the Bismarcks and Solomons (Mayr and Diamond refer to the latter two archipelagoes as making up 'Northern Melanesia'). New Guinea has about 520 species of land birds (and in any one locality there are likely to be at least 200 species), New Britain about 80, the Solomons 127, Fiji 54, Samoa 33, Tonga 20, the Society Islands 17 and the Marquesas 11. Whereas New Guinea has some 130 species of indigenous terrestrial mammal species (Flannery 1995), the Bismarcks have one bandicoot and one wallaby species, two phalanger species and four genera of rats, and the Solomons have one phalanger species and three genera of rats. (When it comes to mammals, it is only in bats that New Guinea and Northern Melanesia show a comparable diversity: New Guinea has about 70 bat species and the Bismarcks and Solomons about 58.) This diminution in land-

dwelling biota must have greatly handicapped human colonists of Northern Melanesia dependent on hunting-and-gathering to get their food.

The divide between Near and Remote Oceania is also an important one for fauna and flora distribution. Roger Green (1991b:495) notes that:

all terrestrial mammals other than rats and mice or those which accompanied people reach their eastward limit in the Solomons. The same applies to all fresh-water mussels, and most of the Palaeo-Oriental land-snail fauna. Thirty Papuan and Malayan genera of birds find their eastern limits here, as do 162 genera of seed-plants, about 24% of the total.

Even in marine life the difference is marked. The reefs of the Bismarck and Solomons show a much richer diversity of fish, molluscs, echinoderms, crustacea, seaweeds, and other edible life than those of Remote Oceanic.



Map 5: Major biogeographic regions of Island SE Asia and the Pacific: Sundaland, Wallacea, Near Oceania and Remote Oceania

3 Early human settlement of Near Oceania

For human settlement of the Pacific the Near/Remote Oceania boundary proved to be far more formidable than the ocean gaps within Wallacea or Near Oceania.

The crossings from New Guinea to New Britain and from New Britain to New Ireland occurred no later than 35,000 years ago (Allen & Gosden 1996, Allen & White 1989, Gosden & Specht 1991, Pavlides & Gosden 1994). The Manus group was reached by at least 21,000 BP and probably a good deal earlier (Ambrose 2002). The earliest dates for Buka-Bougainville are about 28,000 BP (Spriggs 1997). At that time most of today's Solomon Islands were joined into a single landmass, and the first settlers would have been able to walk to the central Solomons (Guadalcanal).

The first settlers of Near Oceania were broad spectrum tropical forest hunter-gatherers. As land food resources would have been meagre, except in New Guinea, the early settlers would have relied heavily on coastal resources. Early archaeological sites in the Bismarcks point to a dependence on marine shellfish, inshore fish and hunting of birds, rats, bats and reptiles. After 20,000 BP there is evidence of considerable regional interaction, with obsidian moving from New Britain to New Ireland, and game animals (chiefly, a phalanger and a wallaby species) being transported from the New Guinea mainland (Spriggs 1997). By the mid-Holocene, 7–8000 years ago, a range of tree crops was cultivated or tended. However, there is no clear evidence that full scale agriculture was practised in the Bismarck Archipelago or the Solomons before the arrival of Austronesian speaking peoples. The situation was different in New Guinea. The discovery of extensive irrigation systems and forest clearing in the central highlands of New Guinea dated to 6000–9000 BP (Golson 1977, 1991, Golson, Denham, Swadling & Muke forthcoming), indicates an indigenous development of agriculture based on root crops, presumably taro, and at lower altitudes, probably bananas and yams.

Anderson (2000) doubts that any systematic long distance voyaging took place in Wallacea and Near Oceania during the Upper Pleistocene and early Holocene. It is noteworthy that the Mussau (St Matthias) group, 100 km to the north of New Ireland, remained uninhabited until about 3500 BP. For around 25,000 years human expansion into the Pacific got no further east than the Solomons—presumably the ocean gaps to the islands of Remote Oceania were too great to cross against the prevailing SE trade winds with the sailing technology then available. It may be that the shorter gaps, such as from the Solomons to Santa Cruz, were occasionally traversed by accident. However, permanent settlement on small Remote Oceanic islands, with their restricted flora and land fauna, would have been very difficult if not impossible to sustain without agriculture and without the capacity to make regular two-way long distance voyages to replenish the population and other key resources.

A number of striking facts about language distributions suggest a sequence for the differentiation or appearance of language families in Oceania. New Guinea, and the islands of Halmahera and Timor, Alor and Pantar are home to some 750 'Papuan' languages (i.e. non-Austronesian languages indigenous to the region). These belong to more than a dozen genetic stocks and isolates which are on present evidence unrelatable to each other or to any languages outside of this region (Foley 1986, Ross 2005). Such extreme genetic diversity indicates a very long occupation of the New Guinea area. Small numbers of non-Austronesian languages are also present in New Britain, New Ireland, Bougainville and the central Solomons. These, too, fall into several different families, not on present evidence

relatable to each other or to any other languages (Ross 2001a, 2005), a pattern that points to ancient local diversification. It is noteworthy that all the Papuan languages are confined to Near Oceania and Wallacea.

The Austronesian family presents a very different situation. Its origins clearly lie in Southeast Asia.³ The centre of genetic diversity of this family is in Taiwan, making that island the most likely location of Proto Austronesian (Blust 1995a, 1995b, 1999). It is a striking fact that almost all the 480 or so Austronesian languages of the Pacific Islands fall into a single branch of Austronesian, and one that is no more than a fourth-order subgroup. This is the subgroup known as Oceanic, which is defined by a considerable number of uniquely shared innovations in sound system, morphology and lexicon (Lynch, Ross & Crowley 2002). All Austronesian languages of mainland and island southeast Asia and Madagascar are excluded from Oceanic, being divided among a number of higher order subgroups. The only Pacific Island Austronesian languages that are excluded from Oceanic are (a) Chamorro, spoken in the Marianas, (b) Belau, spoken on Belau (Palau) Island at the western margin of the Carolines, and (c) about 30 languages located at the western end of New Guinea between 130 and 136 degrees E, either on the Bird's Head or on the islands of Cenderawasih Bay.

Austronesian speakers probably first entered New Guinea from the Moluccas. The immediate relatives of Oceanic are a group of languages spoken at the western end of New Guinea, around Cenderawasih Bay, and in South Halmahera. This group, known as South Halmahera-West New Guinea, and Oceanic form a larger subgroup known as Eastern Malayo-Polynesian (Blust 1978a). Occam's Razor makes the likeliest location of Proto Eastern Malayo-Polynesian close to where its two primary branches meet, i.e. on or near the north coast of New Guinea, in the area bounded by Cenderawasih Bay and the Bismarck Archipelago. A dispersal centre in or near Cenderawasih Bay is favoured by the fact that Eastern Malayo-Polynesian in turn has its closest relatives in the Moluccas and the Lesser Sundas. The Oceanic branch probably diverged from South Halmahera-West New Guinea when some speakers of Eastern Austronesian moved eastwards, either along the north coast of New Guinea or directly to the Bismarcks. Today, Austronesian languages in New Guinea are largely confined to coastal pockets and offshore islands. In Remote Oceania, by contrast, Austronesian languages dominate. Indeed, all 180 or so of the languages indigenous to Remote Oceania belong to the Austronesian family.

From these facts we can draw a number of inferences about the linguistic sequence in the Pacific. (i) The non-Austronesian families have been in Near Oceania for much longer than Austronesian. (ii) Non-Austronesian languages probably did not reach Remote Oceania. (iii) Austronesian languages entered Near Oceania from Wallacea. (iv) When speakers of Austronesian languages reached Remote Oceania they had the field to themselves.

Around 3500–3300 BP a dramatic transformation of the cultural scene in Near Oceania began. At this time a highly distinctive Neolithic archaeological tradition, known as Lapita, appeared suddenly in the Bismarck Archipelago. The earliest Lapita sites are in the region of the St Matthias Group, New Britain and in the islands off the east coast of New Ireland.

³ There are several recent major syntheses of interdisciplinary evidence concerning the Austronesian diaspora by archaeologists, especially Bellwood (1997), Green (2003), Kirch (1995, 1997, 2000), Kirch and Green (2001) and Spriggs (1997), with a dissenting view presented by Terrell (1986) and Terrell et al. (2001). For overviews by linguists see Blust (1995b), Pawley (2003a) and Pawley and Ross (1993, 1995).

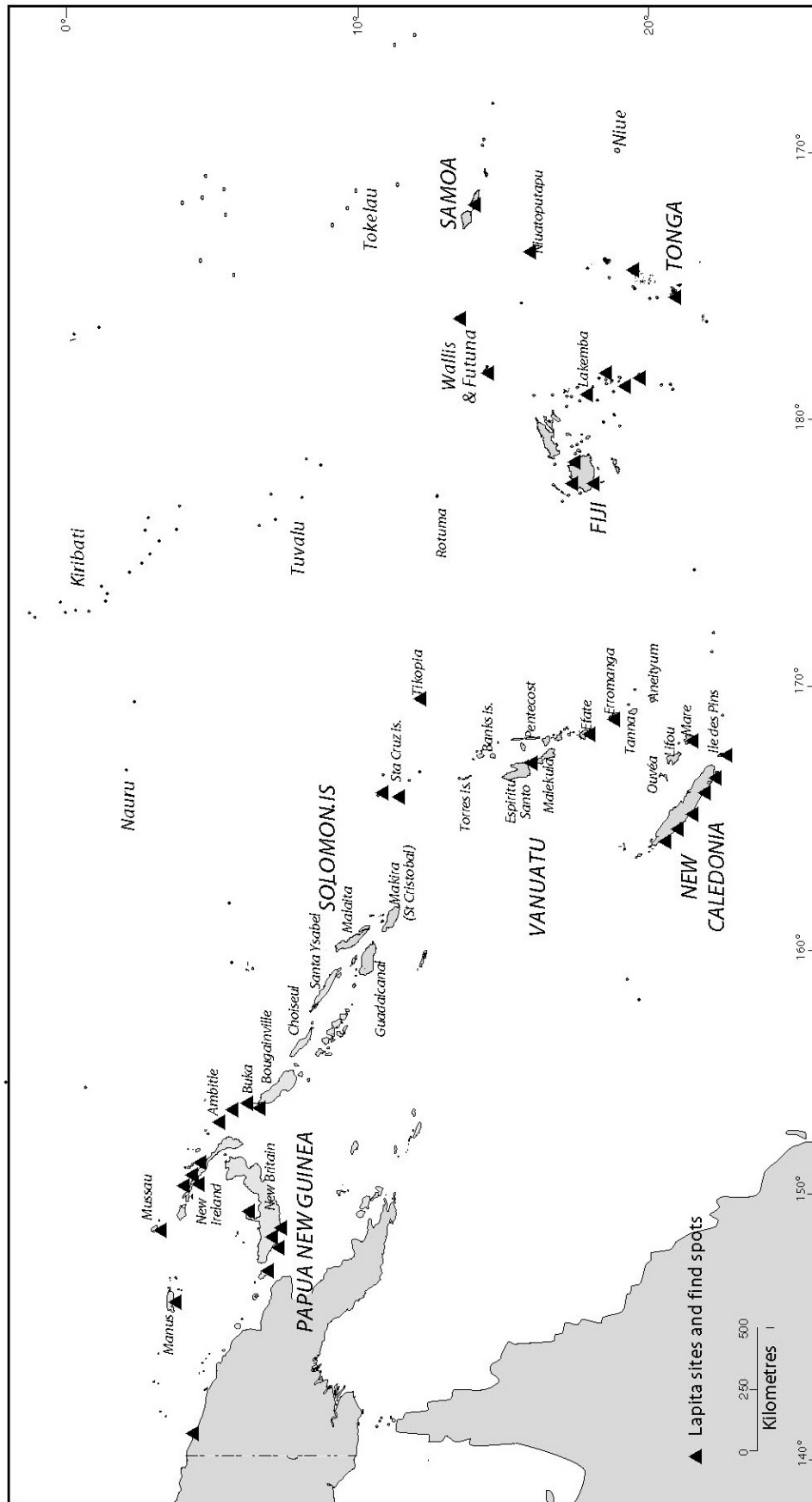
A vast literature on Lapita has accumulated over the past 40 years and it is impossible to reference this fully. Kirch (1997) is the most comprehensive overview. Other important reviews include Allen and Gosden (1991), Best (2002), Green (1991a, 2003), Kirch (2000), Kirch and Green (2001), Kirch and Hunt (1988), Spriggs (1997), and Summerhayes (2000a, 2001).

Lapita was a culture quite different from those which preceded it in Near Oceania.⁴ Its most prominent markers are earthenware vessels with red-slipped surface, in a characteristic variety of shapes, including water jars, globular cooking vessels and flat bottomed dishes. Some vessels were plain, but a minority were decorated with very distinctive, precise and elaborate geometric motifs, mainly achieved by dentate stamping, i.e. with repeated applications of a set of toothed implements. The plainware was clearly for domestic use; the highly decorated pots probably had ceremonial uses.

In the more completely excavated Lapita sites the pottery is part of a cluster of features—settlement patterns, architecture and artefacts—which Green (1979) termed the ‘Lapita cultural complex’. Lapita 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. In at least some settlements, houses were built on piles. The Lapita tool kit often 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 are present. Middens are typically full of lagoon fish and turtle bones, attesting to the importance of fishing and to a variety of fishing techniques. The bones of dog, chicken and pig are often present, indicating that these animals (none of which is native to Near Oceania) were kept as domesticates.

In the Bismarcks after 3200 BP, the earliest Lapita pottery style, known as Early (Far) Western Lapita, evolved into a style with modified vessel forms and less ornate decorative patterns, known as Western Lapita. By 3100–3000 BP there were Lapita settlements making pottery in this Western style in Santa Cruz and Vanuatu (Green 2003), and no doubt in the Solomons, where the record is sparse. Only slightly later, by 3000–2950 BP, Lapita people had colonised New Caledonia and had reached Fiji and Tonga, some 4000 km to the east of the Bismarcks. At the same time or within another century or so, Samoa, Futuna and Uvea were settled. Upwards of 200 Lapita sites have now been found in the southwest Pacific, although only a minority have been excavated (see Map 6). The fact that the earliest Lapita pottery found in Santa Cruz, Vanuatu, New Caledonia and Fiji shows similar stylistic changes to that exhibited by the later Lapita assemblages in the Bismarcks supports the idea that there was a significant pause, lasting perhaps three centuries, before Lapita people moved from Bismarcks into Remote Oceania.

⁴ At least two and probably three other movements into Remote Oceania occurred at about the same time as the Lapita expansion, but independently of it. All were into western Micronesia and all can be associated with Austronesian languages. The Mariana Islands, forming the northwest margin of Micronesia, were settled by at least the late 2nd millennium BC (Bonhomme & Craig 1987). Belau (Palau), at the western margin of the Carolines, was perhaps settled about the same time although as yet there are no published dates earlier than 600 BC. The sources of these movements were probably the Philippines and/or Sulawesi. Early assemblages in the Marianas and Belau show a red slip decorated earthenware remarkably similar to that found in the southern Philippines and Sulawesi—and to the Lapita tradition. It is likely that Yap (Western Carolines) was also settled very early. The highly divergent Yapese language is Oceanic but cannot on present evidence be subgrouped with any other member of Oceanic (Ross 1996a).



Map 6: Lapita sites in the south-west Pacific (after Spriggs 1995:113)

4 The location and dispersal of the Proto Oceanic speech community

Where did Lapita culture come from? What language did the bearers of the Lapita complex speak? It is possible to answer these questions with considerable assurance because of a remarkably close fit between the evidence of historical linguistics and archaeology, with support from the study of plant and animal distributions.

Most scholars now accept the view that Lapita was an amalgam of ingredients from three sources or dynamics, which Green (1991a, 2003) refers to as ‘intrusion’, ‘integration’ and ‘innovation’.⁵ ‘Intrusion’ refers to a core complex of elements of Lapita which entered Near Oceania from Island SE Asia. These comprised language, and many elements of technology, domestic animals, architecture and settlement patterns and social organisation. The intrusive technology included red-slipped pottery, seagoing outrigger canoes, the two boom triangular sail, tattoo chisels, pearlshell knives, trolling hooks, and both quadrangular sectioned and ovoid to lenticular polished stone adzes. The domestic animals were the pig, chicken and dog. Also part of this complex were large villages, rectangular houses and houses on stilts.

This extensive ‘intrusive’ component of Lapita can be equated with the culture brought by a colonising community of Austronesian speaking migrants. The archaeological grounds for this equation are the close similarities between Lapita and contemporaneous and older Neolithic cultures in Southeast Asia (Bellwood 1997, Kirch 1997, Spriggs 1996, 1997). The spread of the Neolithic through the Philippines and across Indonesia and into the Bismarck Archipelago now seems to have been quite swift, taking less than 1000 years (Bellwood 2001). Although certain archaeologists disagree (see footnote 5) it seems we are dealing here with a clear case of populations maintaining a high degree of cultural and linguistic continuity while migrating. Evidence from historical linguistics gives powerful support to this view. The support goes far beyond the matter of family trees and the directions of dispersal. It includes massive continuities in the terminologies for social organisation and material culture from Proto Malayo-Polynesian through Proto Oceanic to contemporary Oceanic languages of both Near and Remote Oceania.⁶

‘Integration’ refers to elements having antecedents in Near Oceania and eastern Wallacea. Green considers as most likely from such a source the use of earth ovens and possibly the heavy, hinge-portioned *Tridacna* adze. The interisland trade in obsidian practised by Lapita peoples was almost certainly based on trade systems that had existed in the Bismarcks since the Upper Pleistocene, but shows significant changes in the range and frequency of trade and in the degree of formal blade technology (Summerhayes 2000a, 2000b). Following Yen’s conclusion (1973, 1991) that a number of tree crops and plant domesticates such as *Australimusa* bananas, breadfruit, coconuts and sugarcane, were Near Oceania domesticates, Spriggs (1997), Kirch (1996) and Green (1991a, 2003) suggest that

⁵ Some archaeologists have in the past favoured a predominantly local origin of Lapita in the Bismarck archipelago (Allen 1984, Allen & Gosden 1996, Allen & White 1989, Gosden & Specht 1991, Terrell 1986, Terrell & Welsch 1997, Terrell, Kelly & Rainbird 2001, White 1996). They point out that the Bismarck archipelago had a long history of human occupation before the appearance of Lapita and that there are precedents for some elements of Lapita technology and trade patterns in the pre-Lapita period there, including lagoon fishing, trochus shell armrings, one piece shell fishhooks, earth ovens, and trade in obsidian.

⁶ See Blust (1995b), Kirch (2000), Kirch and Green (2001), Pawley and Green (1984), Pawley and Ross (1994), and Ross, Pawley and Osmond (1998) for overviews and extensive references in this field.

these may have been added to the Lapita suite of crops as a result of contact with non-Lapita populations. However, Blust (1995b) provides evidence that certain of these plant domesticates were already familiar to Malayo-Polynesian speakers before the settlement of Near Oceania, and such items are better placed in the 'indeterminate' category.

'Innovations' refers to features unique to Lapita, i.e. generated within Lapita communities rather than due to external stimulus. The distinctive decorative style on Lapita pottery is deemed to be an innovation (although it had parallels in the decorative styles found on red slip pottery of Island Southeast Asia in the 4th millennium BP) as are the planilateral section and plano-convex section stone adze types. Under probable local innovations of Lapita, Green would also place certain developments in canoe building and sailing techniques.

The logic of the equation between the Lapita dispersal and the spread of Oceanic languages is succinctly stated by the archaeologist Glenn Summerhayes, in the course of a comparative study of pottery from three Lapita sites in the Bismarcks:

What is the relationship between the makers of the pottery from Mussau, Anir and the Arawe Islands and those populations who colonised Remote Oceania? ... There are few who would doubt that the colonisers of Remote Oceania were Austronesian speakers who made Lapita pottery. There would also be few who would not agree that they came from communities in the Bismarck Archipelago. It is a simple step to then argue that they came from the same communities, such as Anir, the Arawe Islands or Mussau, that made and used Lapita pottery in the Bismarck Archipelago. It would follow that these communities also spoke Austronesian languages and shared in a similar ideology. (Summerhayes 2001:62)

We can be more precise than 'Austronesian speakers'.⁷ We can infer that the early Lapita peoples of the Bismarck Archipelago spoke Proto Oceanic, that stage of Oceanic which was spoken by a more or less unified Oceanic speech community immediately prior to its decisive breakup. The dispersion of Lapita culture beyond the Bismarcks out into Remote Oceania can be equated either with the breakup of Proto Oceanic or of a branch of Oceanic that included all its members except the Admiralties subgroup (on which see below). Before its eastward expansion Proto Oceanic was probably confined to the Bismarck Archipelago and (possibly) to parts of the central north coast of New Guinea.

One source of evidence for locating the dispersal centre of Oceanic is the structure of its family tree and the geographic distribution of its subgroups. The centre of greatest genetic diversity within Oceanic itself is in the Bismarck archipelago. Blust (1978b, 1998a) argues that the first split within Oceanic was between the Admiralties group and the rest of Oceanic, on the grounds that the rest all merge Proto Malayo-Polynesian (PMP) *j and *s (as well as merging PMP *s, *z and *Z) and this is a relatively unusual merger in the Austronesian family. Blust proposes to reserve the name 'Oceanic' for the subgroup that consists of the rest of Oceanic, i.e. everything except the Admiralties group. He renames the old Oceanic group 'Broad Oceanic'. My view is that the traditional use of 'Oceanic' is too well established and too useful to be changed. I will retain it here and refer to Blust's proposed 'rest of Oceanic' group as 'Nuclear Oceanic'.

⁷ Some archaeologists and molecular biologists tend to talk of Austronesian speakers, rather than Oceanic speakers, settling Melanesia and Polynesia. This is correct but unnecessarily vague. It is rather like talking about the Celtic or the Anglo-Saxon colonisations of Britain as being carried out by speakers of Indo-European languages.

Ross (1988) recognises at least two and possibly three primary branches of Oceanic in the Bismarck archipelago (see Maps 3 and 4). One is the Admiralties group. A second may be the two languages of the Mussau group, (Mussau-Emira and Tench), to the north of New Ireland, for which evidence is limited. A third is the widely dispersed Western Oceanic linkage, which includes all the Austronesian languages of New Guinea from Jayapura east, and all those of New Britain, New Ireland and the western Solomons. A 'linkage' refers to the descendants of a dialect network rather than a unified proto-language. The status of Western Oceanic as a subgroup is thus problematic insofar as it stems not from a discrete interstage but from a part of the Proto Oceanic dialect chain. Ross divides Western Oceanic into three branches, of which two (North New Guinea and Meso-Melanesian) have some representatives in the Bismarck Archipelago, and one, Papuan Tip, lies entirely outside it. However, North New Guinea and Meso-Melanesian are also described as 'linkages' not as discrete subgroups; that is, they are probably continuations in situ of a widely dispersed Western Oceanic dialect network rather than the result of movements away from a compact dispersal centre.

The distribution of early Lapita sites in the Bismarck Archipelago indicates that Oceanic speaking communities were widely scattered over this region. More than 70 findspots with Lapita pottery are known from the Bismarcks. But not all Lapita pottery users in the Bismarcks were Oceanic speakers. Pots certainly found their way into non-Austronesian communities, as exchange or trade goods. Only those sites that exhibit a range of features diagnostic of the full Lapita cultural complex—some 20 or so sites—can be confidently associated with speakers of an Oceanic language.

Permanent early Lapita settlements in the Bismarcks were largely confined to small islands offshore from the larger land masses. This peculiar distribution reflects the fact that the bearers of the Lapita culture were recent intruders into a region already occupied by other peoples, and that the Lapita people were fisherman and sailors by long tradition. On this point Kirch (1997:165–166) writes:

From a careful study of the environmental settings of 28 Lapita sites, Dana Lepofsky (1988) discovered a number of traits common to Lapita settlements. First, all sites ... were ... on the coast at the time they were inhabited. Equally important, all sites were situated facing passages in the reef through which canoes could come and go. A majority of sites are also situated in areas where there is either a broad fringing reef, or a lagoon and barrier reef, or both. Access to the sea and its resources, while clearly significant, was not the only consideration in the choice of settlement locations, for three quarters of these settlements are also adjacent to identifiable fresh water sources (springs or streams), and every site has arable land with good soils within less than a one kilometre walk.

On Mussau there are five significant Lapita sites, all of them on the small atolls south of the main island, with the earliest period dated to the late 2nd millennium BC (Summerhayes 2000b, 2001) Although no open Lapita sites have yet been located on the main island, Mussau, Spriggs (1997:118) suggests that this may be due to landscape change over the last few millennia.

Among the first Lapita sites to be excavated was one on the small island of Watom, near the eastern tip of New Britain. Here the Lapita sequence does not begin until the late stage of decoration, starting some time after 2600 BP, and continues for around 800 years, by which time it is giving way to a new cultural tradition. A number of Lapita settlements, with earliest dates of around 3300–3200 BP, have been located on the Arawe Islands, a

group of some 40 small islands just off the southwest coast of New Britain (Specht & Gosden 1997). All the open sites occur on the protected leeward sides of the islands where sandy beach ridges have built up over the last few thousand years. Finding Lapita sites on the north side of New Britain has been made difficult by the effects of large volcanic eruptions. A massive eruption by Mt Witori about 3600 years ago destroyed pre-Lapita settlements on the Willaumez Peninsula and adjacent islands. This area was not reoccupied until about 3100 BP, when users or makers of Lapita pottery occupied several sites near Talasea, where there is an important obsidian source (Torrence & Stevenson 2000:355).

Recent work at the Kamgot site on the Anir Island group off the south-east coast of New Ireland has uncovered a full range of early Western Lapita artefacts, dated from 3200 to 2900 BP (Summerhayes 2000b, 2001). Although the New Ireland mainland has so far failed to provide a good sequence of Lapita sites, enough information is available to suggest that such sites remain to be found. The earliest Neolithic sites on New Ireland, dated from 2700 to 2300 BP, yield pottery that closely resembled that found in the Mussau sequence of the same period, by which time classic Lapita decorative styles had given way to incised and relief styles.

Only three sites with Lapita pottery have been found in the Manus group. The best of these is located on the islet of Mouk, 300m off the north-east tip of Baluan, which represents a long but intermittent sequence of occupations from 3000 BP onward (Ambrose & McEldowney 2000:275). Spriggs (1997:113) comments that the absence of Lapita sites on Lou Island, a major source of obsidian for the Bismarck Archipelago, is probably due to active vulcanism in this region, with deep deposits of ash burying sites, and to subsidence.

Over the centuries there was a decline in the quantity of dentate-stamped pots and in the quality and quantity of the repertoire of motifs. Pots with complex intricate dentate stamped designs, both curvilinear and rectilinear, give way to pots with coarser open dentate stamping, with designs almost exclusively rectilinear. Summerhayes (2001:61) relates these changes to the lessening importance of such pots within the society that produced them. He traces changes in the decorated pots of three widely separated early Lapita communities in the Bismarcks, those of Mussau, Arawe and Anir and notes that the stylistic changes are similar and occur at the same pace in each of the three localities. However, according to Summerhayes (2000a:234), this coincidence was not the result of pottery exchange. His chemical analysis of the assemblages showed that the major component of each was produced locally with only a small imported element. He concludes that the parallel evolution of styles was due to continued interaction between closely related communities, that is, between kin groups who shared a recent common origin.

As time passed there was a significant change in the pattern of interaction between dispersed Lapita communities in the Bismarcks. The early Lapita period, from about 3400 to 3000 BP, was a time of intensive exchange. Mussau, which evidently occupied a central position in the exchange network, shows a considerable range of imported goods in this period: trade in obsidian, chert, oven stones and adzes. In the centuries that followed there was much less interaction and more regional specialisation within the Bismarcks (Kirch 1997:242, Summerhayes 2000a, 2001).

From the conjunction of the evidence from historical linguistics and archaeology we conclude that Proto Oceanic was spoken on those islands where early classical Lapita sites were present, primarily on a number of offshore islands in the New Britain, New Ireland,

Mussau and Manus groups.⁸ At least some of these dispersed communities remained in contact with each other for several centuries after their foundation.

In Pawley (1981:295–296)) I discussed mechanisms that may have been central to the maintenance of regular contact, or, conversely, loss of contact among dispersed sister speech communities during the diaspora of Oceanic-speaking peoples. I suggested that a certain ‘cycle of linguistic diversification’ had been repeated in various parts of Melanesia.

[Founding] populations were small and scattered and the sailing technology permitted interisland and coastal voyaging. Such voyaging between dispersed sister communities was encouraged by economic needs, kinship and marriage ties, the political ambitions of leaders, and very likely, a love of adventure and exploration common to hardy pioneering colonials. For a time the sister communities regarded themselves as people of one stock.

As the centuries passed, however, contacts between scattered sister communities tended to become relatively less important and less frequent. Adaptive changes in social and economic life led to ... a weakening of the lines of communication ... [T]he following developments took place: population increase, wider and more intensive exploitation of resources available locally ...; [and on large islands] the emergence of substantial, permanent inland populations ... Kin and marriage ties weakened and a diminution of the social as well as economic importance of trade exchanges with remote sister communities led in turn to an impairment of the traditional skills of canoe-building and sailing. In many regions other cultural losses (or substitutions) went along with these changes: loss of pottery-making tradition, loss of hereditary chieftainship and the concomitant system of hierchically ranked kin and lineages ...

⁸ George Grace argued some 40 years ago (Grace 1961, 1964) that the immediate ancestor of the Oceanic languages was probably spoken within a zone bounded by the north coast of New Guinea in the south and the Bismarck Archipelago in the north. At that time his chief grounds were then current ideas about the genetic classification of the Austronesian languages and what was known of the prehistory of Southeast Asia and the Pacific. Since Grace’s initial proposal our understanding of the subgrouping of the Austronesian family as a whole and of the Oceanic branch has advanced a good deal. These advances have broadly supported and strengthened his hypothesis. Some years later, I suggested (Pawley 1981) that in its final stage Proto Oceanic consisted of an extensive dialect chain, probably extending from New Britain and New Ireland to San Cristobal in the eastern Solomons. The arguments were based on several factors: (i) the geographic distribution of subgroups, which showed many (apparent) primary subgroups scattered across Melanesia, (ii) assumptions about the settlement patterns, social organisation and behaviour of early Oceanic speakers (settling mainly on coasts and small islands, with kingroups dispersing but remaining in contact for some generations, (iii) assumptions about the voyaging technology and capabilities and (iv) archaeological dating of the spread of the Lapita culture, indicating that this culture was carried rapidly across Melanesia in the 2nd millennium BC. That paper may have overestimated the extent of the dialect chain, but it did bring up the question: If there was an extensive dialect chain, how can we decide at what point Proto Oceanic broke up?

Malcolm Ross (1988) proposed a more specific dispersal centre for Proto Oceanic, namely the region east of the Talasea Peninsula on the north coast of New Britain. This now appears too specific. It might be proposed that this region has stronger claims to be the homeland of the Western Oceanic subgroup before its dispersal over New Britain, New Ireland, the western Solomons and the New Guinea mainland. However, I believe that such a proposal would be open to the same objection as the previous one. Ross holds that Proto Western Oceanic was not a well-defined subgroup but a dialect chain, specifically that part of the Proto Oceanic dialect chain that was left in the New Britain-New Ireland region when Oceanic speakers moved out of the Bismarcks and into Remote Oceania. But if Proto Oceanic speakers were already widely dispersed across the New Britain-New Ireland region at this point, as I have argued, then the later Western Oceanic dialect chain would also have extended over this region.

... As the dialects of sister speech communities became more and more dissimilar, their speakers more numerous and their common ties and interests weaker, ... innovations did not spread as readily as before ... [L]inguistic change could work almost unimpeded to produce mutually unintelligible languages.

Interaction between neighbouring Oceanic and non-Oceanic languages in Near Oceania has also been an important agent of linguistic change and diversification in some regions of Near Oceania (Dutton & Tryon 1994, Lynch 1981, Thurston 1987, 1994). However, the evidence indicates that the main impact of such contacts occurred in the centuries and millennia after the breakup of Proto Oceanic. In this later period population movements and contacts, and realignments of speakers of already divergent Oceanic languages, also contributed significantly to further language splitting and sometimes to dialect resynthesis (Bradshaw 1997, Clark 1985, Geraghty 1983, Pawley 1981).

What about the possibility that communities of Proto Oceanic speakers were present along the central north coast of New Guinea, from the Huon Gulf to the Sepik region, an area which faces the Bismarcks? The most likely candidates would be the many habitable islands which lie off the central north coast, extending from Tami Is. in the Huon Gulf west as far as to the Schoutens group. In this connection, the following observations should be noted.

- (i) There is at present no good evidence of early Lapita occupation of this region. The Siassi Islands in the Vitiaz Strait off the western tip of New Britain have yielded the nearest Lapita site to the New Guinea mainland yet found, apart from isolated finds of single potsherds. The Siassi site represents 'a relatively late and seemingly ephemeral Lapita occupation' (Spriggs 1997:118). It must be admitted, however, that little archaeological work has been done on the offshore islands.
- (ii) If Proto Oceanic speaking communities existed on parts of the north coast of New Guinea and nearby islands they have left no descendants. All the indications are that the contemporary Oceanic languages spoken along the central north coast from Vitiaz Strait to Jayapura appear to represent a fairly recent expansion (within the last 2000 years) in an east to west direction starting in the Vitiaz Straits region (Lilley 1999, Ross 1988). The Oceanic languages of the central north coast of New Guinea all belong to a middle-order subgroup of Oceanic together with the languages of West New Britain, a group that Ross (1988) calls North New Guinea. North New Guinea contains several branches. Of particular interest are the Schouten chain, whose eastern outliers are Medebur and Manam, and which includes all the north coast languages as far west as the Sissano Lagoon, and the Ngero/Vitiaz chain, which includes the languages in and around the Vitiaz Straits, as far west as Karkar Island, as far east as Tami Is. in the Huon Gulf, together with the languages of the western end of New Britain west.

There are certain noteworthy parallels between the Lapita occupation of the Bismarcks and the much later settlement of the central north coast of New Guinea by speakers of the North New Guinea group. In both cases, the strong preference was to settle (presumably uninhabited) offshore islands rather than the mainland, and in both cases exchange networks were established between dispersed communities. Harding (1967) describes three different trade networks that existed in the Vitiaz Straits region, centring on Bilibili, the Siassi group and Tami Is., respectively. Local specialisation yielded tradeable goods (e.g.

workable stone, baskets, bowls, mats and pots) that were carried by large outrigger canoes. Village populations generally did not exceed 200 and marriage partners were often sought outside the village, in the communities of trading partners.

All this is not to say that earlier stages of Oceanic were not spoken along the north coast of New Guinea. But it is important to distinguish between Proto Oceanic and Pre-Oceanic. Pre-Oceanic is that period in the development of the Oceanic branch between the time of its separation from its nearest relative (South Halmahera-West New Guinea) and the time when it broke up. We need to bear this distinction in mind when considering the following remarks by Blust (1998a:185–186):

it is very unlikely that [Proto Broad Oceanic] was spoken either in the Admiralty islands or in the nearest part of the Bismarck Archipelago in which [Oceanic] languages are found today (Mussau). From the nesting of Oceanic within high-level AN subgroups, it is reasonably clear that AN languages entered the Pacific by passing along the north coast of Irian. ... To reach the Admiralty Islands from the closest point on the north coast of New Guinea requires an open sea passage of about 180 miles. While this distance could have been spanned in a single voyage ..., there is no reason why it would have been. Many small islands off the coast of New Guinea would have been encountered earlier, and by following the coast of the main island, the first transition to another major landmass would have taken the settlers to New Britain and New Ireland before they encountered the Admiralties ... From the probable settlement route, we would expect the greatest diversity within [Broad Oceanic] to be found on the north coast of New Guinea. But what we find is actually quite different: languages that reflect the merger of PMP *j and *s are found as far west as the Sarimi Coast of Irian.

... This observation suggests that the linguistic history of Austronesian speakers in western Melanesia must have included episodes of extinction as well as episodes of expansion. At an earlier time, languages that preserved PMP *j as a distinct phoneme almost certainly were found on the north coast of New Guinea and in some other parts of the Bismarck Archipelago, in addition to the Admiralties.

Blust's argument that Austronesian speakers probably moved along the north coast of New Guinea before reaching the Bismarcks but left no surviving daughter languages on the north coast is reasonable.⁹ However, we should not assume that these speakers spoke Proto Oceanic (or what Blust calls Proto Broad Oceanic). Instead, they spoke Pre-Oceanic. Proto Oceanic is a later stage, *immediately* ancestral to those languages that make up the Oceanic subgroup.

But there remains another boundary problem. Languages are seldom regionally homogeneous. Suppose that during the several centuries after Pre Oceanic speakers arrived in the Bismarcks, a chain of mutually intelligible but gradually diverging dialects developed. Is there a single point in this period when we can say that the chain broke up—and which thus can be equated with Proto Oceanic? When does a collection of dialects cease to be one language? The orthodox answer to the latter question is: when innovations cease to flow between the dialects. However, problems arise in applying this principle because innovations tend to spread across a dialect chain in irregular patterns, such that some changes appear in dialects AB, others in BC, others in CD, and so on.

⁹ See Ross (1988:21) for some traces of ancient loans from a Pre-Oceanic source in Papuan languages of Madang Province.

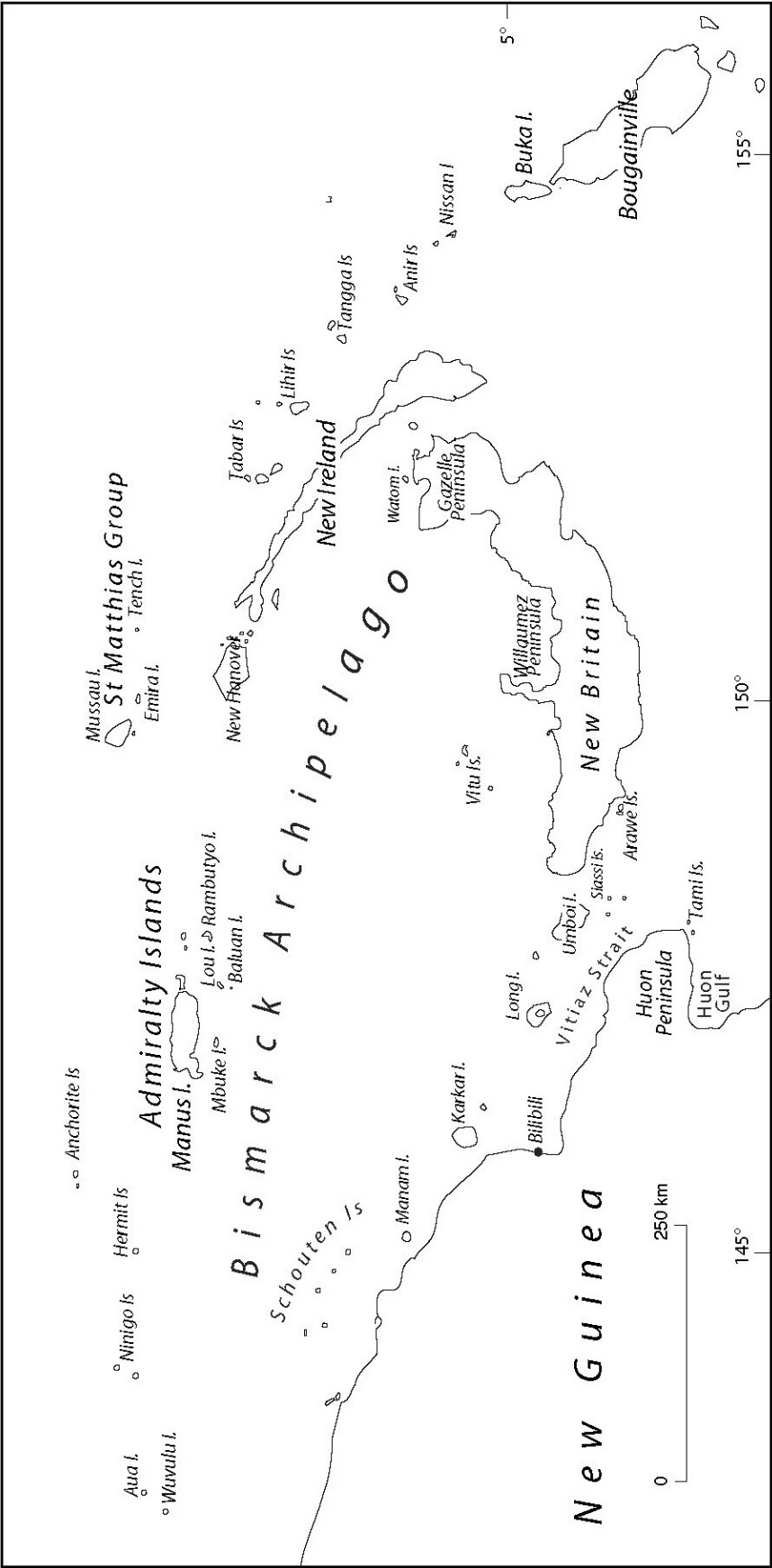
As it happens, there are reasonably satisfactory operational grounds for defining a latest-possible time for the breakup of Proto Oceanic. It must have occurred no later than the first permanent Lapita settlements of Remote Oceania, which on present evidence occurred around 3100 BP (Green pers. comm.). It is almost inconceivable that such settlements could have maintained a level of interaction with communities in the Bismarcks that would have been sufficient for linguistic innovations to flow between them. It is possible that, by this time or earlier, such a degree of separation existed between the Admiralties and the rest of the Bismarcks, but it is impossible to be confident about this. Ross (1988) has discussed at some length the evidence for dialect variation in late Proto Oceanic.

There are good reasons to think that the speech of colonists who first settled Vanuatu, New Caledonia, Fiji and West Polynesia had changed little from Proto Nuclear Oceanic as it was spoken in the Bismarcks. First, a representative sample of languages from Remote Oceania yields reconstructions of a proto-phonology and a proto-morphosyntax (Pawley 1972, Clark 1973) that differ only slightly from reconstructions based on a sample representing the entire Oceanic subgroup (Blust 1978b, Evans 2003, Lynch, Ross & Crowley 2002, Ross 1998a). Second, the internal classification of Oceanic points to a rapid linguistic movement from Near Oceania across the southwest Pacific as far east as Fiji and Western Polynesia. There are no well-defined higher-order groups of Oceanic whose distribution points to a significant pause in the chain of expansion from the Bismarcks to West Polynesia. That is to say, there is no well-defined higher order subgroup of Oceanic that embraces both some languages of Near Oceania and some of Remote Oceania. Instead we find several high-order subgroups of Oceanic probably coordinate with Western Oceanic (Pawley & Ross 1995). Such a subgroup might have developed had there been pauses on the way—say in the Solomons—long enough for a significant body of innovations to accumulate. The archaeological record shows clearly that there were no such long pauses in the spread of Lapita.

5 On the physical geography of the Bismarck Archipelago

The location of the Proto Oceanic speech community can be inferred with reasonable confidence without considering evidence provided by lexical reconstructions. Even so, it is of interest to see what Proto Oceanic lexical reconstructions can tell us about Proto Oceanic speakers' perceptions and use of their physical environment. With that concern in mind, it is worth taking a closer look at the physical geography of the Bismarck Archipelago (see Map 7).

The archipelago is richly endowed with reefs and almost every type of reef and reef island is present. The region contains a great variety of volcanic landforms ranging from the dominant strato-volcano to lava shield, ash cone, scoria cone and mound, mamelon, spine and caldera. There are two chains of volcanoes in the Bismarck Sea which together contain the largest number of active, dormant and extinct volcanoes in Papua New Guinea. The larger islands all have sizeable rivers and marshlands. Large lakes are comparatively rare, although New Britain has a number, including several crater lakes.



Map 7: The Bismarck Archipelago, Bougainville and the adjacent coast of New Guinea

Cyclones are common in the southeast Solomons and occur as far north as Bougainville. However, the Bismarck Archipelago lies in a sheltered band between N and S tropical cyclone belts (Irwin 1992). SE Trade winds blow consistently from May to September, but between December and March the more erratic NW Monsoon winds prevail.

The NW monsoons bring very high rainfall (up to six metres a year in some regions) in the months of the southern hemisphere summer. SE Trades bring drier weather in the winter months. Rain forests cover much of the land. On high islands altitude differences correlate with marked changes in the flora and in the character of the forest. The lowland forests typically contain large trees of 30–45 m in height, with large leaves and large buttresses, and there are many woody climbers. Higher up, trees are shorter, have smaller leaves, and trees carry mosses and ferns. There are strand forests, mangrove forests and man-made grasslands.

New Britain is the largest island in Melanesia other than New Guinea. Much of the shoreline is bounded by coral reefs. Along the coast there are a number of protected bays and harbours and beaches. Other parts of the shoreline are cliff-lined and still others are under mangrove swamps. Many more or less active volcanoes are present on the northern side of the island. Concomitant with these are crater lakes, beaches of black sand, hot springs and geysers. A rugged central mountain chain separates the north and south coasts, and much of the interior is uninhabited or thinly populated. The south coast differs in appearance and structure from the north, being composed predominantly of raised coral and other marine deposits of varying age, with narrow coastal plains or coralline cliffs that fall steeply into the sea. Because the central mountain range acts as a barrier to the NW Monsoon winds, creating a rain shadow, the leeward south coast of New Britain gets less than half the rainfall of windward north coast.

Numerous small islands lie immediately offshore from New Britain. More distant are the larger, densely forested, volcanic islands of the Vitu group, Garove and Unea, which are visible from the Willaumez Peninsula.

New Ireland with New Hanover as its northern extension is a little over 350 km long, but never more than 50 km across. It has a mountainous spine that broadens out in the south to a plateau rising to 2400 metres. On the west side mountains rise steeply from the coast and there is little flat land. A coastal plain is more in evidence along the east coast, with mountains rising fairly sharply at its western limit. There are limited stretches of reef along the east coast. Four substantial island groups, Tabar, Lihir, Tangga and Anir (formerly Feni), lie in a chain to the east of New Ireland. All four are volcanic, with some fringing reef.

The Mussau or St Matthias group is located about 100 km north of New Ireland and 230 km east of Manus. The largest island of the group, Mussau, has a volcanic core remnant rising to 650 m. There are eleven small upraised coral islands clustered south of the main island. Eloaua and Emananus together form the east and west sides of an atoll with extensive fringing and barrier reefs which enclose a lagoon.

The Admiralty group consists of one large island, Manus, ringed by many small islands. Manus is 100 km long by 30 km wide, with mountainous terrain, dissected by many streams which have cut deep valleys. The island is covered by rainforest of the lowland type and by sago and mangrove swamps. Soil fertility is generally poor. Heavy rainfall has washed away the topsoil and this factor and the broken nature of the land renders most of the island unsuitable for agriculture. Situated just off the north coast of Manus are a

number of small coral atolls and sand cays whose inhabitants live mainly by fishing and trading in foodstuffs, their environment providing only limited opportunities for cultivating crops. To the south and east of Manus, and further offshore than the coral atolls are a number of high islands of volcanic origin, including Lou, Rambutjo, Baluan and M'Buke, whose soils are fertile and intensively cultivated. Far to the west of Manus lie several clusters of atolls: the Hermit group, the Anchorites (Kaniet) and west of these, the Ninigo group. Still further west are the atolls of Wuvulu and Aua.

The reader is referred to subsequent chapters to see how consistent the reconstructed Proto Oceanic lexicon for the geophysical environment is with the assumption that the speech community was located in the Bismarck Archipelago. Most of the relevant lexical reconstructions will be found in Chapters 3–5, dealing with landscape, seascape and meteorology. As few if any of the reconstructed geomorphological and meteorological referents are unique to the Bismarcks, it is unlikely that the lexical reconstructions will identify the Bismarcks as the only possible location of Proto Oceanic. However, it is of interest to see whether the reconstructions include any referents that are missing from the Bismarcks, or whether they fail to include names for some salient items that are present there.

3 *The landscape*

MEREDITH OSMOND, ANDREW PAWLEY AND MALCOLM ROSS

1 Introduction

This chapter and the following one are an attempt to discover something of the way in which Proto Oceanic speakers experienced and conceptualised their environment. We begin by giving examples taken from the ethnographic literature of how several different Oceanic-speaking peoples describe parts of their environment. We then examine evidence, provided by cognate sets and lexical reconstructions, concerning details of the inanimate land environment known to speakers of Proto Oceanic and certain of its daughter languages. We deal first with the land and landforms, and include vegetation cover only when it is part of a topographical feature.¹ Seascape is dealt with in the following chapter.

Malinowski (1922, 1935) has provided us with a detailed account of the Kiriwina people of the Trobriand Islands, a coral atoll system consisting of one big island (Kiriwina), two of moderate size, and a number of smaller ones surrounding a shallow lagoon. Kiriwina is flat, with no hills or mountains. The Kiriwina word for ‘mountain’ is *koya*, usually in reference to distant mountains on D’Entrecasteaux Islands occasionally visible in the south. Malinowski’s description of the settled environment is centred on an origin myth ‘hole of emergence’ [*bwala*], which is the basis of their land tenure system. Terms or descriptions in square brackets have been added from elsewhere in the text.

With such a hole of emergence there is always connected a village [*valu*], or part of a village, and a territory, or what we might call an assortment of lands, both of which belong to the people who came out of the hole. As a rule this comprises some waste land [*kaibutia* ‘barren land, useless for gardening’], a tabooed grove or two [*boma*], a portion of the *rayboag* [the narrow coral ridge] and perhaps one or two fields in the *dumya* ([inland] swamps); in every case it includes a large portion of cultivable bush (*odila*), divided into a number of fields [*kubila*], which are subdivided into plots. Those villages which are near the open sea own a part of the eastern seashore (*momola*) with a fishing and bathing beach and a few sheds for their canoes. On the lagoon the beach is called *kavolawa* and here canoes are kept. Thus a hole of emergence is always the centre of a contingent territory which encloses a village or

¹ Thanks are due to Ann Chowning, Ralph Lawton, John Lynch, Françoise Ozanne-Rivierre and Ian Scales who have all made useful suggestions and contributed additional data to this chapter.

part of it, and affords the following economic opportunities to its members: access to fertile, cultivable soil, invariably; at times access to navigation and fishing areas; a certain district for recreation and, of course, a system of roads communicating with other villages. (1935:343)

A second example is from Edvard Hviding's *Guardians of Marovo Lagoon*, an account of the way of life of the Marovo speaking people from New Georgia in the western Solomons (Hviding 1996). The lagoon itself is vast, a largely enclosed area of shallow sea strewn with islands and reef patches and rimmed by barrier reef islands. It lies on the eastern edge of a high volcanic island covered in lush tropical rainforest and fringed with mangrove swamps. For their livelihood the people depend on a system of shifting agriculture and marine fishing. 'Important dietary supplements are provided by hunting, focused on feral pigs, birds and marsupials in the rainforest, and by gathering shellfish from the reefs and mangroves, as well as nuts, fruits and leafy greens from garden fallows and forests' (p.42). The main zones of local environmental classification are shown in Figure 2. They represent the *puava* or ancestral territories of a kinship group (*butubutu*) to which Marovo people belong. *Puava* has both a restricted sense, 'soil, ground' and a general one, the latter encompassing the total ancestral estate, reaching 'from the peaks and ridges of the mainland upper mountains to the open sea outside the barrier reef' (p.137).

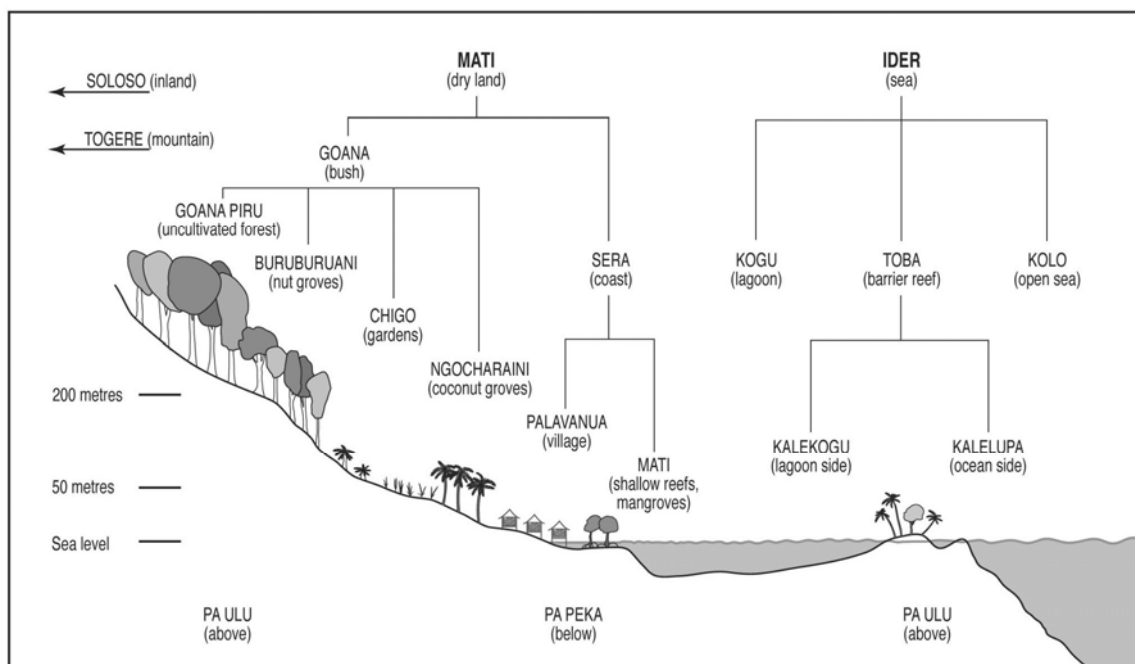


Figure 2: Marovo coastal profile

(reproduced from Hviding 1996:138 with the permission of the University of Hawai'i Press)

The next two examples are from Malaita in the Southeast Solomons. Walter Ivens writes about the salt-water people of Lau and Sa'a, two environments not unlike the Marovo one above, with both descriptions being limited to the land close to the coast that is used intensively. One is a description of the Lau people who live on artificially constructed islands in the Lau lagoon. Fishing forms the basis of their subsistence. Although the islands themselves have no cultivable land, the people have access to limited adjacent land on Malaita for their gardens. Ivens writes (1930:266):

Land in the vicinity of the beach is called *hara*. Flat sandy land just above the beach is called *nuu*. Breadfruit and certain other fruit trees grow there. The lower foothills are known as *fafo asi* (lit. 'above the sea'), and it is there that people have their taro gardens. Garden ground, as distinct from uncleared forest, is called *gano*; *gano alu* is old garden ground that is not yet ready for planting, ground .. that has not yet been rested sufficiently. Virgin forest is *k^waena*.

Ivens' second example is that of Sa'a, and its close neighbour, Ulawa, in the south-east of Malaita. The two share an almost identical language. Ivens writes (1927 [reissued 1972]:357–358):

The sandy soil just above the beach is called *uluone* [*ulu* 'head' + *one* 'sand'], and on this soil the coconuts grow best. .. At the back of this tract of sandy soil is the *pwainaa*, subject to flooding and with a black soil. .. The fruit trees abound in this tract. Ulawa calls the upper part of this by the name *akohu*; it is less wet in character. The land rises immediately behind the *pwainaa* .. to the next district, *pwaʔu*. The meaning of this word is 'smoke'.. At Sa'a, the upper division of *pwaʔu* is called *lapwa*, from the undergrowth there of the fern of the same name. The land up higher still is called in Sa'a *ano mola* ['earth' + 'only', i.e. earth with no rocks or stones], and in Ulawa *kalona*. .. Another term applied to the sandy soil of the old beaches is *ʔoʔu*. In some places the land immediately under the first ridge of upheaved coral rocks is called *ote*; the trees in the *ote* grow to a very large size, especially the teak, *nau*, and the *awa*, *nephelium pinnatum*. The *ote* ground is generally wet owing to soakage from the hills.

Our last example is of the small high island of Tikopia, as described by Raymond Firth in his volume *We, the Tikopia* (1957). Tikopia is one of the Polynesian outliers, lying northeast of the Banks and Torres Islands, Vanuatu. In form it is a small, compact oval roughly four kilometres by three, and at the time of Firth's fieldwork in 1928–29 it supported a population of just under 1300. It is likely that every surface feature of any significance would be known in detail. Firth provides two maps, reproduced here as Map 8(a), showing topographical features, and Map 8(b), which shows settlement features such as villages, springs and tracks.

From Map 8(a) we can see that the mountains in the north of the island are simply *Mauŋa*, 'mountain', with the bulk of the tallest, Reani, labelled *Mauŋa Lasi* ('great mountain'). The crest itself is termed *Te Uru o te Fenua* ('the head of the land') (p.27). The large lake in the centre of the island, a former crater lake and not a lagoon, is simply *Te Roto* (literally 'middle, interior'), or more familiarly *Te Vai* ('fresh water') (p.23). Firth explains that the water is fresh because the apparent channel linking the lake to the sea is normally silted up, but may be dug out at certain seasons of the year when the lake is full from rain and the tide is high, to allow excess lake waters to flow down to the sea (p.25). The sand bar separating the lake from the sea on its eastern side is *Te Koro* ('barrier of sand or stone against the sea'). Two rocky pinnacles which are all that remain of the former eastern wall of the crater, are *Foŋa te Koro* ('top of the Koro') and *Foŋa Nuku* ('top of the settlement'). Breaks in the reef which enable canoes to pass to the open ocean are simply *Te Ava* ('channels in the reef'). A large rock off the west coast is *Fatu roa* ('tall rock'), while two small rocky outcrops in the east are *Rua motu* ('two islets'). Sometimes included in place names are modifying terms like *tua* 'back', *tafa* 'side', *foŋa* 'top, crown' and *muri* 'behind'. There are a number of springs named in both maps. These are referred to as *Vai* followed by a differentiating name. The swampy area to the south is *Te Ropera*, a word whose etymology, Firth suggests (p.332) is *roto pela* [or *pera*], literally 'middle mud'. Along the northern coast are cliffs, *mato*, (p.27) and caves or rock shelters, *ana* (p.23) (these last not shown on the map).

On Map 8(b) are names which loosely denote localities or districts, treated by Firth as proper names. For *Ravenga* and *Faea*, the two major divisions of the island, we can offer no explanation. But for three others, *Namo*, the point at which the lake exits to the sea, *Uta* at the western edge of the lake, and *Tai*, the flat plain of alluvial soil in the south which is largely taken up by swamp, we can posit POc origins based on their physical nature (**namo* ‘lagoon; enclosed water’, **qutan* ‘bushland, hinterland’, **tasik* ‘sea, salt water’).

In his discussion of land tenure (p.332), Firth refers to the *tofi*, areas of mixed woodland and clearing of varying size for which he adopts the translation ‘orchard’. Then there are the *vao*, open stretches of ground which are planted in taro, which he refers to as ‘gardens’. Paths, *ara*, run through orchards and gardens.

Although these examples include many terms for which we can find no cognates, the features they label have much in common. They represent the places where most of the daily activities of their inhabitants are centred, from the forested areas where they hunt, to garden land in its various stages, to coastal swamp and sand, to the lagoon and reef, to islands and the open sea beyond.

A number of the nouns reconstructed in this chapter and the next functioned as both common nouns and as local nouns, as their modern reflexes continue to do. For example, **qutan* as a common noun denoted the bush or bushland, while its local-noun use in the prepositional phrase **i qutan* could have either the expected sense ‘in the bush’ or the directional sense ‘(up) inland’. For further discussion and reconstruction of local-noun senses, see Chapter 8, §2.

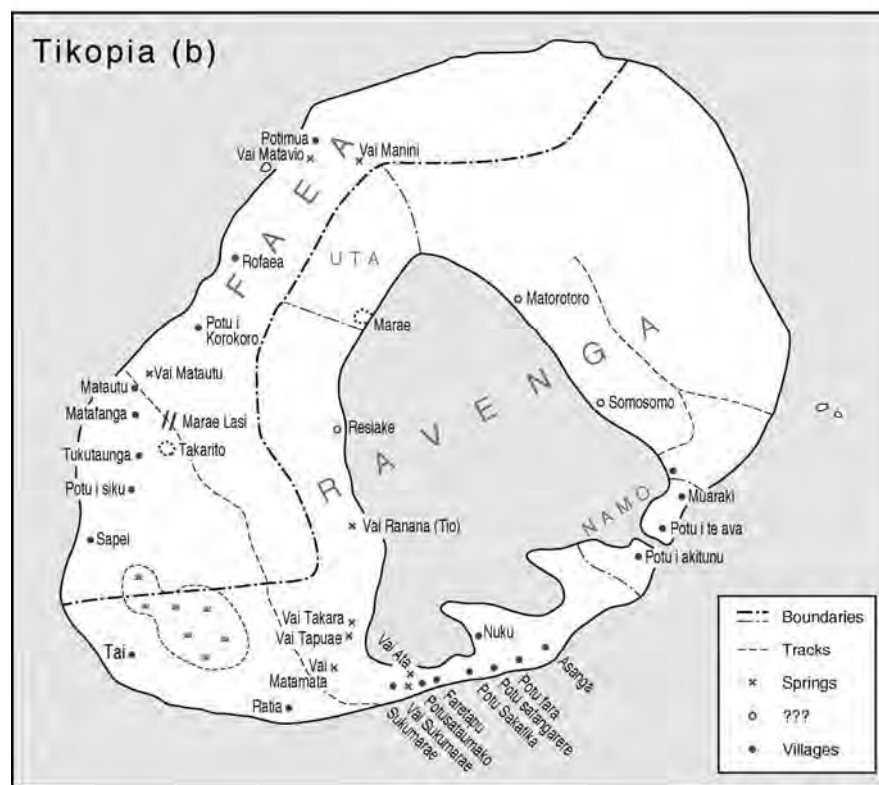
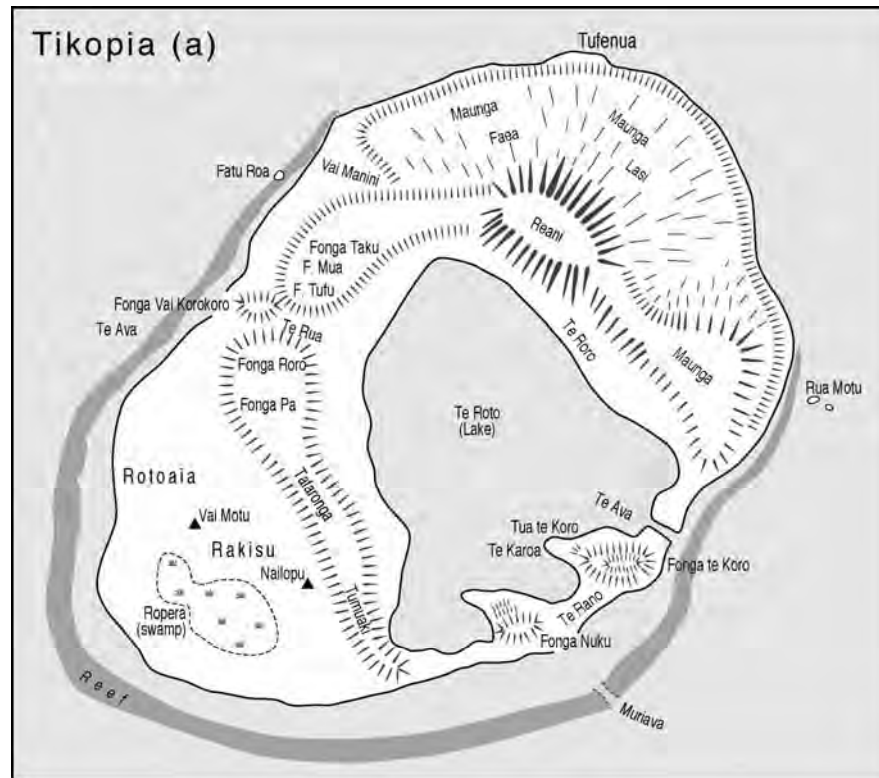
The rest of this chapter is organised under the following headings: land mass, coastal features, inland topographical features, land defined by vegetation, inland water features, mineral substances, fire, and destructive natural events. Details of seascape will be dealt with in Chapter 4.

2 Land mass

2.1 Land, mainland

Reflexes of both POc **panua* (vol. 1, p.62) and **tanoq*² are widely used to refer to the extent or physical state (rocky, flat, dry etc.) of the land, and may also be used to contrast land with sea. The two reconstructions, however, differed in their broader meanings. POc **panua* had several senses, outlined below, while POc **tanoq* referred particularly to ground or soil. Large islands, the major land masses of a region, are often denoted by reflexes of **panua*, and this term appears in proper names for major islands, e.g. *Hanua To’o* ‘San Cristobal’ (lit. ‘solid land’), as used in Arosi, of the Southeast Solomons, *Vanua Levu* and *Vanua Balavu* (lit. ‘big land’ and ‘long land’) in Fijian. Note also the Tongan form *fonua lahi* (lit. ‘big land’) for ‘mainland’. In ’Are’are, the land–sea contrast is expressed in *riu i hanua* ‘travel overland’ and *riu i āsi* ‘travel by sea’. In Arosi, the land is either *henua hū* or *ano hū* (*hū* ‘dry’) while the sea is *asi*. In nearby Sa’a the contrast is between *ano hū* ‘dry land’ and *esi* ‘sea’.

² The form POc **tano(q)* given in vol. 1, p.119 has now been revised to **tanoq*. Evidence supporting final *-*q* lies in the retention of a final vowel in Kwamera (John Lynch, pers. comm.) and Iaaí (Françoise Ozanne-Rivierre, pers. comm.).



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Map 8: Tikopia (after Firth 1936:xxii)

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

POc **panua* (i) ‘inhabited area or territory’; (ii) ‘community together with its land and things on it’; (iii) ‘land, not sea’; (iv) ‘(with reference to weather and the day/night cycle) the visible world, land and sky’ (Pawley 1985)

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’
NNG:	Tami	<i>panu</i>	‘house’
PT:	Motu	<i>hanua</i>	‘village, town’
PT:	Molima	<i>vanua</i>	‘house’
PT:	Kiriwina	<i>valu</i>	‘land; any open space which may be inhabited’
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:	‘Are’are	<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’
SV:	Lenakel	<i>na-uanu</i>	‘village’
SV:	Anejom	<i>in-henou</i>	‘taro swamp’
NCal:	Nemi	<i>b^wan(guc)</i>	‘soil’ (<i>guc</i> ‘earth’)
Mic:	Woleaian	<i>fariw</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:	Samoan	<i>fanua</i>	‘land; afterbirth’
Pn:	Tahitian	<i>fenua</i>	‘land’
Pn:	Hawaiian	<i>honua</i>	‘land, earth’

Examples of phrasal expressions containing reflexes of **panua* include:

PT:	Kiriwina	<i>vilouwokuva valu</i>	‘uninhabited land’
		<i>kabinai valu</i>	‘good garden land’
SES:	Sa’a	<i>henue hū</i>	‘solid land, dry land, heritage’
		<i>tolona henue</i>	‘hill country’
Fij:	Wayan	<i>udu ni vanua</i>	‘headland’
Fij:	Bauan	<i>vanua liwa</i>	‘land far away from settlements’
Pn:	Anutan	<i>puja penua</i>	‘summit; highest point of an island’
Pn:	Tongan	<i>fonua lahi</i>	‘mainland’

Other examples refer to more planetary aspects, such as the day/night cycle and weather.

NNG:	Manam	<i>anua izara</i>	‘dawn’
		<i>anua idaradara</i>	‘evening glow’
PT:	Motu	<i>hanua boi</i>	‘night’
SES:	Lau	<i>fanua g^wari</i>	‘cold weather’
		<i>fanua sato</i>	‘sunny weather’
Fij:	Bauan	<i>boji na vanua</i>	‘become night’ (lit. ‘land is nighted’)
		<i>siŋa na vanua</i>	‘become daylight’ (lit. ‘land is sunned’)
Pn:	Rennellese	<i>henua pō</i>	‘night time’

POc **tanoq* ‘earth, ground, soil; land’ has already been reconstructed in vol. 1, p.119, as a term relevant to horticulture. As a common noun its denotations ranged from the soil beneath one’s feet to the total land mass on which one lived. Besides its use as a common noun, it was also used as a local noun with meanings like ‘down on the ground, down below’ (Ch.8, §2.2.5).

PMP **taneq* ‘earth, land’ (Dempwolff 1938)

POc **tanoq* ‘earth, ground, soil; land’

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’
		<i>tano(pu)</i>	‘mainland (of New Britain)’ (<i>pu</i> ‘base, basis’)
PT:	Motu	<i>tano</i>	‘earth, soil, country, land’
PT:	Minaveha	<i>tano</i>	‘dirt’ (<i>tanopi</i> ‘earth, ground, world’)
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’
SV:	Kwamera	<i>təna</i>	‘earth, ground; land, island, country’
NCal:	Iaai	<i>kəno</i>	‘earth, ground’
Mic:	Kiribati	<i>tano</i>	‘earth, ground, soil’
Mic:	Woleaian	<i>tar</i>	‘earth, ground, soil’

Certain conventional phrases, such as the following, indicate the semantic range of reflexes of **tanoq*.

NNG:	Gedaged	<i>tan wululu</i>	‘fine soil’
		<i>tan fufulek</i>	‘planet earth’
PT:	Minaveha	<i>tano bigana</i>	‘fertile land’
PT:	Motu	<i>tanobada</i>	‘land as distinguished from sky and sea’ (lit. ‘big land’)
SES:	Sa’a	<i>ano hū</i>	‘land as opposed to sea’
SES:	Arosi	<i>ano sada</i>	‘flat country’
		<i>ano mamata</i>	‘land as opposed to sea’ (lit. ‘dry land’)

The term **tanoq* disappears in Fiji and Polynesia, where the concept of ‘earth, soil’ is denoted by reflexes of PCP **gwele*, PPn **kele* (see §7.6).

2.2 Island

Two POc terms are glossed ‘island’. These were probably reserved for small islands. Of our reconstructions, it seems that **nusa* was a common noun in POc, but Southeast Solomonic, Fijian and Polynesian reflexes seem to reflect **qa-nusa*, with the local adverb formative **qa-* (Ch.8, §2.1). The expected meaning of **qa-nusa* is something like ‘at our own island’, and this is in accord with the use of its reflexes in placenames. The Micronesian reflexes, however, suggest that the prefixed form has also come to be used as a common noun.

PMP **nusa* ‘island’ (Dempwolff 1938)

POc **nusa* ‘island’, **qa-nusa* ‘at our own island’

NNG:	Bariai	(i)nu	‘island’ (< POc <i>*i nusa</i> ‘at (our) island’)
NNG:	Takia	nui	‘island, reef’
NNG:	Gedaged	nui	‘island’
PT:	Gapapaiwa	nua	‘island’
PT:	Dobu	nua	‘coral reef, coral patch’
MM:	Nduke	nusa	‘island’
MM:	Roviana	nusa	‘island’
SES:	Arosi	(a)nuta	‘the name of a small island’
		nu-nuta	‘island’
SES:	Lau	(a)nuta	‘island (only in names)’
NCal:	Xârâcùù	nîi	‘island’
Mic:	Satawalese	(a)lîit	‘small island’
Mic:	Woleaian	(ya)rîta	‘small uninhabited island’
Fij:	Bauan	(a)nuḏa	‘element in place names of small offshore islands’

Anuta, the name of a very small Polynesian island near Tikopia, is probably also cognate.

The primary role of **motus* in POc appears to have been as a stative verb, ‘be broken off, severed’ (see vol.1, p.247 for likely derivation from PMP **utus* ‘break under tension’). **motus* may have been applied only to islets, isolated rocks and detached reefs, and not to larger islands more suitable for habitation.

POc **motus* (N) ‘island, detached reef; (v) become, be broken off, severed’ (vol. 1, p.247)

NNG:	Bing	mōt	‘island’
NNG:	Manam	motu	‘island’
NNG:	Yabem	meʔ	‘reef’
NNG:	Numbami	motu	‘reef’
PT:	Motu	motu-motu	‘island; detached portion of reef’ (<i>motu</i> ‘to break, as a string’)
PT:	Hula	mou	‘island’

SES:	Sa'a	<i>mou</i>	'be broken off' (<i>malau mou</i> 'an islet', <i>hau mou</i> 'an isolated rock')
NCV:	Mota	(<i>vanua</i>) <i>m^wot</i>	'island' (lit. 'land broken off')
SV:	Lenakel	(<i>tān</i>) <i>murh</i>	'island (<i>tān</i> 'earth, land')
Fij:	Rotuman	<i>mofu</i>	'rock (in the sea)'
Fij:	Bauan	<i>motu</i> , (<i>ya</i>) <i>motu</i>	'small detached reef'
Pn:	Niuean	<i>motu</i>	'island'
Pn:	Tongan	<i>motu</i>	'island; break, become separated'
Pn:	Rennellese	<i>motu</i>	'to break, sever'
		<i>motu hatu</i>	'reef rock island' (<i>hatu</i> 'rock')
Pn:	Samoaan	<i>motu</i>	'island; severed'
Pn:	Tahitian	<i>motu</i>	'islet; be cut, severed'
Pn:	Maori	<i>motu</i>	'island'
Pn:	Hawaiian	<i>moku</i>	'island; sever, cut'

Cognates of PWOC **(s,t)imuR* (below) may reflect POc **timu(R)* 'wind bringing light rain' (from PMP **timuR* 'south or east wind') (cf. Ch. 5, §4.2). Waruno Mahdi suggests (pers. comm.) that there has been semantic drift from wind to cloud to cloud over island, a traditional navigator's way of locating islands. Alternatively, there may be an unrelated word, at least in PWOC:

PWOC **(s,t)imuR* 'island'

PT:	Muyuw	<i>sim</i> , <i>simulan</i>
PT:	Iduna	<i>himula</i>
PT:	Dobu	<i>simula</i>
PT:	Kiriwina	<i>simla</i>
MM:	Sursurunga	<i>sim</i>

Although the next reconstructed form is traceable back to PMP as a verb, its use as a noun is a later development, with its application to a chain of islands apparent only in the Central Pacific.

PMP **qatuR* (V) 'pave with stones; pile or stack up, arrange, order, put in sequence' (ACD)

POc **qatu(R)* (N) (?) 'number of things in a line, row'

SV:	Anejom	<i>n-at(hat)</i>	'line of stones' (<i>inhat</i> 'stone')

PCP **qatu* 'number of things in a line, row, as a chain of islands'

Fij:	Rotuman	<i>afu</i>	'number of things in a line, row'
Fij:	Wayan	<i>atu</i>	'first element in name of island chain, e.g. <i>atu Yasawa</i> '
Fij:	Bauan	<i>yatu</i>	'first element in name of island chain, e.g. <i>Yatu Lau</i> 'the Lau islands')
Pn:	Tongan	<i>ʔotu</i>	'row, line, series, chain or long group (e.g. of islands)'
Pn:	Niuean	<i>atu</i>	'row of things, group'
		<i>atu motu</i>	'group of islands'

Pn:	Rennellese	<i>ʔatu</i>	(N) ‘generation; row, column, group, as of islands, stones, posts, people’; (V) ‘be of the same generation’
Pn:	Samoa	<i>atu</i>	‘row (as of chairs); range (as of hills); chain (as of lakes); set, row (as of teeth)’
		<i>atu motu</i>	‘group of islands, archipelago’
Pn:	Nanumean	<i>atu</i>	‘group or chain of islands’ (<i>atu fenua elise</i> ‘the whole Ellice group’, <i>atu paipai</i> ‘the whole world’)

3 Coastal features

This section treats named features of the coastal landscape other than shore reefs and tides, which are dealt with in the next chapter.

3.1 Beach, shore

Two POC reconstructions can be made for ‘beach’. One, **qone*, seems primarily to have meant ‘sand’, but the sense ‘sandy beach’ is also quite widely reflected (see §7.5). The other reconstruction, **biker*, is less firmly based. However, it is possible that the terms from Huon Gulf languages listed below may also be reflexes. If they are, then the reconstruction should be **b^wiker*.

POC **b^wiker* ‘beach, esp. sandy beach’

MM:	Bali	<i>bikere</i>	‘beach’
MM:	Bulu	<i>bike</i>	‘beach’
SV:	Kwamera	<i>nə-pəkər</i>	‘sand, sandy beach’
Mic:	Kiribati	<i>bike</i>	‘beach, sand, sand bank, sandy soil’
Mic:	Mortlockese	<i>ppɛ</i>	‘beach, sand’
Mic:	Pulwatese	<i>ppi</i>	‘sand, sand beach, sand spit’
Mic:	Ponapean	<i>pīk</i>	‘sand’
		<i>pika-pik</i>	‘sandy’
Mic:	Woleaian	<i>pix(a)</i>	‘small island, islet’

cf. also the following Huon Gulf terms:

NNG:	Adzera	<i>ŋiʔ</i>	‘salt’
NNG:	Dangal	<i>ŋgik</i>	‘salt’
NNG:	Yabem	<i>g^weʔ</i>	‘sea’
NNG:	Kaiwa	<i>gielk</i>	‘sea’
NNG:	Hote (Misim)	<i>ɣek</i>	‘sea’
NNG:	Vehes	<i>ɣek</i>	‘sea’
NNG:	Patep	<i>ɣek</i>	‘sea’

The reflexes of POC **nuku* are semantically diverse, ranging from ‘sand’, ‘sandbar at river mouth’, ‘island’, and ‘settlement’ to ‘land, country’. However, the agreement between the Southeast Solomonic languages and Bauan Fijian indicates that POC **nuku*

referred to sandy ground. It may have been used figuratively for land or settlement, especially in place names, bearing in mind that settlements are often located on flat sandy ground just above the beach.

POc **nuku* ‘sandy ground, sand bank, sand spit’

NNG:	Kove	<i>nū</i>	‘small offshore island’
MM:	Vaghua	<i>nəɣə</i>	‘island’
MM:	Varisi	<i>nuɣu</i>	‘island’
MM:	Babatana	<i>nu-nu</i>	‘island’
SES:	Gela	<i>nuɣu</i>	(i) ‘a flat and sandy place near the beach’; (ii) ‘a reef far out at sea, larger than <i>sembe mbuto</i> ’
		<i>nu-nuɣu</i>	(i) ‘quicksand’; (ii) ‘a river bar’
		<i>(mu)nuɣu</i>	‘sand bar at river mouth; island in river’
SES:	Lau	<i>nū</i>	(i) ‘flat ground near the shore’ (ii) ‘coral reef where it juts out, seaward part of reef’ ‘flat sandy land just above the beach’
SES:	Kwaio	<i>nuɔ</i>	‘margins of sand, area of strand immediately above the beach’
SES:	Arosi	<i>nu-nuɔ</i>	‘sand on the beach, sandy soil’
		<i>(mara)nuɔ</i>	‘a river flat, plain made by river, sandy level ground near the shore’
Fij:	Bauan	<i>nuku</i>	‘sand’ (<i>nuku-nuku</i> ‘sandy’)
		<i>uđu ni nuku</i>	‘sandbank jutting out into the sea’ (<i>uđu</i> ‘nose’)
Pn:	Niuean	<i>nuku</i>	‘land, country, place’ (obsolete)
Pn:	Tongan	<i>nuku</i>	‘element in place names’
Pn:	Rennellese	<i>nuku</i>	‘legendary isles or settlements of the gods; a part of place names’
Pn:	Samoa	<i>nuɔ</i>	‘village, home’ (<i>nuɔtūloto</i> ‘islet’)
Pn:	Tikopia	<i>nuku</i>	‘dwelling, settlement, island where settlement situated. Used in many Tikopia house names’
Pn:	Marquesan	<i>nuku-</i>	‘first element in many place names’
Pn:	Tahitian	<i>nuɔ</i>	‘earth, land (only as part of place names)’
Pn:	Tuamotuan	<i>nuku</i>	‘earth, land’
Pn:	Maori	<i>nuku</i>	‘the earth, generally personified; wide extent of the land, <i>fenua</i> ’

Coastlines, particularly island coastlines, may be characterised as ‘windward coast’ or ‘leeward coast’ in latitudes where tradewinds blow for most of the year. Marovo (MM), for instance, has parallel terms for the ocean-facing side of a barrier island, *kale-lupa* (*kale* ‘side’, *lupa* ‘the beaches, reefs and seascape on the outer or windward side of the barrier reef’) and the lagoon-facing side, *kale-kogu* (*kogu* ‘lagoon’). Roviana (MM) refers to the ocean side of an island as *vuragarena*, which Waterhouse (1949) contrasts with *tutupeka*. Kia (MM) adapts body part terms for ‘back’ and ‘belly’, *taguru-mo* ‘windward side of island’ and *tia-mo* ‘leeward side of island’. Sa’a (SES) has *asi matawa* ‘weather shore’ and *asi mae* ‘lee shore’.

In Chapter 4 we have reconstructed PEOc **tasik maquri(p)* ‘open sea; ocean on the weather side; weather shore’ (literally ‘live sea’) and PEOc **tasi mate* ‘sheltered sea, lee shore’ (literally ‘dead sea’), terms which, from their reflexes, may apply both to the sea or to the affected coastline.

The reconstruction below, PEOc **liku*, is glossed ‘windward side’, but it seems likely that its reflexes are members of a larger set reflecting PMP **likuD*, POc **liku(r)* ‘person’s back’ whose reflexes are used in a number of languages with the senses ‘back of s.t.’, ‘outside’ (Ch.8, §2.3.5). The use of reflexes of this term for ‘windward side’ reflects the fact that the outside of a barrier reef is its windward side.

PEOc **liku* ‘windward side’

Mic:	Marshallese	<i>liki</i>	‘ocean side of; outside’
Mic:	Kiribati	<i>(āi)niku</i>	‘ocean side of coral islands’
Fij:	Wayan	<i>liku</i>	‘windward side’
Pn:	Niutopotapu	<i>liku</i>	‘windward side’

Similarly, terms located for the leeward or sheltered side include reflexes of an apparently more general term, PMP **duŋduŋ*, POc **ruru*.

PMP **duŋduŋ* ‘sheltered as from wind, rain or sun’ (ACD)

POc **ruru* ‘calm, sheltered’

Fij:	Bauan	<i>rūrū</i>	‘calm’
Pn:	Rennellese	<i>gugu</i>	‘be calm, sheltered, to leeward’
Pn:	Hawaiian	<i>lulu</i>	‘calm area leeward of an island’

References to ‘shore’ occur also in locative expressions (see Chapter 8). To a person at sea, reflexes of POc **qutan* will refer to the shore, while to a person inland, reflexes of **laur* can carry the same interpretation.

3.2 Bay

The gloss of our next reconstruction, POc **tob^{wa}* is soundly based for PEOc, but depends for promotion to POc on reinterpretation of the name given to the barrier reef islands which enclose Marovo Lagoon. POc **tob^{wa}* is also the reconstructed form for ‘belly, stomach, bag’ and it is possible that ‘bay’ is a metaphorical extension of the term.

POc **tob^{wa}* ‘bay, harbour; belly, stomach’

Adm:	Tench	<i>tova</i>	‘belly’
MM:	Marovo	<i>toba</i>	‘elevated barrier reefs’ (i.e. islands enclosing sheltered water)
MM:	Roviana	<i>toba</i>	‘name of barrier island’

PEOc **tob^{wa}* ‘bay’

SES:	Tolo	<i>tobana</i>	‘abdomen, belly’
SES:	Sa’a	<i>ap^{wa}-ap^{wa}</i>	‘bay, indentation in coast’
SES:	Arosi	<i>ob^{wa}-ob^{wa}</i>	‘bay, harbour’
NCV:	Mota	<i>toqa(i)</i>	‘belly’
Fij:	Bauan	<i>toba</i>	‘bay or gulf’

The next set has specific reference to ‘bay’ only in Polynesia. As a POc term, it is a verb used descriptively.

POc **paŋa* ‘be open, gape’

PT:	Motu	<i>haga</i>	(ADJ) ‘open’
MM:	Tolai	<i>paŋaŋa</i>	‘be open, yawn, gape’
SES:	Lau	<i>(a)faŋa</i>	‘open wide, gape’
SES:	Tolo	<i>(o)vana</i>	‘opening’
NCV:	Mota	<i>waŋa</i>	‘gape’

PPn **faŋa* ‘bay’

Pn:	Tongan	<i>faŋa</i>	‘small or private beach’
Pn:	Samoaan	<i>faŋa</i>	‘bay’ (<i>matā-faŋa</i> ‘beach, shore’)
Pn:	Tahitian	<i>faʔa</i>	‘valley, low place among the hills’
Pn:	Maori	<i>ŋaŋa</i>	‘bay, harbour, estuary’
Pn:	Hawaiian	<i>hana</i>	‘bay, valley (in place names)’

3.3 River mouth

Polynesian languages use a compound for the mouth of a river, with elements derived from POc forms **muri* ‘behind’ + **waiR* ‘river, fresh water’.

PPn **muri-wai* ‘mouth of river’

Pn:	Tongan	<i>mui-vai</i>	‘mouth of river’
Pn:	Samoaan	<i>muli-vai</i>	‘mouth of river’
Pn:	E Futunan	<i>muli-vai</i>	‘mouth of river’
Pn:	Maori	<i>muri-wai</i>	‘backwater, lagoon at mouth of river’
Pn:	Hawaiian	<i>muli-wai</i>	‘mouth of river; pool near river mouth (as behind sandbar)’

No POc reconstruction is available for ‘river mouth’. This concept was probably named by a compound connecting ‘river’ or ‘fresh water’ with a body part. The most widespread label is ‘leg’ or more likely, ‘foot of river’, and this may well reflect a POc collocation. We find:

NNG:	Mapos Buang	<i>bel vaŋa</i>	(<i>bel</i> ‘water’, <i>vaŋa</i> ‘leg/foot’)
NNG:	Takia	<i>you ŋe-n</i>	(<i>you</i> ‘water’, <i>ŋe-</i> ‘leg/foot’)
PT:	Iduna	<i>gufa wa-ŋage</i>	(<i>gufa</i> ‘river’, <i>ŋage-</i> ‘leg/foot’)
PT:	Molima	<i>goʔla ae(na)</i>	(<i>goʔla</i> ‘fresh water’, <i>ae</i> ‘leg/foot’)
SES:	Lau	<i>ʔae-na kafo</i>	(<i>ʔae-</i> ‘foot/leg’, <i>kafo</i> ‘water’)

3.4 Cape, prominent land

POc terms that can be glossed ‘cape, headland’ are all words for a body part or part of an object conceived of as similar in shape. The first is *(*i,u*)*cuŋ* ‘nose’. It seems likely that PCP **uju*, which refers to ‘projecting or exposed land’ also reflects POc **ucuŋ* ‘nose’.

PMP **ijun*, **ujun* ‘nose’ (ACD)POc *(*i,u*)*cuŋ* ‘nose; cape’³

NNG:	Awad Bing	<i>uyu</i>	‘headland, point, nose’
PT:	Motu	<i>idu(ka)</i>	‘headland’
MM:	Nakanai	<i>(ma)isu</i>	‘nose; cape’
MM:	Tinputz	<i>ihun</i>	‘nose; cape, point’
SES:	Gela	<i>ihu</i>	‘nose; cape’
Fij:	Bauan	<i>uđu</i>	‘nose; cape, mountain peak’
Pn:	Rapanui	<i>ihu</i>	‘nose; headland, point’

The suffixed *-a* of PPn **utu-a* below reflects the POc locative nominalising suffix **-an* (vol. 1, pp.33–34).

PCP **uju* (V) ‘project’, PPn **utu-a* ‘projecting land’

Fij:	Wayan	<i>udu</i>	‘stick out, project’
		<i>udu ni vanua</i>	‘headland’
Pn:	Tongan	<i>utua</i>	‘be conspicuous’
Pn:	E Uvean	<i>utua</i>	‘point, promontory’
Pn:	Rennellese	<i>utua</i>	‘point, cape’
Pn:	K’marangi	<i>utua</i>	‘projecting point in reef’
Pn:	Tuvalu	<i>utua</i>	‘that part of shore visible at low tide’
Pn:	Takuu	<i>utua</i>	‘land normally under sea but exposed by low tide’
Pn:	Tokelauan	<i>utua</i>	‘shelving reef’

The last four Pn reflexes restrict the sense to a part of reef exposed at low tide, but retain the sense of projection/prominence.

Reflexes of the next item, POc **ŋoro-ŋorok* with the gloss ‘cape’ are few and are not well distributed, but more careful inspection of the data reveals that these reflexes belong to the same cognate set as another word for ‘nose’. We give the reflexes in two sets: those with the gloss ‘cape’ or ‘headland’ first and then those for ‘nose’. Alone, the first set suggests a reconstruction **ŋora-ŋora*, but comparison with the terms glossed ‘nose’ reveals that final *-a* is simply the reflex that occurs in certain Southeast Solomonic languages. POc **ŋoro-ŋorok* ‘nose, cape’ in its turn was originally probably a colloquial word for ‘nose’ derived from POc **ŋorok* ‘snore’.

POc **ŋoro-ŋorok* ‘cape’

MM:	Sursurunga	<i>ŋor-ŋor</i>	‘headland, point of land jutting out into the sea’
SES:	Longgu	<i>ñora-ñora</i>	‘headland, point’
SES:	Lau	<i>ŋo-ŋora</i>	‘nose; point, headland, cape’
SES:	Sa’a	<i>ŋora-ŋora</i>	‘cape’
SES:	Arosi	<i>ŋora-ŋora</i>	‘cape, isthmus’

³ In vol. 1, p.189 the form POc **ijun* ‘projecting headboard of prow’ is erroneously given for *(*i,u*)*cuŋ*. This is almost certainly the same etymon as that reconstructed here.

POc **ɲoro-ɲorok* ‘nose’

NNG:	Sio	<i>i-ɲo-ɲoro</i>	
NNG:	Amara	<i>(s)ɲorek(a)</i>	
NNG:	Kairiru	<i>ɲaRi(-)</i>	
NNG:	Notsi	<i>ɲul-ɲul</i>	
MM:	Madak	<i>ɲo-ɲo</i>	‘nasal mucus’
MM:	Tangga	<i>ɲoro-ɲoro</i>	
MM:	Patpatar	<i>ɲar-ɲaro</i>	
MM:	Ramoaaina	<i>ɲir-ɲiro</i>	
MM:	Selau	<i>ɲor-ɲoro</i>	
MM:	Varisi	<i>i-ɲoro</i>	
MM:	Ririo	<i>ni-ɲir</i>	
SES:	Lau	<i>ɲo-ɲora-</i>	
SES:	N Malaitan	<i>ɲo-ɲoro-</i>	

The final reconstruction, PEOc **mata* ‘point of land, headland’ is evidently an extension of the more basic meanings attributed to POc **m(w)ata*, namely ‘point, blade, cutting-edge (of a weapon or instrument)’ (vol. 1, p.89).

PEOc **mata* ‘point of land, headland’

NCal:	Nyelâyü	<i>mā(lā p^hwēm^{wa})</i>	‘point of the mainland (= south)’
NCal:	Nêlêmwa	<i>mā(wam^{wa})</i>	‘point of the mainland (= south)’

PPn **mata* ‘point of land, headland; point, blade, cutting-edge (of a weapon or instrument)’ (Biggs & Clark 1993)

Pn:	Niuean	<i>mata</i>	‘a point of land’
Pn:	E Futunan	<i>mata</i>	‘point of land, cape’
Pn:	Rennellese	<i>mata henua</i>	‘western end of Rennell Island’
Pn:	Maori	<i>mata</i>	‘point of land, headland’
Pn:	Tuamotuan	<i>mata</i>	‘point of land, headland’

4 Inland topographical features

4.1 Hill, mountain

Even quite small islands can be dominated by high peaks. While a number of peaks in New Britain and New Ireland reach 2000m, the much smaller islands of Manam and Karkar have peaks of 1800m, and Goodenough Island in the d’Entrecasteaux group has one of 2500m. Of the reconstructions below, POc **koro*⁴ and POc **solos* have meanings centred on mountain or mountainous country. POc **puŋa-puŋa* may have also denoted ‘mountain’ but its reflexes in Pn have come to refer to ‘upper surface’. Of the other reconstructions, **buku* and **p^wotu* referred rather to a protuberance or a bulge-shaped object.

⁴ It is tempting to decide that this is the same term as POc **koro* (i) any fenced-in area’, (ii) settlement fortified by a palisade or ditch’ (Pawley 2005), on the basis that fortifications were typically situated on high ground. But there is strong evidence that there were two distinct terms at least as far back as POc.

POc **koro* ‘mountain, hill’

NNG:	Manam	<i>oro</i>	‘go landwards (away from the sea)’
NNG:	Lamogai	<i>oro</i>	‘mountain’
NNG:	Sissano	<i>ol</i>	‘mountain’
PT:	Motu	<i>oro-ro</i>	‘mountain’
PT:	Balawaia	<i>yolo</i>	‘mountain’
PT:	Kiriwina	<i>koya</i>	‘mountain’
MM:	Mono-Alu	<i>olo</i>	‘hill’
SES:	Gela	<i>yoro</i>	‘back country, forest-covered interior hills’
SES:	Lengo	<i>yɔ-yoro</i>	‘mountain’
SES:	Arosi	<i>oro</i>	‘high’
Mic:	Kosraean	<i>ɔl</i>	‘mountain’
Fij:	Bauan	<i>koro</i>	(i) ‘an eminence’; (ii) ‘fortified village’
Pn:	Rennellese	<i>ogo</i>	‘mountain, hill, slope’ (loss of initial <i>k</i> - irreg.)
Pn:	Tikopia	<i>koro</i>	(i) ‘fort’; (ii) ‘barrier of sand or stone against sea’
Pn:	Hawaiian	<i>olo</i>	‘hill’ (obsolete now except in place names)

POc **solos* ‘inland mountain country, highlands interior’

MM:	Kia	<i>soloso</i>	‘mountainous interior, bush’
MM:	Marovo	<i>soloso</i>	‘remote interior of large islands; the world’
MM:	Roviana	<i>soloso</i>	‘inland, away from the beach’
SES:	Tolo	<i>solo</i>	‘isolated areas in the middle of the island (Guadalcanal), the middle of the bush’
SES:	Lau	<i>tolo</i>	‘mountain, hill country, interior of island; land’
SES:	Kwaio	<i>tolo</i>	‘mountains, mountainous’
SES:	Sa’a	<i>tolo</i>	‘hill’
SES:	Arosi	<i>toro</i>	‘a hill (rare use); the interior, inland country of the hills’
Mic:	Marshallese	<i>tɔl^w</i>	‘mountain’
Mic:	Ponapean	<i>tōl</i>	‘small mountain’
Fij:	Wayan	<i>ðolo</i>	‘highland country’
Fij:	Bauan	<i>ðolo</i>	‘inland country, mountain country’

POc **puŋa-puŋa* ‘mountain’

MM:	Sursurunga	<i>puŋ-puŋ</i>	‘mountain’
SES:	Ulawa	<i>huŋa-huŋa(ʔa)</i>	‘mound, hillock’
SES:	Arosi	<i>huŋa-huŋa</i>	‘hill, mountain’

PPn **fuŋa* ‘upper surface’

Pn:	Niuean	<i>fuŋa</i>	‘surface, top’ (e.g. <i>fuŋavai</i> ‘surface of water’)
Pn:	Tongan	<i>fuŋa</i>	‘top, upper surface’ (e.g. <i>fuŋavaka</i> ‘deck of boat’)
Pn:	Anutan	<i>puŋa(penua)</i>	‘summit; the highest point of an island’

PMP **buku* ‘node (as in bamboo or sugarcane); joint; knuckle; knot in wood; knot in string or rope’ (ACD, Dempwolff 1938)

POc **buku* ‘mound, knob, joint’, possibly also ‘hill’

NNG:	Manam	<i>buku</i>	‘mountain, knuckle’
NNG:	Wogeo	<i>buku</i>	‘knee’
NNG:	Mangap	<i>bukū-nu</i>	‘knob, joint, hump’
NNG:	Gedaged	<i>buku-n</i>	‘knot, on tree or cord’
MM:	Notsi	<i>buk</i>	‘mountain’
MM:	Patpatar	<i>buku</i>	‘knee’
MM:	Nakanai	<i>buku</i>	(V) ‘swell’
		<i>bu-buku</i>	‘knot in a tree’
MM:	Minigir	<i>buku-buku</i>	‘elbow, knee’
MM:	Siar	<i>buk</i>	‘elbow’
MM:	Tolai	<i>buk</i>	‘boil, lump, corner’
NCal:	Nêlêmwa	<i>bū-</i>	‘mound, hillock’
Fij:	Bauan	<i>buku</i>	‘anything knotted or humped’
Pn:	Tikopia	<i>puku-puku</i>	‘rounded, blunt-headed’
Pn:	Hawaiian	<i>puʻu</i>	‘any kind of protuberance, from a pimple to a hill’

Reflexes of **pʷotu* refer consistently to ‘mountain’ only in MM languages, while some SES languages adopt the ‘knot, swelling’ meaning.

POc **pʷotu* ‘protuberance, bulge’, possibly also ‘mountain’

MM:	Bali-Vitu	<i>potu</i>	‘mountain’
MM:	Lavongai	<i>put</i>	‘mountain’
MM:	Tigak	<i>put</i>	‘mountain’
MM:	Kara (West)	<i>fut</i>	‘mountain’
MM:	Nalik	<i>fut</i>	‘mountain’
MM:	Tabar	<i>potu</i>	‘mountain’
MM:	Lihir	<i>pot-pot</i>	‘mountain’
MM:	Madak	<i>put</i>	‘mountain’
MM:	Marovo	<i>botu</i>	‘hill, top of hill’
MM:	Roviana	<i>botu-botu</i>	‘mounds for planting yams; hillocks’
SES:	Gela	<i>pou-potu</i>	‘bulge, swell’
SES:	Arosi	<i>pou-pou</i>	‘round object; knot of bowstring, knot in wood’
SV:	Anejom	<i>(no)pte-</i>	‘node (bamboo, sugarcane)’

In Polynesia the typical term for mountain is a reflex of **maquja*.

PPn **maquja* ‘mountain’ (Biggs & Clark 1993)

Pn:	Niuean	<i>mouja</i>	‘mountain’
Pn:	Rennellese	<i>maʻuʻja</i>	‘hill, residence’
Pn:	Tongan	<i>moʻuʻja</i>	‘hill, mountain’
Pn:	E Futunan	<i>maʻuʻja</i>	‘mountain’
Pn:	Samoa	<i>mauʻja</i>	‘hill, mountain’
Pn:	Tikopia	<i>mauʻja</i>	‘hill, mountain peak’

Pn:	Maori	<i>mauŋa</i>	‘mountain’
Pn:	Hawaiian	<i>mauna</i>	‘mountain’

Note also the following PEOc reconstruction:

PEOc **qulu ni panua* ‘headland, mountain peak’ (POc **qulu* ‘head’, *ni* ‘of’, **panua* ‘land’)

Mic:	Chuukese	<i>wiri-r fəri</i>	‘cape, point (of an island)’
Fij:	Bauan	<i>ulu ni vanua</i>	‘mountain’

A compound term for mountain ridge (‘back’ + ‘bone’) is reconstructable for PPn:

PPn **tuqa-siwi* ‘mountain ridge’ (Biggs & Clark 1993)

Pn:	Tongan	<i>tuʔa-hivi</i>	‘ridge’
Pn:	Rennellese	<i>tuʔa-sivi</i>	‘coastal ridge, mountain ridge; backbone’
Pn:	Samoaan	<i>tua-sivi</i>	‘ridge (of backbone, chain of hills etc.)’
Pn:	Tokelauan	<i>tua-hivi</i>	‘ridge (of mountain, house etc)’
Pn:	Maori	<i>tua-hiwi</i>	‘ridge of a hill, rising ground’
Pn:	Hawaiian	<i>kua-hiwi</i>	‘mountain, high hill’

4.2 Valley

We have included two POc reconstructions glossed ‘valley’, although the second is reflected in only two languages.

POc **mala* ‘valley, ravine’

Adm:	Mussau	<i>mala(le)</i>	‘valley’
NNG:	Takia	<i>mal(paon)</i>	‘cliff’
MM:	Ramoaaiana	<i>mala</i>	‘valley, gorge, gully, ravine’
MM:	Tolai	<i>male</i>	‘valley’
MM:	Babatana	<i>mala(ku)</i>	‘valley’
SES:	Arosi	<i>mara(rohiana)</i>	‘narrow waterless pass, ravine, valley between high hills’ (<i>rohi</i> ‘groove’)
		<i>mara(wai)</i>	‘river course, valley’ (<i>wai</i> ‘water, river’)
		<i>mara(gohu-gohu)</i>	‘slopes of a river valley’ (<i>gohu</i> ‘river flat, lower valley’)

POc **salil* ‘valley’

MM:	Patpatar	<i>salil</i>	‘valley’
SES:	‘Are’are	<i>tari</i>	‘valley’

cf. also:

NNG:	Yabem	<i>saliʔ</i>	‘abyss, cliff’ (possibly ‘edge of valley’)

4.3 Cliff

We have one POc reconstruction for ‘cliff’. Two further reconstructions are at PCP and PPn level. The two last may distinguish coastal and inland cliffs.

POc **p^waka(r,R)* ‘steep rocky ground, cliff’

Adm:	Lou	<i>p^wak</i>	‘cave’
NNG:	Buang	<i>pkε</i>	‘cliff; a steep rocky place’
NNG:	Bariai	<i>per-per</i>	‘cliff’
PT:	Molima	<i>vakala</i>	‘steep rocky ground, cliff’
PT:	Motu	<i>haga-haga</i>	‘cliff’ (<i>g</i> for exp. <i>y</i>)
MM:	Patpatar	<i>par-para</i>	‘cliff’

PCP **bari* ‘coastal cliff’

Fij:	Bauan	<i>bari (ni vatu)</i>	‘(rock) cliff, precipice’

PPn **pali* ‘cliff’

Pn:	Rarotongan	<i>pari</i>	‘cliff’
Pn:	Tahitian	<i>pari</i>	‘cliff overhanging sea’
Pn:	Maori	<i>pari</i>	‘cliff’
Pn:	Hawaiian	<i>pali</i>	‘cliff’

PPn **mato* ‘precipice, steep place, cliff’ (Biggs & Clark 1993)

Pn:	Tongan	<i>mato</i>	‘precipice, cliff face’
Pn:	Samoaan	<i>mato</i>	‘deep narrow gorge, inland precipice’
Pn:	E Uvean	<i>mato</i>	‘very steep slope’
Pn:	Tikopia	<i>mato</i>	‘cliff, rock face’
Pn:	Rarotongan	<i>mato</i>	‘cliff, face of a precipice’
Pn:	Tuamotuan	<i>mato</i>	‘steep, precipitous, a cliff’
Pn:	Anutan	<i>mato</i>	‘cliff’
Pn:	Tahitian	<i>mato</i>	‘a craggy rock or precipice’
Pn:	Maori	<i>mato</i>	‘deep valley’

4.4 Cave

Although terms exist in many languages for cave, we have no evidence of cognacy outside Polynesia.

PPn **qana* ‘cave’

Pn:	Tongan	<i>ʔana</i>	‘cave, cavern, den’
Pn:	Niuean	<i>ana</i>	‘cave, den’
Pn:	Samoaan	<i>ana</i>	‘cave’
Pn:	Rennellese	<i>ʔana</i>	‘cave’
Pn:	Tikopia	<i>ana</i>	‘cave, rock shelter’
Pn:	Tahitian	<i>ana</i>	‘cave’

4.5 Flat land

Almost every language for which we have extensive lexical data has a term meaning ‘flat land’, but cognates have been difficult to find. Our only reconstruction is based on cognates from Papuan Tip and Polynesia, with Polynesia using the same term in compound

form for ‘lowland’. This is probably the same word as POc **raun* ‘leaf’, which occurs in many languages as a kind of classifier for flat things.

POc **rau(n)* ‘flat land’

PT:	Bwaidoga	(<i>awa</i>) <i>lau</i>	‘flat area; plain (where the airstrip is); (any) flat area in the mountains as well as on the coast’
		<i>lau</i> (<i>beù</i>)	‘flat land, plain (used of town)’
		<i>lau</i> (<i>beùmanata</i>)	‘flat area without any mountains’
		<i>lau</i> (<i>beùya</i>)	‘(on the) plain (of flat coastal strip)’

PPn **rau* ‘flat land’ **rau-lalo* ‘lowland’

Pn:	Tongan	<i>āu lalo</i>	‘low-lying land’ (<i>lalo</i> ‘place lower down’)
Pn:	Samoan	<i>lau</i>	‘level area of land, plain’
		<i>lau</i> (<i>fanua</i>)	‘flat land’
Pn:	Tikopia	<i>rau-rau</i>	‘flat expanse’
		<i>rau raro</i>	‘lowland in vicinity of shore’ (<i>lalo</i> LOC ‘down, below’)

5 Land defined by vegetation

The following reconstructions include terms for particular kinds of land, identified primarily by vegetation. POc **nuku* ‘sandy ground’ may also be included here (see §3.1 for cognate set)

5.1 Uncultivated land

The three following cognate sets are repeated from vol. 1, pp.118–119.

PAn **quCaN* ‘scrubland, bush’ (ACD)

PMP **qutan* ‘small wild herbaceous plants; scrubland, bush’ (ACD; Dempwolff 1938)

POc **qutan* ‘bushland, hinterland’ (vol. 1, p.118)

Adm:	Mussau	<i>utana</i>	‘garden’
NNG:	Manam	(<i>a</i>) <i>uta</i>	‘inland’ (< POc <i>*qa-qutan</i>)
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:	SE Ambrym	<i>ut</i>	‘place, area, land, shore, island, homeland, weather’
NCV:	Paamese	<i>ut</i>	‘shore, when contrasted with sea’
NCal:	Nemi	<i>kuc</i>	‘forest’

Mic:	Kosraean	<i>wat</i>	‘area inland or towards the mountains’
Fij:	Rotuman	<i>ufa</i>	‘land (from the sea); interior (from the coast)’
Pn:	Tongan	<i>ʔuta</i>	‘land (not sea); interior or inland (not coast)’
Pn:	Niuean	<i>uta</i>	‘inland, shore, ashore’
Pn:	Samoan	<i>uta</i>	‘ashore; on the side towards the land’
Pn:	Tikopia	<i>uta</i>	‘inland area’

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. POc **qutan* was also a local noun for the direction of the bush, namely ‘inland’ (Ch.8, §2.2.1).

PEOc **wao* ‘forest, bushland, scrub, land in its natural uncultivated state’ (vol. 1, p.119)

SES:	Gela	<i>ao</i>	(N) ‘forest, land never brought under cultivation’ (V) ‘be overgrown, become forest’
Fij:	Rotuman	<i>vao</i>	‘forest, large number of trees or big plants growing together’ (poss. Pn loan)
Pn:	Tongan	<i>vao</i>	‘forest, bushland, scrub, land in its natural uncultivated state’
Pn:	Samoan	<i>vao</i>	(N) ‘bush, forest; weeds; tall grass’; (ADJ) ‘of the forest, wild’
Pn:	Tahitian	<i>vao</i>	‘wilds, wilderness’
Pn:	Maori	<i>wao</i>	‘forest’

It is tempting to associate the set above with PMP **waRej*, POc **waRoc* ‘vine, creeper, rope’, a reconstruction with many widespread reflexes. The implication here is that uncultivated rain forest was a place of tangled vines. However, Gela has two terms, *ao* ‘forest’ (> **wao*) and *alo* ‘creeper, string’ (> **waRoc*), indicating that there were two distinct terms at the time of POc or a little later, albeit with a possible common origin.

The next POc reconstruction contrasts with **quma* ‘garden, cultivated land’ (vol. 1, p.117)

PMP **talun* ‘fallow land’ (Dempwolff 1938)

POc **talun* ‘old garden, fallow land, land returning to secondary growth’ (vol. 1, p.118)

SES:	Gela	<i>talun</i>	‘forest land which has been previously cultivated’
SES:	Kwaio	<i>alu</i> <i>alu (sīsī)</i>	‘garden of second or third crop’ ‘an old garden plot returning to secondary growth, beginning to be overgrown’
SES:	Lau	<i>alu</i>	‘garden ground, last year’s garden’
SES:	Sa’a	<i>elu</i>	‘last year’s yam garden’
SES:	Arosi	<i>aru</i>	‘an overgrown garden; land formerly used for a garden; a dug garden’

PPn **talun-talun* ‘weeds, fallow’

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:	Samoan	<i>talun-talun</i>	‘fresh growth of weeds’

Pn:	Tikopia	<i>taru-taru</i>	‘cultivation plot’
Pn:	Maori	<i>taru-taru</i>	‘weeds, herbs’
Pn:	Hawaiian	<i>kalu-kalu</i>	‘k.o. fern’

5.2 Swamp

A number of reconstructions are loosely glossed ‘swamp’. In wordlists these may be defined further as saltwater or freshwater swamps, or by their vegetation. Nipa palm and mangrove swamps are found in inter-tidal zones along the coast and in river estuaries, while lowland freshwater swamps, often dominated by sago, are found inland. However, few wordlists distinguish more than one kind of swamp, and we are unable to be more specific in our reconstructions.⁵ Two further reconstructions, POc *[dr,r]ano* ‘lake, swamp’ and POc **[g,k]opu* ‘pond, lagoon, swamp’ blur the distinction between water hole/lagoon and swamp.

PAn **danaw* ‘inland lake, pond’ (Blust 1999)

POc **[dr,r]ano* ‘lake, swamp’

NNG:	Bam	<i>dano</i>	‘lagoon’
MM:	Kia	<i>rano</i>	‘swamp’
SES:	’Are’are	<i>ro-rono</i>	‘mangrove swamp’
NCal:	Nemi	<i>dan</i>	‘lake, pond’
NCal:	Xârâcùù	<i>ne-dê</i>	‘lake, marsh’
Mic:	Woleaian	<i>zano</i>	‘lake, large swamp’
Fij:	Rotuman	<i>rano</i>	‘swamp, marsh’
Fij:	Bauan	<i>drano</i>	‘lake, freshwater swamp’
Fij:	Wayan	<i>drano</i>	‘lake, pond’
Pn:	Rennellese	<i>gano</i>	‘lake’
Pn:	Samoan	<i>lano</i>	‘lake’
Pn:	Rapanui	<i>rano</i>	‘swamp’
Pn:	Mangareva	<i>rano</i>	‘swamp’

PMP **paja* ‘swamp’ (Dempwolff 1938)

POc **p^waca* ‘swamp’

PT:	Kiriwina	<i>pasa</i>	‘mangrove swamp’
MM:	Sursurunga	<i>pesa</i>	‘swamp’
Mic:	Marshallese	<i>pat</i>	‘swamp’
Mic:	Pulwatese	<i>pāt, pata-</i>	‘swamp’

The next term is reconstructable in two forms, as either **gopu* or **kopu*. The MM terms and Lau reflect **k*, Motu and Arosi reflect **g*, while the remainder, from PT and SES, reflect either.

⁵ Languages where kinds of swamp are lexically distinguished include Kiriwina *dumia* ‘inland swamp’, *pasa*, *vamova* ‘mangrove swamp’ and Kwaio *kunu*, *kū-kunu* ‘saltwater mud’, *kunu-kunu* ‘freshwater mud, swamp’. Also Ulawa *lo-lolo* ‘swamp in which sago palms grow’ and closely related language Sa’a which has *lo-lojo* ‘mangrove swamp’.

POc *[g,k]opu ‘pond, lagoon, swamp’

PT:	Hula	<i>kovu</i>	‘pond, lake’
PT:	Motu	<i>gohu</i>	‘lake, lagoon’
PT:	Roro	<i>obu</i>	‘lagoon, pond’
PT:	Lala	<i>ovu</i>	‘swamp’
MM:	Teop	<i>kopu(a)</i>	‘deep’
MM:	Solos	<i>kopu-kopu</i>	‘lagoon’
MM:	Marovo	<i>kopi</i>	‘lake, pool (any size)’
MM:	Roviana	<i>kopi</i>	‘pond, lake’
SES:	Lau	<i>ʔofu</i>	‘brackish water’
SES:	‘Are’are	<i>(a)kohu</i>	‘swamp, swampy ground’
SES:	Arosi	<i>gohu</i>	‘river flat, lower valley; flat between coast and hills’

cf. also:

MM:	Nduke	<i>koɣu</i>	‘lagoon’

In the next two sets, emphasis is perhaps on the mud itself rather than on a muddy water feature.

PMP *pitak ‘mud’ (ACD)

POc *p^(w)ita(k) ‘mud’

Adm:	Lou	<i>p^wi-p^wire</i>	‘mud, swamp’
PT:	Wedau	<i>biɣa-biɣa</i>	‘swamp, mud’
MM:	Nakanai	<i>pita</i>	‘mud’
SES:	Sa’a	<i>p^wī-p^wī</i>	‘mud, slush’

POc *poŋa-poŋa ‘swamp, mud’

Adm:	Seimat	<i>pona-pon</i>	‘bog, esp. sago swamp’ (Smythe)
NNG:	Kove	<i>paŋa-paŋa</i>	‘swamp, mud’
NNG:	Lusi	<i>paŋ-paŋa</i>	‘swamp, mud’
NNG:	Kilenge	<i>pa-paŋa</i>	‘swamp, mud’
NNG:	Bariai	<i>paŋa-paŋa</i>	‘mud’
SES:	‘Are’are	<i>pona</i>	‘swamp, swampy ground’

The final two reconstructed forms in this section probably referred to wet taro swamp gardens.

PEOc *b^wela ‘taro swamp’

SES:	Kwaio	<i>g^wele-g^wele(na)</i>	‘bottom of taro corm’
SES:	Arosi	<i>b^wera</i>	‘swamp’
NCal:	Cèmuhî	<i>b^wēlē</i>	‘irrigated taro field’
NCal:	Pwapwâ	<i>g^wala</i>	‘irrigated taro field’
Mic:	Mokilese	<i>p^wel</i>	‘taro swamp’
Mic:	Puluwatense	<i>p^wāl</i>	‘swamp garden’
Mic:	Ponapean	<i>(lē)p^wel</i>	‘taro patch, bog; large swamp’
Pn:	Rennellese	<i>pega</i>	‘mud, mud puddle, swamp’

Pn: Tikopia *pera* ‘mud; swampy lake shore land in which taro planted’

Pn: W Futunan *pera* ‘mud, mire’

PCP **vusi* ‘swamp; taro swamp’ (see vol. 1, p.139)⁶

Fij: Bauan *vuđi* ‘taro garden under wet cultivation’

Pn: Rennellese *husi* ‘swamp, esp. wet-land taro patch’

Pn: Samoan *(tau)fusi* ‘swamp, marsh; patch of ground irrigated for purpose of growing taro’

Pn: E Futunan *vusi(ga)* ‘pondfield’

Pn: Maori *hūhi* (N) ‘swamp’

6 Inland water features

6.1 Fresh water

In POc a single word, **waiR*, evidently denoted both ‘fresh water’ and ‘river, stream’. A second term, *(*dr,r*)*anum*, specifically denoted ‘fresh water’. Both forms continue PMP etyma reconstructed with the same meaning, and both are well represented across Oceanic subgroups.

PMP **wahiR* ‘fresh water; stream, river’

POc **waiR* ‘fresh water; river, stream’

Adm: Lou *wei* ‘fresh water’

Adm: Baluan *wei* ‘fresh water’

Adm: Nali *(polo)way* ‘river’

Adm: Likum *g^way* ‘fresh water’

g^way (selo) ‘river’

Adm: Sori-Harengan *gay* ‘fresh water; river’

PT: Motu *(sina)vai* ‘river’ (lit. ‘mother of waters’) (as a single word, *vai* has been replaced by *ranu* ‘water’)

PT: Hula *wai* ‘river’

SES: Lau *k^wai* ‘water’

SES: Kwaio *k^wai* ‘river; water’

SES: ’Are’are *wai* ‘fresh water; moisture, sap, juice; river’

SES: Sa’a *wei* ‘fresh water; stream, river’

SES: Arosi *wai* ‘water’

NCV: Raga *wai* ‘fresh water’

NCV: Tangoa *wai* ‘water’

NCV: Paamese *oai* ‘fresh water’

SV: Kwamera *n-ui* ‘fresh water’

SV: Anejom *in-wai* ‘fresh water’

NCal: Nemi *we* ‘fresh water’

NCal: Xârâcùù *k^we* ‘fresh water’

⁶ In vol. 1, p.139 the form PCP **pusi* is erroneously given for **vusi* (POc **p* split into PCP **p* and **v*).

Fij:	Rotuman	<i>vai</i>	‘water; natural water-hole or bathing pool; well’
Fij:	Bauan	<i>wai</i>	‘water, liquid of any kind’
Pn:	Tongan	<i>vai</i>	‘liquid, esp. fresh water’ (as opposed to <i>tahi</i> ‘saltwater’)
		<i>vai(tupu)</i>	‘spring, well, or water from a spring or well’ (<i>tupu</i> ‘to spring up, come into existence’)
Pn:	Samoa	<i>vai</i>	‘water (esp. fresh water as opposed to salt water)’
Pn:	Rennellese	<i>bai</i>	‘water (usually fresh, although salt water found inland may be called <i>bai</i> , as may the lake in the centre of Rennell Island); juice, sauce, liquid’
Pn:	Tikopia	<i>vai</i>	‘water, esp. fresh running, as opp. to <i>nupu</i> ‘pool of still water’
Pn:	Maori	<i>wai</i>	‘water; liquid, oil, etc.’
Pn:	Hawaiian	<i>wai</i>	‘water, liquid of any kind other than sea water; juice, sap, honey; any liquid discharged from the body, as blood, semen; river, stream (in place-names)’

The form **dranum* below is reflected by most witnesses, but some languages (Motu, Nakanai, Namakir) reflect **ranum*, and the Admiralties languages may reflect either **dr* or **r*.

PAn **daNum* ‘water — potable, drinking, fresh’ (Blust 1999)

POc **[dr,r]anum* ‘fresh water’

Adm:	Lou	<i>ronu-n</i>	‘juice’
Adm:	Loniū	<i>an</i>	‘fresh water, lake, river’
Adm:	Seimat	<i>kanu</i>	‘fresh water, rain water’
PT:	Motu	<i>ranu</i>	‘water, juice, liquid’
MM:	Sursurunga	<i>dan</i>	‘fresh water, river’
MM:	Vitu	<i>dranu</i>	‘fresh water’
MM:	Nakanai	<i>lalu</i>	‘fresh water’
MM:	Tolai	<i>danim</i>	‘water; river, creek, pool of fresh water’
MM:	Teop	<i>ran</i>	‘stream’
MM:	Halia	<i>ramun</i>	‘fresh water’ (metathesis)
SES:	Bugotu	<i>lanu</i>	(V) ‘bale’; ‘a baler’
SES:	Arosi	<i>danu</i>	‘bale out water’
NCV:	Raga	<i>danu</i>	‘brackish spring water’
NCV:	Uripiv	<i>dranu</i>	‘muddy water’
NCV:	Namakir	<i>ran</i>	‘water’
Mic:	Puluwatese	<i>rān</i>	‘water, liquid of any kind, pond’
Mic:	Woleaian	<i>ṣari</i>	‘liquid, fresh water, water well, lake’
Fij:	Bauan	<i>dranu</i>	(V) ‘be fresh, of water’ (<i>wai dranu</i> ‘fresh water’)
Fij:	Wayan	<i>dranu</i>	(ADJ) ‘fresh, pure, of water’
Pn:	Niuean	<i>lanu</i>	‘clear liquid’
Pn:	Tongan	<i>lanu</i>	‘wash in fresh water’

Pn:	Tikopia	<i>ranu</i>	‘flow, of water’
Pn:	Tuvalu	<i>lanu</i>	‘amniotic fluid’

No POC term has been reconstructed for ‘river’ as distinct from the term for ‘fresh water’. Speakers of Oceanic languages would probably lack the map-based view of a river thought of primarily in terms of an entity with length. Rather, they seem to conceive of it simply as fresh water that flows. Tolai speakers refer to a river as *tava alir*, literally ‘fresh water flowing’, and Halia speakers use a semantically parallel compound, *ramun olo*. Dobu uses *?awa b^wasi*, literally ‘channel of water’.

We have one lower-level reconstruction for a river branch.

PEOC **maŋa* ‘river branch, tributary’

SES:	Arosi	<i>maŋa</i>	‘V-shaped bend where a tributary meets the main stream’
Mic:	Kiribati	<i>m^wāŋa</i>	‘branching off, branch road, limb of a tree’
Pn:	Tongan	<i>maŋa</i>	(V) ‘fork, branch out, divide’, (N) ‘branch, fork’
Pn:	Maori	<i>maŋa</i>	‘branch of a river’

6.2 Spring

For coastal dwellers, fresh water is often obtained from springs. PAN **Cebuj* ‘spring’ is continued in POC by doublets, **topu(R)* and **tupu(R)*. Oceanic reflexes refer mainly to springs on a beach or shoreline, or to brackish water. Doublets are found in some Southeast Solomonian languages.

PAN **Cebuj* ‘spring of water’ (ACD)

PMP **tebuR*, **tubuR* ‘spring of water’ (ACD)

POC **topu(R)*, **tupu(R)* ‘freshwater spring on the beach, often brackish’

PT:	Kukuya	<i>tovo(ha)</i>	‘spring of water’
MM:	Kia	<i>futu</i>	‘water spring’ (metathesis)
SES:	Gela	<i>tuvu</i>	‘a well’
SES:	Lau	<i>ʔufu</i>	‘mixed fresh and sea water in the lagoon’ (initial glottal unexpected)
SES:	Kwaio	<i>ufu</i>	‘spring, flowing stream’
SES:	’Are’are	<i>ohu-ohu(a)</i>	‘brackish water’
		<i>uhu</i>	‘a backwater, brackish water; spring of fresh water on the sea shore’
SES:	Sa’a	<i>(mara)ohu</i>	‘pool with salt and fresh water mixed’
		<i>uhu</i>	‘backwater, brackish water’
SES:	Arosi	<i>(mara)ohu(a)</i>	‘brackish, of water on shore’
		<i>uhu</i>	‘a well dug by the shore; rivulets of salt water from reef to sea; brackish water on the reef’
NCV:	Mota	<i>tov</i>	‘spring below high water mark; the brackish water of such a spring’
Fij:	Bauan	<i>tuvu</i>	(N) ‘spring of fresh water on the beach’; (V) <i>tuvu-ca</i> ‘add fresh water to s.t.’

Pn:	Tongan	<i>tufu</i>	‘spring of water, esp. one on the beach’
Pn:	E Futunan	<i>tufu</i>	‘spring of water, usually on the beach’
Pn:	Rennellese	<i>tuhu</i>	‘natural salt-water ponds connected underground with the sea’
Pn:	Samoaan	<i>tufu</i>	‘pool or spring of fresh water near the shore’
Pn:	Tikopia	<i>tufu</i>	‘spring of brackish water’

Polynesian languages have a well-attested term for ‘spring’ which continues a PMP form meaning ‘source’. Curiously, no reflexes have been found in other Oceanic languages.

PMP **punay* ‘source, origin’ (ACD)

POc **buna(η)* ‘spring of water’

PPn **puna* (N) ‘a spring’; (V) ‘bubble or well up (of water)’

Pn:	Niuean	<i>puna</i>	‘spring up, bubble up’
Pn:	Tongan	<i>puna</i>	‘spurt forth’
		<i>(vai)puna</i>	‘spring of water. Used instead of <i>vaitupu</i> if the water rises up like a fountain’
Pn:	E Futunan	<i>puna</i>	‘(water) spring, spurt forth’
Pn:	Pukapukan	<i>puna</i>	‘water spring’
Pn:	Samoaan	<i>puna</i>	‘spring, source’
Pn:	Tuvalu	<i>puna</i>	‘(water) bubble or boil’
Pn:	Rarotongan	<i>puna</i>	‘spring’
Pn:	Tokelauan	<i>puna</i>	‘spring’
Pn:	Anutan	<i>puna</i>	‘spring of water’ (Yen)
Pn:	Maori	<i>puna</i>	‘spring, well up, flow’
Pn:	Tuamotuan	<i>puna</i>	‘spring, well up, flow’
Pn:	Hawaiian	<i>puna</i>	‘spring (of water)’

The next reconstruction, in its simple form **pura(q)*, was primarily a verb ‘bubble up’. Its reduplicated form may have served as a noun denoting a spring as it does in several Southeast Solomonic witnesses and in Bauan Fijian. Among several similar forms (see Ch.4, §2.5), Blust (ACD) lists PMP **budaq* ‘foam, bubbles, lather, scum, froth’, continued as POc **pura-puraq* ‘foam, bubbles, bubble up’. The related forms include POc **puro* ‘bubble up, (hot spring) boil’ (p.83).

PMP **budaq* ‘foam, bubbles, lather, scum, froth’ (ACD)

POc **pura(q)*, **pura-pura(q)* (V) ‘bubble up, as spring of water’, (N) ‘spring’ (ACD: ‘foam, bubbles, bubble up’)

Adm:	Mussau	<i>ula-ula</i>	‘bubble up’
PT:	Kiriwina	<i>ūla</i>	‘source’
SES:	Gela	<i>vura</i>	‘bubble up’
		<i>vura ya ni beti</i>	(N) ‘spring’ (<i>beti</i> ‘water’)
SES:	Tolo	<i>vura-vura(na)</i>	‘fountain, spring of water’
SES:	Longgu	<i>vula-vula</i>	‘spring’
SES:	Kwaio	<i>fula-fula</i>	‘spring of water’

SES:	Arosi	<i>hura</i>	‘(water from a spring) gush out’
		<i>hura-hura</i>	‘a spring’
NCV:	Mota	<i>vura</i>	‘(water) spring forth, rise up’
		<i>vuro</i>	‘volcanic vent, hot spring’
Fij:	Bauan	<i>vure</i>	‘(water) spring up’
		<i>i-vure-vure</i>	‘a spring, source of water’
Fij:	Wayan	<i>vure</i>	(V) ‘spring up, well up’; (N) (i) ‘spring’; (ii) ‘source of things’

A number of languages use a compound, translatable literally as ‘eye of water’ or similar to refer to a spring. A POc reconstruction is possible given the existence of Indonesian *mata air* ‘spring’, reflecting PMP **mata WahiR* ‘spring of water’. Other compounds with similar meaning are found throughout the wider Oceanic region.

PMP **mata WahiR* ‘spring of water’

POc **mata waiR* ‘spring of water, source of a river’

SV:	Anejom	<i>nemta-n-wai</i>
Fij:	Wayan	<i>mata ni wai</i>
Pn:	Tongan	<i>mata-vai</i>
Pn:	Samoan	<i>mata-vai</i>

Other compounds retaining reflexes of POc **mata* ‘eye’ but varying in their term for ‘water’ include the following:

NNG:	Kaulong	<i>eki maran</i>
NNG:	Yabem	<i>bu mata</i>
PT:	Iduna	<i>gufa wa-mata</i>
MM:	Tolai	<i>mətə nə tavə</i>
SES:	Lau	<i>mā-fulafula</i>

6.3 Waterfall

The following reconstruction, POc **sa[p,b]u(q)*, is used both as a verb ‘fall, trickle down, of water’ and a noun ‘waterfall’.

PMP **sabuq* ‘drop, fall’ (Blust 1989:162)

POc **sa[p,b]u(q)* (N) ‘waterfall’, (V) ‘(water) fall’

NNG:	Buang	<i>(bel) rabu</i>	‘waterfall’ (<i>bel</i> ‘water’)
SES:	Ghari	<i>sa-savu</i>	‘waterfall’
NCV:	Fortsenal	<i>sevu</i>	‘waterfall’
Fij:	Bauan	<i>savu</i>	‘waterfall’
Fij:	Wayan	<i>savu</i>	(V) ‘(liquid) flow or run down, fall like a waterfall’; (N) ‘waterfall’
Pn:	Tongan	<i>hafu</i>	‘trickle down; small waterfall’
Pn:	Rennellese	<i>sahu</i>	‘to drip, flow, as water or blood’
Pn:	Samoan	<i>āfu</i>	‘waterfall’

POc **tape* has been reconstructed in Chapter 4 as both a noun and verb meaning ‘flow’, with reference to ocean currents. However, it is also reconstructable, possibly reduplicated, with the meaning ‘waterfall’.

POc **tape-tape* ‘waterfall; flow’

Adm:	Lou	<i>tapet</i>	‘waterfall’
PT:	Tawala	<i>tapa-tapana</i>	‘waterfall/rapids’
MM:	Tolai	<i>tavit</i>	(VI) ‘to run, of water’ (<i>tava</i> ‘water’)

7 Mineral substances (stone, obsidian, lime, pumice, sand, earth, salt)

The mineral substance most highly valued by POc speakers would have been hard, easily flakeable stone, ideally obsidian or flint, used to make razors, axes and knives. Obsidian was traded in the Bismarck Archipelago even in pre-Lapita times, but the range of the trade increased dramatically when Lapita settlements appeared in the late second millennium BC (Kirch 1997, Spriggs 1997, Summerhayes 2000a).

7.1 Stone

The generic term for ‘stone’ or ‘rock’ was POc **patu*.

PAn **batu* ‘stone’ (Blust 1999)

POc **patu* ‘stone, rock’

Adm:	Mussau	<i>atu</i>	‘stone, rock’
Adm:	Seimat	<i>hatu</i>	‘stone, rock’
Adm:	Kaniet	<i>fatu</i>	‘stone, rock’
NNG:	Takia	<i>pat</i>	‘stone, rock’
NNG:	Gedaged	<i>pat</i>	‘stone, rock, pebble’
NNG:	Kove	<i>patu</i>	‘stone, rock’
PT:	Kiriwina	<i>vatu</i>	‘big stone, rock’
MM:	Sursurunga	<i>batu</i>	‘k.o. coral rock found in the ocean and only underwater’
MM:	Tolai	<i>vat</i>	‘stone, rock’
MM:	Halia	<i>hatu</i>	‘stone (coral, limestone)’
MM:	Teop	<i>vasu</i>	‘stone, rock’
MM:	Roviana	<i>patu</i>	‘stone, rock’
SES:	Gela	<i>vatu</i>	‘stone, rock’
SES:	Lau	<i>fou, fau</i>	‘stone, rock’
SES:	’Are’are	<i>hau</i>	‘stone, rock’
SES:	Sa’a	<i>heu</i>	‘stone, rock’
SES:	Arosi	<i>hau</i>	‘stone, rock; coral’
NCV:	Mota	<i>vat, vatu</i>	‘stone, rock’
NCV:	Tamambo	<i>vatu</i>	‘stone, rock’
NCV:	Paamese	<i>a-hatu</i>	‘stone, rock’
SV:	Sye	<i>n-vat</i>	‘stone, rock’

SV:	Anejom	<i>in-hat</i>	‘stone, rock’
NCal:	Nemi	<i>paik</i>	‘stone, rock’
NCal:	Iaai	<i>veto</i>	‘stone, rock’
NCal:	Cèmuhî	<i>pei</i>	‘stone, rock’
Mic:	Kiribati	<i>ati-</i>	‘prefix for stone, rocks in compounds’
Mic:	Puluwatese	<i>fawi-</i>	‘stone, coral, rock’
Mic:	Woleaian	<i>faï-</i>	‘stone, rock’
Fij:	Bauan	<i>fatu</i>	‘stone, rock’
Pn:	Niuean	<i>patu</i>	‘stone, rock’
Pn:	Rennellese	<i>hatu</i>	‘stone, rock, coral’
Pn:	Samoan	<i>fatu</i>	‘stone, rock’
Pn:	Takuu	<i>fatu</i>	‘stone, rock, coral’
Pn:	Tikopia	<i>fatu</i>	‘stone, rock’
Pn:	Mele-Fila	<i>fatu</i>	‘stone, rock’
Pn:	Maori	<i>φatu</i>	‘stone, rock’
Pn:	Hawaiian	<i>haku</i>	‘stone, rock’

The form below is a reduplication of POc **maga* ‘stone; slingshot’ (vol. 1, p.227). It probably referred to gravel or pebbles, as its reflexes do in Polynesian and Micronesian languages. Western Oceanic cognates show a semantic shift to ‘sand’.

POc **maga-maga* ‘small stones, pebbles, gravel’

NNG:	Mangap	<i>maŋ-māŋga</i>	‘fine sand by the river’
NNG:	Kove	<i>maŋa-maŋa</i>	‘mixed firm and soft ground, as at the edge of a swamp’
NNG:	Kilenge	<i>(na)maŋa</i>	‘sand’
NNG:	Adzera	<i>maga-maŋk</i>	‘sand’
PT:	Kukuya	<i>maga-ma</i>	‘sand’
MM:	Vitu	<i>maga-maga</i>	‘sand’
MM:	Meramera	<i>maga-maga</i>	‘sand, earth’ (<i>tumaga</i> ‘sling’)
MM:	Nakanai	<i>maga(sa)</i>	‘earth, ground’
Mic:	Woleaian	<i>(faï)m^waxa</i>	‘gravel’ (<i>faü</i> ‘numeral classifier for round objects such as stones, balls, nuts’)
Mic:	Sonsorolese	<i>(fatü)maka</i>	‘gravel, pebble’
Pn:	Tongan	<i>maka-maka</i>	‘little stones, pebbles’
Pn:	Samoan	<i>maŋa-maŋa</i>	‘small stones, pebbles’

7.2 Flint, obsidian

Two reconstructions for obsidian were proposed in volume 1 (p.93), one at POc level and one at PWOC. They are:

POc **na[d,dr]i* ‘flint, obsidian, stone with a cutting edge’

NNG:	Takia	<i>nad</i>	‘obsidian, volcanic glass’
PT:	Motu	<i>nadi</i>	‘stone’
PT:	Dobu	<i>nadi-nadi</i>	‘rock, 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]iŋ* ‘obsidian’

NNG:	Kove	<i>ali-ali</i>	‘obsidian’
NNG:	Lusi	<i>ali-ali</i>	‘obsidian’
NNG:	Gedaged	<i>yaliŋ</i>	‘obsidian (a splinter of it serves as a razor)’
PT:	Duau	<i>kalilia</i>	‘arrow’
PT:	Sudest	<i>kayina</i>	‘knife’
MM:	Nakanai	<i>hali</i>	‘obsidian, razor, formerly made from obsidian’
MM:	Meramera	<i>ali</i>	‘obsidian’

7.3 Coral, limestone

POC **laje* was the general term for coral as the substance from which reefs are formed. It was also used to refer more specifically to living coral of the branching kind, in contrast with, for instance, POC **buŋa* ‘smooth, round coral’. The cognate sets for **laje* and **buŋa* are included in Chapter 4, §3.1.

Dead coral was evidently valued as coral rubble (POC **giri-giri*), and as a source of the lime (POC **qapu(R)*), taken with betelnut.

POC **giri-giri* ‘coral, coral rubble’

PT:	Motu	<i>giri-giri</i>	‘coral’
PT:	Iduna	<i>gili-gili</i>	‘coral’
PT:	Dobu	<i>gili-gili</i>	‘coral, broken’ (<i>gili</i> ‘coral’)
PT:	Dau	<i>gili</i>	‘coral’
Fij:	Bauan	<i>gere-gere</i>	‘gravel’
Pn:	Niuean	<i>kili-kili</i>	‘gravel’
Pn:	Tongan	<i>kili-kili</i>	‘gravel’
Pn:	Rennellese	<i>kigi-kigi</i>	‘pebble, gravel, coral rubble’
Pn:	Pukapukan	<i>kili-kili</i>	‘coral gravel’
Pn:	Samoa	<i>ŋli-ŋli</i>	‘gravel’
Pn:	Maori	<i>kiri-kiri</i>	‘gravel’
Pn:	Hawaiian	<i>ŋli-ŋli</i>	‘pebble’

The chewing of betelnut, combined with lime and pepper as a stimulant, is widespread in northwest Melanesia and the Solomons, but is not practised further east. Lime could be obtained by burning shells as well as coral.

PAn **qapuR* ‘lime, calcium’ (ACD)

POC **qapu(R)* ‘lime, burnt coral or limestone’

Adm:	Likum	<i>ah</i>	‘lime, burnt coral or limestone’
Adm:	Lou	<i>kɔp</i>	‘lime; lime gourd’
Adm:	Wuvulu	<i>afu</i>	‘lime in lime gourd’
Adm:	Seimat	<i>wapu</i>	‘lime, prepared coral’ (Smythe)

NNG:	Gitua	<i>avu</i>	‘lime (calcium oxide)’
NNG:	Lukep	<i>kau</i>	‘lime: made of cooked and crushed coral’
NNG:	Takia	<i>kau</i>	‘lime, burnt coral or limestone’
PT:	Mekeo	<i>apu</i>	‘lime, burnt coral or limestone’
PT:	Roro	<i>abu</i>	‘lime, burnt coral or limestone’
PT:	Motu	<i>ahu</i>	‘lime, burnt coral or limestone’
MM:	Bali	<i>kavu</i>	‘betel lime’ (k for <i>y</i> unexpected)
MM:	Nakanai	<i>havu</i>	‘lime for chewing with areca nut, made from clam shell’
SES:	Gela	<i>avu</i>	‘lime holder; slaked lime’
SES:	Lau	<i>safu</i>	‘lime, burnt coral or limestone’
SES:	‘Are’are	<i>sahu</i>	‘lime, burnt coral or limestone’
SES:	Arosi	<i>ahu</i>	‘lime; branching coral’
SES:	Bauro	<i>ahu</i>	‘lime, burnt coral or limestone’

7.4 Pumice

Pumice is a porous solidified lava that floats and is also useful as an abrasive. A compound term reflecting POc **patu + maqañur* (‘stone’ + ‘float’) is reconstructable for PEOc.

PEOc **patu maqañur* ‘pumice’ (lit. ‘floating stone’)

SES:	Kwaio	<i>fou manu-manu</i>	‘pumice’
SES:	‘Are’are	<i>hau manu-manu</i>	‘pumice’
SES:	Lau	<i>fou manu-manu</i>	‘pumice’
SES:	Arosi	<i>hau manu-manu</i>	‘pumice’
Pn:	Tikopia	<i>fatu manu</i>	‘pumice’

Other compound terms include Roviana (MM) *patu ale* and Gela (SES) *vatu ali*, exhibiting reflexes of POc **qaliR* ‘drift, float’ rather than POc **maqañur* ‘floating, adrift’.

Proto Micronesian had its own term for pumice, probably preposed by **fatu* ‘stone’.

PMic **(fatu) wāni* ‘pumice’ (Marck 1994)

Mic:	Kiribati	<i>wān</i>	‘pumice’
Mic:	Kosraean	<i>yot-wen</i>	‘basalt’
Mic:	Mokilese	<i>wēn</i>	‘pumice’
Mic:	Satawalese	<i>(wu)wan</i>	‘pumice’
Mic:	Woleaian	<i>(u)wāri</i>	‘lava rock’

A distinctive term, PCP **vuqa(i)ŋa*, is reflected in Fijian and Polynesian. This term also referred to grindstones, reflecting the use of pumice as an abrasive.

PCP **vuqa(i)ŋa* ‘pumice; whetstone, grindstone’ (vol. 1, p.94)

Fij:	Wayan	<i>vuaiŋō</i>	‘pumicestone, pumice; used for scouring coconut-shell cups’
Pn:	Tongan	<i>fu ŋo-fu ŋaŋa</i>	‘pumice’
Pn:	E Futunan	<i>fu ŋaŋa</i>	‘grindstone, whetstone’

Pn:	Tikopia	<i>fuʔaŋa</i>	‘whetstone’
Pn:	Mele-Fila	<i>foʔaŋa</i>	‘pumice’
Pn:	Mangareva	<i>hoʔaŋa</i>	‘volcanic stone used as hone or sharpener’
Pn:	Maori	<i>hōʔaŋa</i>	‘sandstone used in grinding stone’

7.5 Sand

There is a well-attested POC term for ‘sand’ which continues a PAN etymon (see also POC **nuku* ‘sandy ground’, p.45).

PAN **qenay* ‘sand’ (ACD)

POC **qone* ‘sand, sandy beach’ (ACD)

Adm:	Lou	<i>kone</i>	‘sand, beach’
Adm:	Loniu	<i>(te ʔe)won</i>	‘sand, sandy soil’
Adm:	Bipi	<i>won</i>	‘sand’
Adm:	Nyindrou	<i>on</i>	‘sand’
SJ:	Bongo	<i>on</i>	‘sand’
NNG:	Wogeo	<i>one</i>	‘beach’
NNG:	Kairuru	<i>un</i>	‘beach’
PT:	Motu	<i>kone</i>	‘beach; sea coast’
MM:	Tabar	<i>kone</i>	‘beach’
MM:	Nduke	<i>(kara)kone</i>	‘sand’
SES:	ʻAreʻare	<i>ōne</i>	‘sand, beach sand, beach’
SES:	Lau	<i>one</i>	‘sand’
SES:	Kwaio	<i>one</i>	‘sand; beach’
SES:	Saʻa	<i>one</i>	‘sand’
SES:	Arosi	<i>one</i>	‘shore, beach’
NCV:	Mota	<i>one</i>	‘sand’
NCV:	Raga	<i>one</i>	‘sand, beach’
NCV:	Lonwolwol	<i>won</i>	‘sand’
NCal:	Nêlêmwa	<i>on</i>	‘sand’
NCal:	Nemi	<i>kon</i>	‘sand’
Pn:	Tongan	<i>ʔone</i>	‘sand’ (in compounds)
Pn:	Nanumean	<i>one</i>	‘sand, soil’
Pn:	Rennellese	<i>ʔone</i>	‘sand, sand or rubble beach; to be plentiful as sands (poetic)’
Pn:	Tikopia	<i>one</i>	‘sand, sandy beach’
Pn:	Rarotongan	<i>one</i>	‘general name for soil, earth, sand, gravel’
Pn:	Maori	<i>one</i>	‘beach; sand, mud; in various names for different kinds of soil’
Pn:	Hawaiian	<i>one</i>	‘sand; sandy; silt; poetic name for land’

A reduplicated form of the above can also be reconstructed. This may have denoted the property ‘sandy’ as well as ‘sand’.

PMP **qenay qenay* ‘sandy’ (ACD)POc **qone qone* ‘sand, sandy’

MM:	Roviana	<i>on-one</i>	‘sand’
SES:	Gela	<i>one-one</i>	‘black sand’
SES:	Kwaio	<i>one-one</i>	‘sandy soil’
NCV:	Mota	<i>one-one</i>	‘a sandy beach’
NCV:	Tamambo	<i>one-one</i>	‘sand’
Pn:	Tongan	<i>ʔone-ʔone</i>	‘sand’
Pn:	Niuean	<i>one-one</i>	‘sand’
Pn:	Samoa	<i>one-one</i>	‘sand’ (<i>one-onea</i> ‘sandy, be sandy’)
Pn:	Rennellese	<i>ʔone-ʔone</i>	‘sandy, dry, crumbling, powdery, as over-dry grated coconuts’
Pn:	Tikopia	<i>one-one</i>	‘sandy; sand-coloured’
Pn:	Rarotongan	<i>one-one</i>	‘sandy, dirty, gritty’
Pn:	Maori	<i>one-one</i>	‘earth, soil; land’

7.6 Earth, soil

Two POc terms meaning ‘soil’ are well-supported: **tanoq* appears to have had three senses, (i) ‘earth, soil (as substance)’; (ii) ‘land, ground (as area or as opposed to sea)’ (this chapter, §2.1 and vol. 1, p.119), and (iii) ‘down on the ground, down below (as location)’ (Ch.8, §2.2.5). POc **p^way(a)* was probably limited to the first meaning.

Some soils contained pigments useful in both body and pot decoration. Although various wordlists include terms for red, white or yellow clay, we have not been able to reconstruct terms. Teeth-blackening was practised among Western Oceanic speakers (PWOC **tapal* ‘substance used to blacken teeth’; vol. 1, p.101), but it is unclear from the literature whether the substance was mineral or vegetable matter.

POc **p^way(a)* ‘soil, earth’

Adm:	Titan	<i>p^wa(ñ)</i>	‘ground, down, land’
NNG:	Poeng	<i>pae</i>	‘soil used to blacken teeth’
PT:	Kiriwina	<i>p^wai-p^waia</i>	‘real soil’
PT:	Gumawana	<i>poya-poya</i>	‘ground, dirt, earth’
PT:	Muyuw	<i>p^we-p^way</i>	‘ground, land, earth, soil, dirt’
PT:	Molima	<i>p^waya-p^waya</i>	‘dust’
SES:	Sa’a	<i>p^wei(nā)</i>	‘the garden ground just above the beach’

In the cognate set above, final *-a* is reflected only in PT languages, where it is often added after a POc final consonant. It is thus unclear whether **y* was final in this POc item. The Titan final *-ñ* and Sa’a final *-nā* are also not understood.

There is also a POc form, **p^wiRa*, whose reflexes are, geographically, apparently in complementary distribution with the above set.

POc **p^wiRa* ‘earth’

NNG:	Numbami	<i>puta</i>	
NNG:	Kela	<i>puk</i>	
NNG:	Hote	<i>pik</i>	
NNG:	Kis	<i>bula</i>	
NNG:	Kaiep	<i>bir</i>	
MM:	Notsi	<i>pulə</i>	
MM:	Tabar	<i>pira</i>	
MM:	Lihir	<i>puol</i>	
MM:	Lamasong	<i>pua</i>	
MM:	Barok	<i>pu</i>	
Fij:	Rotuman	<i>pera</i>	‘earth, soil’ (Schmidt)

Central Pacific shows an innovation in replacing **tano(q)* with *g^wele*.

PCP **g^wele* ‘earth, soil’

Fij:	Bauan	<i>gele</i>	‘earth, soil’
Fij:	Wayan	<i>g^wele</i>	‘earth’
Pn:	Niuean	<i>kele-kele</i>	‘earth, soil’
		<i>kele</i>	‘to be dirty, muddy; residue’
Pn:	Tongan	<i>kele</i>	‘mud, dirt or clay, in water or left behind as a sediment’
		<i>kele-kele</i>	‘land, soil, dirt, earth, ground’
Pn:	E Futunan	<i>kele</i>	‘earth’
Pn:	Rennellese	<i>kege</i>	‘earth, ground, dirt, land, soil, world’
Pn:	Samoa	<i>ʔele</i>	‘k.o. compact brown or red soil or stone’
		<i>ʔele-ʔele</i>	‘earth, soil’
Pn:	Tikopia	<i>kere</i>	‘earth, ground, soil; ritual uncleanness’
		<i>kere-kere</i>	‘soiled, muddy’
Pn:	Maori	<i>kere-</i>	‘earth (in compounds only)’

Another cognate set may share ancestry with PCP **g^wele*. It includes Dami (NNG) *gele* ‘swamp, soft ground’, certain Papuan Tip terms for ‘beach, sand’ (Wagawaga *gele-gele* ‘sand’, Suau (Daui) *gele-gele* ‘sand’, Nimoa *kele-kele* ‘sand’, Keapara (Hula) *kele* ‘beach’) and, less plausibly, Choiseul Island (MM) terms for a headland (Vaghua *kele-kele*, Varisi, Sisiqa, Babatana *ke-kele*). In this case PCP **g^w-* would be an irregular reflex (for expected **g-*) of POc **g-*.

7.7 Clay

Clay was used in pot manufacture, which was practised by POc speakers (see vol. 1, pp.67–71). Although non-Oceanic cognates of POc **raRo(q)* refer to ground or earth, e.g. Formosan Bunun *dalaq* ‘ground (earth, land, place, soil)’; WMP Ilocano *daga* ‘earth, land, soil’, and CMP Buru *rahe* ‘ground’, we can infer that in POc, **raRo(q)* referred specifically to ‘clay’. In NNG and Papuan Tip witnesses, reflexes refer to clay. Meso-Melanesian reflexes refer to clay cooking pots, but not, apparently, to the clay itself. New Caledonian reflexes refer to both clay and pots.

PAn **daReq* ‘soil, clay’

POc **raRo(q)* ‘clay; cooking pot’ (Milke 1965, Ross 1996d gloss ‘clay’ only)

NNG: Bing	<i>rar</i>	‘clay’
NNG: Gedaged	<i>laḷ</i>	‘clay, used by the Yabob and Bilibil people to make pots’
PT: Motu	<i>raro</i>	‘clay’
MM: Haku	<i>lolo</i>	‘cooking pot’
MM: Uruava	<i>raro</i>	‘cooking pot’
MM: Roviana	<i>raro</i>	‘pot, cooking vessel’
NCal: Yuanga	<i>dō</i>	‘soil, clay; cooking pot’
NCal: Nyelâyu	<i>dō</i>	‘soil, earth; cooking pot’

7.8 Salt

POc **maqasin* seems to have been both a stative verb meaning ‘be salty’ (vol. 1, p.159) and a noun meaning ‘salt’. Its PMP antecedent **ma-qasin*, however, was purely a stative verb meaning ‘be salty’, derived from the noun **qasin* ‘salty taste, salt’ (ACD). Like a number of other PMP stative verbs derived with **ma-* from nouns, the prefix of **maqasin* became fossilised in POc (Evans & Ross 2001).

PMP **ma-qasin* ‘salty’ (PAn **qasiN*, PMP **qasin* ‘saltiness, salty taste’) (ACD)

POc **maqasin* (V) ‘be salty’, (N) ‘salt’

Adm: Mussau	<i>masini</i>	‘salty’
NNG: Bing	<i>mahas</i>	‘sea; seawater’
NNG: Gedaged	<i>mas</i>	‘sea, ocean, sea water, saltwater; salt’
NNG: Kove	<i>masi-masi</i>	‘salty’
NG: Sengseng	<i>masiḡin</i>	‘salty’
NNG: Manam	<i>makasi</i>	‘ocean, saltwater, salt’
MM: Nakanai	<i>ma-masi</i>	‘salty’
MM: Meramera	<i>masi</i>	‘salt, sour’
SES: Bugotu	<i>mahi</i>	‘deep sea’
NCal: Cèmuḡh	<i>mât, mâlè</i>	‘salty’
Fij: Rotuman	<i>mōsi</i>	‘salt’
Fij: Bauan	<i>māsi(ma)</i>	‘salt obtained by evaporation from seawater’ (origin of <i>-ma</i> unknown)
Pn: Samoan	<i>māsi(ma)</i>	‘salt’ (origin of <i>-ma</i> unknown)
	<i>masi</i>	‘k.o. food made with breadfruit fermented in pit’
Pn: Tahitian	<i>mahi</i>	‘acid, fermented, breadfruit preserved by fermenting’

PAn **qasiRa* ‘salt’ has Oceanic reflexes. Despite the formal resemblance to PAn **qasiN*/PMP **qasin* ‘salt’, the supporting data in the ACD show clearly that these are distinct etyma. Blust (ACD) interprets the SES reflexes as reflexes of **tasik* ‘sea’ (see Ch.4, §2.1) with an added suffix *-la*, but it seems far more likely that they reflect POc **qasiRa* ‘salt’.

PAn **qasiRa* ‘salt’ (ACD)POc **qasiRa* ‘salt’

NNG: Gitua	<i>asira</i>	‘residue of salt spray’
SES: Lau	<i>asila</i>	‘salt’
SES: Kwaio	<i>asila</i>	‘salt’
NCV: Lewo	<i>sī</i>	‘salt’

8 Fire

Oceanic languages generally have a sizeable vocabulary relating to fire. The present discussion is concerned chiefly with the chemistry of fire, i.e. with terms for the processes and products of burning. Cognate sets and reconstructed terms to do with human uses of fire were dealt with in volume 1 and most of these items will not be discussed here. The reconstructions presented in volume 1 (pp.143–157, 293–295) include Poc **api* ‘fire’, **rapu(R)* ‘hearth, fireplace’, **suka*, **suka-i* ‘make fire with fire plough’, **tutu(η)*, **tuŋi-* ‘set fire to, light (a fire)’, **tunu* ‘roast on embers or in fire’, **sunu* ‘sing’, **nasu(q)* ‘boil’, **pa[ka]-qasu* ‘cure by smoking’, **tapa* ‘dry food by heat to preserve it, smoke food’, **rararŋ*, *rarŋ-i* ‘heat s.t. or warm oneself by fire’, **sokot-i* ‘burn grass, rubbish +’, **sulu* ‘dry coconut leaf torch’, **qumun* ‘oven made with hot stones’ and PEOc **papia* ‘firewood’.

Oceanic languages, by and large, make similar lexical distinctions to everyday English when talking about chemistry of fire, but the matches are not exact. Many Oceanic primary terms (single morpheme lexemes) are polysemous or have a rather broad range of reference, e.g. in a given language the same term may denote both ‘ashes’ and ‘fireplace’, or ‘ash’ and ‘soot’, or ‘live coals’ and ‘embers’. English too, is vague or general in many of its primary terms, and relies on compounds and phrasal expressions to make finer distinctions, for example embers has a broad range of reference, as shown by such conventional descriptive expressions as *live coals*, *glowing embers*, *dying embers*, *dull black embers*, *hot ash*, *white ash*.

The kinds of lexical distinctions commonly made in Oceanic languages in this semantic domain can be exemplified by comparing Mota, of the Banks Is., Vanuatu (Codrington and Palmer 1896) and Kiriwina of the Trobriand Is., Milne Bay Province, Papua New Guinea (Lawton pers. comm.).

Mota has the general term *av* ‘fire’ and at least nine terms for kinds of burning and emissions from fire: *gao* ‘burn (intr.)’, *gao-serlawalawa* ‘burn with flame’, *pepe-roworowo* ‘(of sparks, flames) fly up, flare, flash’, *malawo-av* ‘fire flaming high’, *gara-mwea-av* (N) ‘flame’, *lawa* (V) ‘to blaze, flame’, *lolowo* ‘to flare, flame’, *tajajoi* ‘(fire) almost gone out’, *asu* (N) ‘smoke’, (V) ‘emit smoke, go up as smoke’. Mota also distinguishes the following stages in the reduction of wood by burning: *gar-tajasul* ‘firestick, burning log or stick’, *gao-searag* ‘(of fuel) burn from middle to outside’, *gao-taweraga* ‘burn down into embers’, *mata-were-av* ‘live embers’, *tawene* ‘a live coal, single live ember’, *taweris* ‘dull black embers’, *gar-taweris* ‘black embers, charcoal’, *tajarnai* ‘fine ashes’, *tuwus* ‘the accumulation of ashes in a fireplace’, *tarowo* ‘ashes, white ashes of burnt out wood’. It can be seen that about half of these 21 Mota terms are compounds. Some dictionaries of Oceanic languages are weak in coverage of compounds and for this reason their listings of fire terms are probably deficient.

In Kiriwina, in addition to the three general terms *kova* (i) ‘fire’, (ii) ‘firestick’, *kaimova* ‘(fire) be alive’, and *kaimata* ‘(fire) be dead’, there are at least eight terms for burning and emissions from fire: *-gabu* ‘burn (intr.)’, *lulu* ‘blaze’, *mayela kova* ‘tongues of fire’, *kata* ‘burn without flame’, *kubowa* ‘visible heat above a fire’, *visiga* ‘glow from (unseen) fire’, *mseu* (N) ‘smoke’, and *womi* ‘(of smoke) drift, fill house’, and at least half a dozen terms for stages in the reduction of wood: *pwakova* ‘hot coals’, *kovagwaia* ‘smouldering ember or spark’, *pwanosu* ‘cold ashes, residue of white ash and charcoal left after a fire’, *tubwaga* ‘white ash from dead fire’, *kainunukwa* ‘partially burnt stick’, and *vakatutu* ‘burn up completely’.

8.1 Fire

The PAn name for fire, **Sapuy*, is among the more stable terms in the lexicon.

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>
MM:	Nakanai	<i>havi</i>
NCV:	Mota	<i>av</i>
NCV:	Merlav	<i>ai</i>
NCV:	Tasmate	<i>apu</i>
Mic:	Kiribati	<i>ai</i>
Mic:	Woleaian	<i>yaf</i>
Pn:	Tongan	<i>afi</i>
Pn:	Hawaiian	<i>ahi</i>

In some Oceanic languages reflexes of POc **api* are also used as a verb meaning ‘be on fire, burn’. However, this does not appear to have been the case in POc. There are stronger candidates for the verbal meaning (see §8.3 below).

8.2 Stages of reduction of wood by burning

Blust (ACD) reconstructs PMP **luten* ‘firewood’ based on WMP: LongWat *luten* ‘fire’, Kayan *luten* ‘firebrand, partly burnt stick’, Bisaya Bukit *lutan* ‘burning brand’, CMP: Tetum *hañ lutan* ‘burning brand’, SHWNG Sawai *luten* ‘fire’, Oceanic: Mota *lito* ‘firewood’. Blust (ACD) glosses the variants PMP **aluten* and **aliten* as (i) ‘firebrand’, (ii) ‘burning wood in a fire’, (iii) ‘charred wood’, but does not cite (iv) ‘firewood’. The Oceanic evidence offers support for senses (i) and (less strongly) (iv).

PMP **luten* ‘firewood’ (ACD), PMP **aliten*, **aluten* (i) ‘firebrand’; (ii) ‘unconsumed wood in a fire’; (iii) ‘charred wood’ (ACD)

POc **alito(n)* (N) ‘firebrand, piece of burning wood’

NNG: Takia	<i>yalit</i>	‘piece of wood with fire burning in it’
NNG: Gedaged	<i>yalit</i>	‘piece of charred wood’
NNG: Swit	<i>alit</i>	‘piece of charred wood’

PEO **lito* ‘(?) firebrand’

NCV: Mota	<i>lito</i>	‘firewood’
NCV: Motlav	<i>na-let</i>	‘firewood’
SV: Anejom	<i>(n)ijis</i>	‘torch’
Fij: Bauan	<i>lito</i>	‘wave a firebrand to keep it alight’
Fij: Wayan	<i>lito</i>	‘shake firebrand to keep it alight’
	<i>lito-lito</i>	‘travel by light of burning stick’
Pn: E Futunan	<i>lito</i>	‘shake a coconut leaf to make it burn’
Pn: Hawaiian	<i>liko</i>	‘glowing, sparkling, burning’

cf. also:

NNG: Tami	<i>kalit</i>	‘ashes’ (indicating earlier <i>*(q,k)alitV</i>)
NNG: Dami	<i>galit</i>	‘embers’
NNG: Ulau-Suain	<i>yalit</i>	‘grey ash’

It appears that most Oceanic languages use a single term to refer to both ‘hot coals’ and ‘embers’. At any rate most dictionaries of Oceanic languages do not record such a distinction. POc **kora*n appears to have been used both as a noun denoting ‘fragments of burning wood’ and as a verb meaning something like ‘burn brightly’.

POC **kora*n (N) ‘(?) embers, glowing coals’, (V) ‘(?) burn brightly’

MM: Tinputz	<i>oran</i>	‘glowing embers’
MM: Halia	<i>korana</i>	‘live coal, ember’
MM: Maringe	<i>yo-yola</i>	‘scorched’
SES: ’Are’are	<i>kora</i>	‘charcoal, embers, ash’
	<i>ora</i>	‘fireplace’
	<i>ʔora-ʔora</i>	‘dust, ashes’
SES: Ulawa	<i>ora</i>	(i) ‘ashes’; (ii) ‘to flame, burn brightly’
SES: Arosi	<i>ʔora, ʔora-ʔora</i>	‘blaze’
Pn: Maori	<i>kora</i>	(N) ‘spark; fire, fuel’, (V) ‘gleam’

PMP **baRah* ‘live coal’ may be reconstructed from, e.g. Tagalog *baga*, Malay *bara*, Ngadju-Dayak *barah* ‘live coal’. This is possibly continued in Ramoaina *para* ‘bake on fire’, Motu *hara-ia* ‘light a fire; broil’, *hara* ‘platform of sticks on which meat is grilled’ but the meaning differences leave a question. There is already a distinct, well-established POc reconstruction for ‘cook over an open fire, roast over embers’, namely **tunu* (vol. 1, pp.293–294).

The following cognate set is tentatively attributed to a POc etymon glossed ‘low-burning remnants of a fire’. The Meso-Melanesian reflexes suggest ‘ash’ or ‘charcoal’. However, the meaning ‘ash’ can be eliminated because there are much stronger candidates for this. The partial agreement between Tolai, Wayan Fijian and Gela points to low-burning residue of some sort.

POc **kapuru* ‘low-burning remnants of a fire’

MM:	Vitu	<i>yabulo</i>	‘grey ash’
MM:	Malasanga	<i>gavura</i>	‘grey ash’
MM:	Malalamai	<i>gawur</i>	‘grey ash’
MM:	Tolai	<i>kavolo</i>	‘cinders’
MM:	Samasodu	<i>kɔfuru</i>	‘ashes’
MM:	Kilokaka	<i>kɔfru</i>	‘ashes’
MM:	Roviana	<i>kavuru</i>	‘dust’
MM:	Maringe	<i>k^ho-kobru</i>	‘charcoal’
MM:	Nduke	<i>kavuru</i>	‘dust’
SES:	Gela	<i>kou-kovuru</i>	‘embers’
		<i>ko-kovuru</i>	‘soot’
SES:	Bugotu	<i>kou-kovuru</i>	‘ember’
Fij:	Wayan	<i>kavuru</i>	‘burning end of piece of wood’

Charcoal is likely to have been distinctively named in Proto Oceanic. Carbonised wood was widely used in Pacific Island communities for drawing marks or, pounded and mixed with oil and water, for smearing on the skin. PMP **uRiŋ* ‘charcoal, wood that is charred (but no longer burning fiercely)’ has been reconstructed by Dempwolff and others, based on e.g. Tagalog *uliŋ*, Bontok *uriŋ*, Ngadju-Dayak *b/uriŋ*, etc. but Oceanic cognates have not been noted. There is a well supported reconstruction for Eastern Oceanic, **malala*, but this lacks clear cognates in Western Oceanic.

PEO **malala* ‘charcoal, charred wood’; ‘(?) coals, embers’

SV:	Anejom	<i>(inhu)mala</i>	‘charcoal’
Mic:	Kiribati	<i>marara</i>	‘charcoal’
Mic:	Marshallese	<i>mælle</i>	‘embers, charcoal’
Pn:	Tongan	<i>malala</i>	‘charcoal, carbon’
		<i>malala-ʻā afi</i>	‘embers’
Pn:	Samoa	<i>malala</i>	(i) ‘charcoal’; (ii) ‘(of firelight) glow’
Pn:	Rennellese	<i>magaga</i>	‘charcoal, soot’
Pn:	Tikopia	<i>mararā</i>	‘charcoal’
Pn:	Takuu	<i>malla</i>	‘red hot’
Pn:	Rarotongan	<i>mārara</i>	‘burn with a low, clear glow’
Pn:	Mangaia	<i>marara</i>	‘glowing coals’

cf. also:

MM:	Bareke	<i>ŋgalala</i>	‘flame’
MM:	Vangunu	<i>ŋgalala</i>	‘flame’
MM:	Babatana	<i>ŋgala</i>	‘flame’
Fij:	Rotuman	<i>mahala</i>	‘cinders, charcoal’

POc used at least two terms to denote ashes. These had distinct but overlapping meanings. It appears that **rapu(R)* referred specifically to ‘ashes of a fire’; the same term was also used for ‘hearth, fireplace’. A second term, **qapu* or **kapu*, denoted ‘ash, dust, powder’ and its core meaning was probably ‘a mass of fine particles of matter’. The second term may also have been applied to volcanic ash and cinders. Several Oceanic

languages reflect both **rapu(R)* and a reduplicated form **rapu-rapu(R)*; but the dictionaries generally specify no difference in meaning between reflexes of the two.

PAn, PMP **dapuR* ‘hearth, fireplace’

POc **rapu(R)* (i) ‘ashes’; (ii) ‘fireplace, hearth’, **rapu-rapu(R)* ‘ashes’

PT:	Motu	<i>rahu-rahu</i>	(i) ‘ashes’; (ii) ‘fireplace’
SES:	Gela	<i>ravu</i>	‘ashes’
SES:	Longgu	<i>ravu</i>	‘ashes’
SES:	Arosi	<i>rahu(-na)</i>	‘ashes’
Fij:	Bauan	<i>dravu</i>	‘ashes, slacked lime’
		<i>dravu(sā)</i>	‘ashes of wood’
		<i>(mata)dravu</i>	‘fireplace, hearth’
Fij:	Wayan	<i>ravu</i>	‘ashes’

PPn **refu*, **refurefu* ‘ashes’

Pn:	Tongan	<i>efu-efu</i>	‘ashes’
Pn:	Niuean	<i>efu</i>	‘ash’
		<i>efu-efu</i>	‘ashes’
Pn:	Samoaan	<i>lefu-lefu</i>	‘ashes’
Pn:	Maori	<i>rehu</i>	‘fine dust, haze, mist, spray’
		<i>(puŋa)rehu</i>	‘ashes’
		<i>(ŋa)rahu</i>	‘charcoal; any black pigment; cinders’

Blust (ACD) attributes, to varying Austronesian interstages, a number of fairly similar forms whose gloss includes one or more of the following: ‘ash’, ‘dust’, ‘cinders’, ‘powder’. These forms include PAn **qabu* ‘ash, cinders, powder’, PMP **abus* ‘ashes’, **qabuk* ‘dust’, and PWMP **abuR*, **apuk*, **qabug* ‘dust’. PAn **qabu*, by far the most widely attested of these forms, is continued with regular reflexes in a number of Oceanic languages.

PAN **qabu* ‘ashes’ (ACD)

POc **qapu* ‘ashes, dust’

Adm:	Mussau	<i>au</i>	‘ashes’
NNG:	Gitua	<i>avu-avu</i>	‘ashes’
NNG:	Sobei	<i>afu</i>	‘ashes’
PT:	Iduna	<i>avu</i>	‘ashes’
MM:	Bali	<i>yavu</i>	‘ashes’
MM:	Teop	<i>avu</i>	‘ashes’
NCV:	Tamambo	<i>(batui) avu</i>	‘ashes’
NCV:	Raga	<i>avu</i>	‘ashes’
NCV:	Tolomako	<i>avu</i>	‘ashes’
Fij:	Bauan	<i>yavu</i>	‘burnt up, consumed’
Fij:	Wayan	<i>(bula)avu</i>	‘consumed by fire’
Pn:	Tongan	<i>efu</i>	‘dust’
Pn:	Samoaan	<i>efu-efu</i>	‘dust’
Pn:	Hawaiian	<i>ehu</i>	‘dust’

However, many Western Oceanic languages have forms that point to a form **kapu* meaning ‘ash, dust’, with initial **k* rather than **q*.

PWOC **kapu* ‘ash, dust, cinders’

NNG	Manam	<i>gopu</i>	‘ashes, dust’
NNG:	Kove	<i>gavu-gavu</i>	‘ashes’
NNG:	Wogeo	<i>gefu</i>	‘ashes’
NNG:	Kairiru	<i>kʷaf</i>	‘ashes’
PT:	Motu	<i>kahu</i>	‘ashes’
PT:	Hula	<i>kavu</i>	‘ashes’
PT:	Dobu	<i>kau</i>	‘dust’
		<i>(kari)kau</i>	‘ashes’
MM:	Tolai	<i>kabu</i>	‘dust, ashes, cinders’
MM:	Sisiqa	<i>kau</i>	‘ashes’
MM:	Babatana	<i>kau</i>	‘dust’
MM:	Katazi	<i>kau</i>	‘ashes’
MM:	Ghanongga	<i>kau</i>	‘ashes’
MM:	Lungga	<i>kavu</i>	‘ashes’

It is noteworthy that in this set the NNG reflexes show initial **g-*, whilst PT and MM languages all show an unexpected fortis reflex of **k* rather than the usual lenis reflex. One possible explanation for this is that, at some stage, perhaps in PWOC, reflexes of POC **qapu* were contaminated by association with reflexes of POC **(g,k)abu* ‘burn, firewood’ (see §8.3 below).

In some Oceanic languages reflexes of POC **qapu* ‘ashes, dust’ fell together formally with reflexes of **qapu(R)* ‘lime’ (see §7.3 above). Because lime is a powdery substance (made by roasting calcerous rock, such as coral or limestone, and used in some Oceanic societies for ritual and decorative purposes and for consumption with betelnut) this meaning may have been regarded as related to ‘dust’ and ‘ashes’.

8.3 Burning, being on fire

A number of terms for the general process of burning or being on fire can be reconstructed.

POC **(k,g)abu* (V) ‘burn, be on fire’, (N) ‘(?) firewood’

NNG:	Wab	<i>gabu</i>	‘smoke’
PT:	Motu	<i>gabu-(a)</i>	‘burn’
PT:	Dobu	<i>gabu</i>	‘burn’
PT:	Kiriwina	<i>-gabu</i>	‘burn’
PT:	Muyuw	<i>gab, gob</i>	‘burn’
SES:	Lau	<i>(sina)?abu</i>	‘glow (of fire)’
NCV:	Tolomako	<i>ɣapu</i>	‘fire, firewood’
NCV:	Makura	<i>(na)kam</i>	‘fire’
NCV:	Sesake	<i>(na)kapu</i>	‘fire, firewood’
SV:	Kwamera	<i>(N)apw</i>	‘fire’
SV:	Anejom	<i>(N)ɣap^w</i>	‘fire’

cf. also:

NNG:	Dami	<i>kau</i>	‘smoke’
MM:	Tolai	<i>kabu</i>	‘ashes, cinders’
Fij:	Bauan	<i>buka</i>	‘firewood’ (? metathesis)

POc **bula* ‘(?) burn, be alight’, PEOc **bula* ‘burn, be on fire, in flames’

NNG:	Manam	<i>bula</i>	(V) ‘light (a fire)’
Mic:	Puluwatese	<i>p^wɪl</i>	(V) ‘burn, be lighted, in flames’ (N) ‘flame’
Mic:	Woleaian	<i>p^wura</i> <i>p^wup^wura</i>	‘burn, light up’ (N) ‘flame, blinking of light’
Fij:	Bauan	<i>bula</i>	(V) ‘be on fire, burn’
Fij:	Wayan	<i>bula</i> <i>bula-ni-a</i>	(V) ‘be on fire, burn’, (N) ‘conflagration’ ‘burn s.t., set s.t. ablaze’
Fij:	Rotuman	<i>pula</i>	(V) ‘catch alight, burn, flare up suddenly’, (N) ‘flame, (lightning) flash’

cf. also:

PPn **mula* ‘burst into flame’

Pn:	Niuean	<i>mumula</i>	‘flare up’
Pn:	Maori	<i>mura</i> <i>mura-mura</i>	‘flame, blaze’ ‘burst into flame’
Pn:	Rarotongan	<i>mura</i>	‘burn, glow, flame; show red’

PPn **pula* ‘shine, glow’

Pn:	Niuean	<i>pula</i>	‘shine, glow (of new moon)’
Pn:	Samoa	<i>pula</i> <i>pupula</i>	‘shine, glow’ ‘shine, glow’

POc **udra* ‘be on fire, alight, flaming’

MM:	Torau	<i>uda</i>	‘fire’
Mic:	Kiribati	<i>ura</i> <i>ura maka</i>	(i) ‘flame’; (ii) ‘passion’ ‘flaming, blazing’
Fij:	Bauan	<i>(ǫa)udre</i> <i>(ǫa)udra(-va)</i>	‘alight, burning, flaming’ ‘set s.t. alight’
Fij:	Wayan	<i>udre</i>	‘alight, burning’

PPn **ula* ‘burn brightly’

Pn:	Tongan	<i>ulo</i>	‘burn, be alight, catch fire; shine’
Pn:	Rennellese	<i>uga</i>	(V) ‘flame; shine, flash; be very red’
Pn:	Luangiua	<i>ula</i>	‘flame’
Pn:	Tikopia	<i>ura</i>	(V) ‘blaze, flame, burn brightly, glow’

8.4 Emissions from burning materials: smoke, vapour, flames, light

POc, like some of its daughter languages, seems to have distinct terms for smoke as a thing (**qasu*) and the process of emitting smoke or vapour (**kupu(k)*).

PMP **qasu* ‘smoke’

POc **qasu* ‘smoke’

Adm:	Mussau	<i>asu</i>
Adm:	Wuvulu	<i>aku</i>
PT:	Dobu	<i>ʔasu</i>
PT:	Mekeo (East)	<i>aku</i>
NNG:	Bukawa	<i>(ya)wasu</i>
NNG:	Mapos Buang	<i>aru</i>
MM:	Bali	<i>ʔazu</i>
MM:	Torau	<i>asu</i>
MM:	Amara	<i>aso</i>
SES:	’Are’are	<i>rasu</i>
SES:	Lau	<i>sasu</i>
SES:	Arosi	<i>asu-(na), asu-ʔasu</i>
Mic:	Puluwatese	<i>yāt</i>
NCV:	Mota	<i>asu</i>
NCV:	Tamambo	<i>asu</i>
NCV:	Paamese	<i>(e)asu</i>
Pn:	Tongan	<i>ʔahu</i>
Pn:	Niuean	<i>ahu</i>
Pn:	Samoan	<i>asu</i>
Pn:	Maori	<i>au, au-ahi</i>
Pn:	Rarotongan	<i>au</i>

In the following cognate set, Polynesian languages show unexpected *o* for **u* in the first syllable.

POc **kupu(k)* (V) ‘emit smoke or steam’

NNG:	Bebeli	<i>kuvuk</i>	(N) ‘smoke’
MM:	Kia	<i>gufu(-na)</i>	(N) ‘smoke’
MM:	Kilokaka	<i>kufu</i>	(N) ‘smoke’
MM:	Maringe	<i>ʔuf(la)</i>	‘to steam, as from an earth oven’
NCV:	Nokuku	<i>kuv-kuvu</i>	‘ashes’
SES:	Gela	<i>gu-guvu</i>	‘steam; heat; hot; lukewarm’
SES:	Bugotu	<i>gu-guvu</i>	‘be hot, heat’
Fij:	Bauan	<i>kuvu</i>	‘vapour: smoke, steam, dust, spray’
Fij:	Wayan	<i>kuvu</i>	‘steam, give off steam’

PPn **kofu* (V) ‘emit smoke’, (N) ‘(?) smoke’

Pn:	Tongan	<i>kofu</i>	‘emit smoke’
Pn:	Rennellese	<i>kohu</i>	‘emit smoke or steam’

Pn:	Sikaiana	(<i>au</i>) <i>kohu</i>	(N) ‘smoke’
Pn:	Tikopia	<i>kofu</i>	‘emit smoke’
Pn:	Anutan	<i>ko-kopu</i>	(N) ‘smoke’

PCP **kobulu*, possibly meaning ‘thick smoke or cloud’ is indicated by reflexes in Fijian and Maori. The existence of a probable cognate in Javanese *kəbul* ‘smoke’ allows the tentative reconstruction of PMP **kəbul*, POc **kobul(u)* ‘smoke’.

PCP **kobulu* ‘(?) thick smoke, heavy cloud’

Fij:	Bauan	<i>kubou</i>	(N) ‘smoke’ (metathesis and irregular loss of <i>l</i> in context <i>ou</i>)
Fij:	Wayan	<i>kōbulu</i>	(N) ‘smoke’
Pn:	Maori	<i>kōpuru</i>	(i) ‘heavy passing clouds’; (ii) ‘fusty, mouldy’
cf. also:			
MM:	Ughele	<i>yambuzu</i>	‘smoke’
NCal:	Ajie	<i>kemaru</i>	‘fire’

Widely scattered languages use a reflex of POc **maya* ‘tongue’ (either alone, or in a compound meaning ‘tongue of fire’) to refer to flames. Given that ‘flame’ is a natural metaphorical extension of ‘tongue’ it is difficult to know whether **maya* had this polysemy in POc or whether daughter languages have from time to time independently made the same extension.

POc (?) **maya (ni api)* ‘flame’ (N) (lit. ‘tongue’ or ‘tongue of fire’)

NNG:	Mbula	<i>you mia-na</i>	‘flame’ (lit. ‘tongue of fire’)
SES:	Sa’a	<i>mea, mea-mea(hana hunge)</i>	‘flame’
SES:	’Are’are	<i>mea</i>	‘spark’
SES:	Lau	<i>mea</i>	‘flame, tongue of fire, light of fire or torch’
SV:	Sye	(<i>nelwa</i>) <i>me</i>	‘tongue, flame’
SV:	Anejom	(<i>nalua</i>) <i>me</i>	‘flame’
Fij:	Bauan	<i>yame-yame (ni buka)</i>	‘flame’

Compare also the following, where there is semantic correspondence even though one or more of the elements does not reflect the POc forms:

PT:	Kiriwina	<i>mayela kova</i>	‘flames’ (‘tongues of fire’)
NNG:	Takia	<i>yai bale-na</i>	‘flame’ (‘tongue of fire’)
NNG:	Mapos Buang	<i>dayen</i>	(i) ‘tongue’; (ii) ‘flame’
SV:	Kwamera	<i>nəami napw</i>	‘flame’ (‘tongue of fire’)

POc **puruŋ*, **puru-puruŋ* ‘(?) glow or flame of fire’

NNG:	Adzera	<i>bururuŋ</i>	‘burn, be on fire’
PT:	Motu	<i>hururu</i>	‘blaze’
		<i>huru-hururu</i>	‘flare up’
MM:	Tolai	<i>puluŋ</i>	‘flame’
MM:	Kia	<i>buruŋu</i>	‘sparks’
MM:	Ghanongga	<i>vuru-vuruŋu</i>	‘flame’

SES:	Talise	<i>vuru</i>	‘burn’
SES:	Malagheti	<i>vuru</i>	‘burn’
Pn:	Maori	<i>huru</i>	(V & N) ‘glow’
		<i>huru-huru</i>	‘diffused glow’

Certain Papuan languages of the central and western Solomons show resemblant forms that are presumably borrowed from an Oceanic source.

Papuan:	Lavukaleve	<i>huluhuluru</i>	‘flame’
Papuan:	Baniata	<i>vuvuru</i>	‘flame’

There are several cognate sets pointing to PEOc forms denoting burning with a particular kind of light.

PEOc **maka* ‘burn brightly’

SES:	Kwaio	<i>mā</i>	‘flame’
Mic:	Kiribati	<i>maka</i>	‘power, force, ardour’
Fij:	Bauan	<i>kama</i>	‘burn’ (metathesis)
		<i>maka(liva)</i>	‘flash upon’ (<i>liva</i> ‘lightning’)
		<i>(rā)maka</i>	‘shining from a distance’
Fij:	Wayan	<i>maka</i>	‘alight with glow, burn without flame’
		<i>makalo maka</i>	‘glowing embers’
Pn:	Tahitian	<i>ʔama</i>	‘burn’ (metathesis)

cf. also:

SES:	Arosi	<i>maga-raha</i>	‘glowing coals, live embers’

PEOc **makalo* ‘burn with glow’ (cf. **kalo-kalo* ‘glimmer’)

Mic:	Kiribati	<i>m^wākaro</i>	‘embers, live coals, charoal; burning without flames’
Fij:	Wayan	<i>makalo</i>	‘turn to embers; glow, be red hot’

PPn: **makala* (V) ‘(of fire) crackle and spark’

Pn:	Tongan	<i>makala</i>	‘emit sparks with a crackling noise’
Pn:	E Uvean	<i>makala</i>	‘(of fire) crackle’
Pn:	Rennellese	<i>makaga</i>	‘crackle, rattle, rumble’
		<i>makago-kago</i>	‘emit sparks, as a fire’
Pn:	Maori	<i>makaro</i>	‘be dimly visible’

PEOc **kalo-kalo* ‘glimmer’ (cf. **makalo* ‘burn with glow’)

Mic:	Kiribati	<i>-karo-karo</i>	base in 3 words, all meaning ‘glimmer, glow’
Fij:	Bauan	<i>kalo-kalo</i>	‘star’
Pn:	Pukapukan	<i>kalo-kalo(awi)</i>	‘sparks of fire’
Pn:	Samoa	<i>ʔalo-i-afi</i>	‘sparks’
		<i>ʔalo-ʔalo</i>	‘(red) flower of <i>Erythrina</i> tree’
Pn:	Tikopia	<i>kalo-kalo</i>	‘(red) flower of <i>Erythrina</i> tree’

Although contemporary languages generally have names for ‘soot’, ‘spark’ (V, N), and ‘burst into flame’ we have been unable to reconstruct POc terms for these concepts. In contemporary languages the term for ‘soot’ is sometimes a subsense of a term that also means ‘black’, or ‘dirty’ or ‘ash’ and sometimes a compound meaning ‘X of smoke’.

9 Destructive natural events

Because of their location on an unstable part of the earth’s crust, many parts of the Oceanic region experience earth movements and volcanic activity, sometimes on a catastrophic scale. Minor earth tremors are commonplace. Earth tremors in turn can give rise to such events as tidal waves and landslides, the latter sometimes triggered as well by frequent heavy rain. In addition to these, fluctuations in climate sometimes result in flooding or drought. In some Oceanic societies such destructive natural events were attributed to supernatural forces, as were inexplicable events like whirlwinds and whirlpools (Osmond 2000). Map 9 shows the location of earthquake areas and active volcanoes in the region.

9.1 Volcanic activity

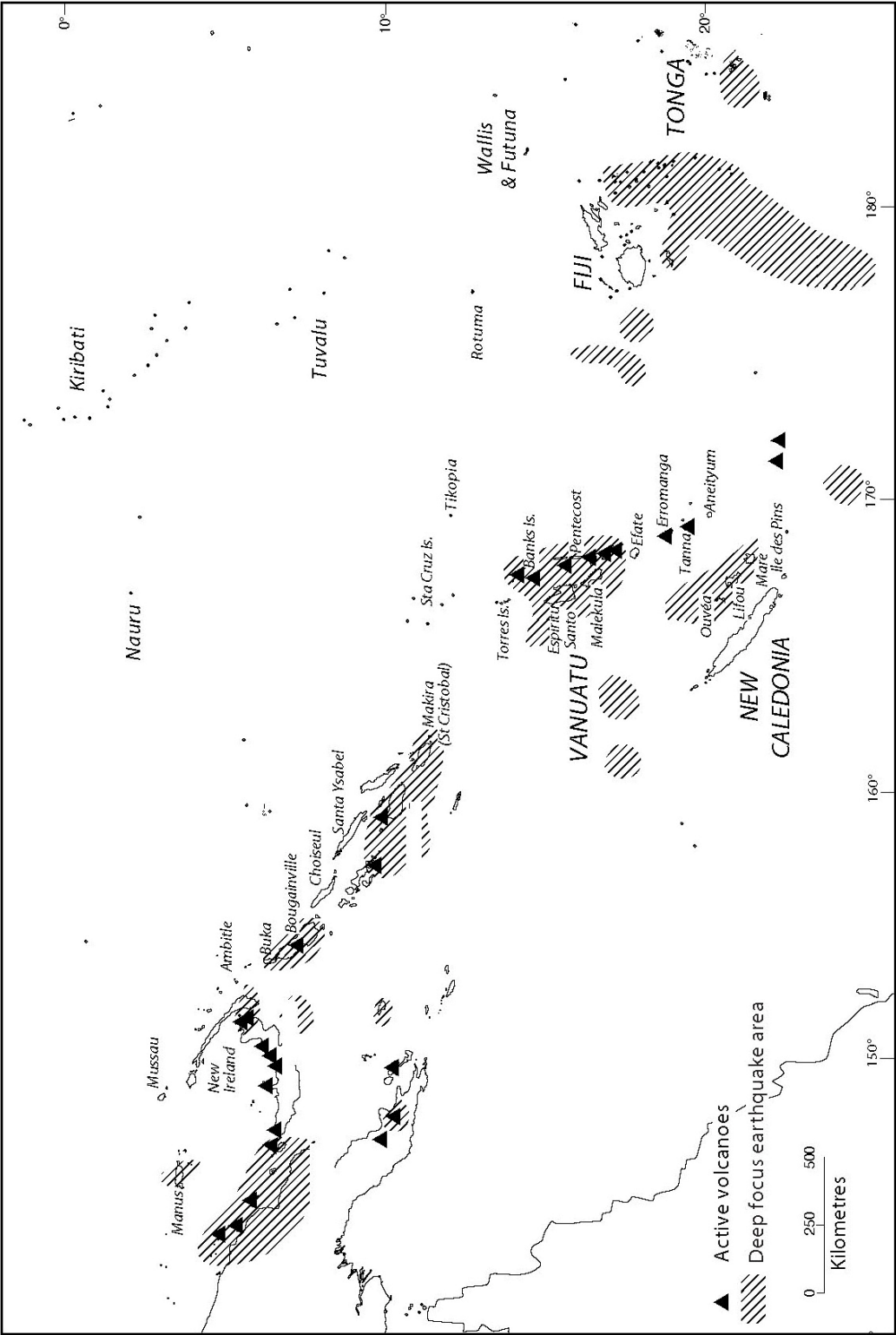
Parts of New Guinea and Island Melanesia have a long history of volcanic activity. Within recorded history the area of New Britain round Rabaul, for instance, has been the scene of violent eruptions in 1850, 1878, 1937 and 1994, causing loss of life and enormous environmental damage. Although we have collected a range of terms for volcanoes and volcanic features, soundly based POc reconstructions for ‘volcano’ and features of volcanic activity such as lava and volcanic ash, have eluded us. It may well be that Melanesians had no separate concept for ‘volcano’, regarding it simply as a mountain that produces fire. In Manam, Takia and Nehan, the word for ‘fire’ is used also to refer to a volcano. Terms reconstructed in the section on fire above, such as POc **qapu* ‘ash, dust, powder’ and POc **kupu(k)* ‘emit smoke or steam’, could readily have been applied to volcanic features. A single lower-level reconstruction for ‘volcano’ comes from North Central Vanuatu, with a possible cognate from North New Guinea which suggests a rather tentative POc reconstruction.

POc **banoi* ‘volcano’; ‘(?) matter emitted from volcano’

NNG: Takia	<i>banai</i>	‘to spring up out of a hole, of liquid’

PNCV **banoi* ‘volcano, volcanic ash’ (Clark 1996)

NCV: Mota	<i>panoi</i>	‘Hades, the abode of the dead’
NCV: Tamambo	<i>banoi</i>	‘volcanic ash’
NCV: Uripiv	<i>benu</i>	‘fine volcanic ash’
NCV: Paamese	<i>vanei</i>	‘volcano’
NCV: Namakura	<i>bane</i>	‘volcano’
NCV: Nguna	<i>na-panoi</i>	‘volcano’
NCV: SE Ambrym	<i>venu</i>	‘volcano’



Map 9: Active volcanoes and earthquake areas in the south-west Pacific
(after Brookfield and Hart 1971:33)

The next reconstruction belongs to a set of formally similar items with meanings relating to bubbling, frothing and foaming (see **pura(q)* on p.60). The semantic change evident between the Tolai and Mota glosses may perhaps be explained as transfer of meaning from ‘place/activity of emission’ to ‘matter emitted’.

POc **puro* ‘bubble up, boil, as hot spring’

NNG:	Kove	<i>pulou</i>	‘come up, as a spring’
PT:	Molima	<i>pulo</i>	‘bubbles’
PT:	Kiriwina	<i>polu</i>	(V) ‘boil’
MM:	Tolai	<i>vuru</i>	‘pumice, volcanic dust, lava’
SES:	Arosi	<i>huro-huro</i>	(V) ‘bubble, boil, be churned up’
NCV:	Mota	<i>vuro</i>	‘volcanic vent, hot spring’

It is notable that in both cognate sets above, there is a tendency for the glosses to vary from one volcanic feature to another.

9.2 Earthquake

While the following two cognate sets are presumably related, we cannot unite them into a single set.

POc **drike-drike* ‘earthquake’

Adm:	Mussau	<i>ruke-ruke</i>	‘earthquake’
MM:	Tinuputz	<i>rik-rik</i>	‘earthquake’; (V) ‘quake’

cf. also:

PT:	Molima	<i>(m^wa)ni ʔ-ni ʔ</i>	‘earthquake’

POc **Rike* ‘earthquake’

NNG:	Manam	<i>rike</i>	‘earthquake’
		<i>(m^wa)rike</i>	(N, V) ‘earthquake, quake’

PPn **mafu-ike* ‘earthquake’ (the etymology of *mafu-* is unknown)

Pn:	Niuean	<i>mafuike</i>	‘earthquake’
Pn:	Tongan	<i>mofuike</i>	‘earthquake’
Pn:	Rennellese	<i>mahuike</i>	‘deity who causes earthquakes’
Pn:	Samoan	<i>mafui ʔe</i>	‘earthquake; deity from whom fire was obtained’
Pn:	E Futunan	<i>mafuike</i>	‘earthquake’
Pn:	Maori	<i>mahuika</i>	‘deity from whom fire was obtained by Maui-tikitiki’

In several of the following cognate sets, the term for earthquake is closely related to the verb meaning ‘to shake’. Some form of onomatopoeic wordplay may explain the similarity of form between the various sets. For instance, Onin and Sekar, CEMP languages spoken in West New Guinea, both record *nuni* ‘earthquake’ while Yotafa on the north coast lists *nioni* ‘earthquake’ (Smits & Voorhoeve 1992:34).

PMP **ninih* ‘shake, tremble, rock’ (ACD)

POc **[ni]nir* (V) ‘shake, quake’

NNG:	Gedaged	<i>nini</i>	‘swing, oscillate, shake, rock’
NNG:	Mapos Buang	<i>(i-)nel</i>	‘earthquake’
NNG:	Mumeng	<i>(zenag) nər</i>	‘earthquake’
MM:	Patpatar	<i>ninir</i>	‘shake, quake’
Fij:	Bauan	<i>nini</i>	‘tremble, quake with fear or anger’
Pn:	Tongan	<i>nini-nini</i>	‘shiver with cold’

In a number of northwest and southeast Solomons languages, the term for earthquake is *nunu*. PMP **uyuy* ‘shake; earthquake’ would give POc **iu(η)*. The actor pivot PMP form **η-uyuy* would give POc **η-iu(η)*. This may be ancestral to the form *niu* or *ñu* ‘to shake, hence ‘an earthquake’, found in two MM languages, Hoava and Roviana, as well as to *nunu* by regular depalatalisation.

PMP **uyuy* ‘shake; earthquake’ (ACD)

POc **η-iu(η)* (V) ‘shake, quake’; (N) ‘earthquake’

MM:	Halia	<i>nun</i>	‘earthquake’
MM:	Nduke	<i>nunu</i>	‘earthquake’
MM:	Babatana	<i>nunu</i>	‘earthquake’
MM:	Hoava	<i>niu</i>	‘shake; earthquake’
MM:	Roviana	<i>niu</i>	‘shake; earthquake’
SES:	’Are’are	<i>nu-nunu</i>	‘earthquake’
SES:	Sa’a	<i>nunu</i>	‘earthquake’
SES:	Kwaio	<i>nunu</i>	‘earthquake’

PSS **añu* (V) ‘shake’, **añu-añu* (N) ‘earthquake’

SES:	Gela	<i>anu</i>	‘shake’
		<i>anu-anu</i>	‘earthquake’
SES:	Bugotu	<i>añu</i>	‘shake, of earthquake; earthquake’
SES:	Lau	<i>anu</i>	‘shake, quake’
		<i>anu-anu</i>	‘earthquake’
SES:	Kwaio	<i>anu(le ʔeni)</i>	shake, jostle, knock down by shaking’
SES:	’Are’are	<i>anu(i)</i>	‘shake, move’
SES:	Sa’a	<i>enu, enu-enu</i>	‘be loose, unstable’
SES:	Arosi	<i>anu(ka ʔa)</i>	‘tremble and go cold with fear’

PNCV **ruru* (V) ‘shake’; (N) ‘earthquake’

NCV:	Mota	<i>rir</i>	(V) ‘quake’; ‘earthquake’
NCV:	Raga	<i>ruru(i)</i>	‘shake’
NCV:	Paamese	<i>(a)lū</i>	‘earthquake’
NCV:	Nguna	<i>(na)ruru</i>	‘earthquake’

9.3 Landslide

POc **solo* was probably a verb, but its reflexes refer, inter alia, to landslides in several daughter languages. They are also found in Puluwatese (Mic), linked to star names, to refer to stars sinking towards the horizon (see Ch. 6, §5.4.2).

POc **solo* ‘sink down, subside; landslide’

MM:	Marovo	(<i>ta</i>) <i>ju-julu</i>	‘landslide’
MM:	Babatana	<i>jolo</i>	‘subside’
SES:	Lau	<i>to-toli(ŋi)</i>	‘landslide’
Mic:	Woleaian	<i>toro</i>	‘disappear, submerge, go out of sight, vanish’
Mic:	Marshallese	<i>tal</i>	‘sink, submerge’
Mic:	Satawalese	<i>tol</i>	‘disappear from sight’
Fij:	Rotuman	<i>solo</i>	‘sink down’
Pn:	Niuean	<i>ho-holo</i>	‘slip’
Pn:	Tongan	<i>holo</i>	‘collapse, cave in’
Pn:	E Futunan	<i>solo</i>	‘collapse, cave in; landslide’
Pn:	Samoan	<i>solo</i>	‘slide, slip; landslide’
Pn:	Tikopia	<i>soro</i>	‘rub, grate; landslide’
Pn:	Tahitian	<i>horo</i>	‘landslide’
Pn:	Maori	<i>horo</i>	‘landslide’
Pn:	Hawaiian	<i>holo</i>	‘landslide’

PEOc **to(b,p)a* (VI) ‘(land) slip’, **ma-to(b,p)a* ‘landslip’

SES:	Gela	<i>matoba</i>	‘landslip’
SES:	Bugotu	<i>matoba</i>	‘landslip’
SES:	Longgu	<i>toba</i>	(VI) ‘(land) slip’
SES:	Arosi	<i>maoba</i>	‘landslip’
NCV:	Raga	<i>matova</i>	‘landslip, flood’
NCV:	Paamese	<i>matehe</i>	‘landslide, slip’

9.4 Tidal wave

No POc term denoting tidal wave has been reconstructed. In contemporary languages, terms for tidal wave are compounds, with the first element often a reflex of **tasik* ‘sea’ (Ch.4, §2.1) or **[u]Ruap* ‘high tide’ (§2.6). These terms do not usually distinguish tsunamis, caused by undersea earth movements, from floods caused by a combination of high tide and strong wind. In any case, catastrophic tidal waves probably occur only once or twice a century, and affect only localised places. Although a number of terms for ‘tidal wave’ have been collected, and are listed below, cognates exist only within low level subgroups.

Adm:	Mussau	<i>manu gagaga</i>	‘tidal wave’ (<i>manu</i> ‘water’)
Adm:	Lou	<i>ultum</i>	‘tidal wave’
MM:	Nakanai	<i>karoro</i>	‘tidal wave’
MM:	Tolai	<i>roro</i>	‘tidal wave’
MM:	Ramoaina	<i>tai-gugu</i>	‘tidal wave’ (<i>tai</i> ‘sea’)

SES:	Gela	<i>gogo</i>	‘tidal wave’
		<i>lua-lua</i>	‘flood, tidal wave’ (<i>lua</i> ‘full tide’)
SES:	Bugotu	<i>gogovi</i>	‘tidal wave’
SES:	Arosi	<i>rua-rua</i>	‘flood of water’
SES:	Arosi	<i>asi-ora</i>	‘tidal wave’ (<i>ora</i> ‘possessed by foul ghost’)
NCV:	Tamambo	<i>tasi wala-walau</i>	‘tidal wave’ (<i>walau</i> ‘to run’)
Fij:	Bauan	<i>ua tale-tale</i>	‘tidal wave’ (<i>ua</i> ‘tide, wave’, <i>tale-tale</i> ‘repeated backwash of waves’)
Fij:	Bauan	<i>ua loka</i>	‘tidal wave’ (<i>ua</i> ‘tide, wave’, <i>loka</i> ‘very heavy breakers or high tides that flow inland’)
Pn:	Tongan	<i>peau kula</i>	‘tidal wave’ (lit. ‘wave red’)
Pn:	Niuean	<i>peau afi</i>	‘tidal wave’ (lit. ‘wave fire’)
Pn:	Hawaiian	<i>kai hōʻēʻē</i>	‘tidal wave’

9.5 Flood, submerging tide

A PMP term for ‘flood’ (V and N) is continued in two known Oceanic witnesses. In Sa’a its reflex is a noun referring to a high spring tide. In Tongan it is a verb denoting the state or process of a river being in flood.

PMP **bahaq* ‘a flood; overflow, be in flood’, (ACD, Dempwolff 1938)

POc **pa(a)q* ‘overflow, flood’ (ACD)

SES:	Sa’a	(<i>lua</i>) <i>hā</i>	‘high spring tide’
Pn:	Tongan	<i>fā</i>	‘(of a river) to overflow, be in flood’

As a compound with the term for fresh water, POc *waiR pa(a)q* ‘river floodwaters’, is traceable back to PMP, although the Tongan form is our only Oceanic reflex.

PMP **wahir bahaq* ‘floodwaters’ (ACD)

POc **waiR pa(a)q* ‘river floodwaters’

Pn:	Tongan	<i>vai fā</i>	‘flood (from a river), river in flood’

Flooding for coastal dwellers on small Oceanic islands is likely to be the result of an unusually high tide (POc **[u]Ruap* ‘high tide; to flow in of tide’, see Ch.4, §2.6), rather than heavy rain. King tides or spring tides are phenomena which occur at regular intervals, so are unlikely to be of more than nuisance value except when exacerbated by high winds. Terms for tidal flooding may be compounds including reflexes of **[u]Ruap*, or a related form (**[ma-]uRua(p)* ‘flood, be flooded’) (Sa’a *lua hā* ‘high spring tide’, Mota *rue lava* ‘large tide’, Bauan Fijian *ua luvu* ‘submerging tide’). Other POc terms include reflexes of **lolo* (V) ‘flood’, and **lomak* (N,V) ‘flood, of sea’.

POc **[ma-]uRua(p)* ‘flood, be flooded’

NNG:	Manam	<i>urua</i>	‘flood, torrent’
PT:	Molima	<i>moluva</i>	‘flood’
PT:	Dobu	<i>muluwa</i>	‘flood’
NCV:	Tamambo	<i>moruae</i>	‘flood, big river’

PMP *lebleb (V) ‘flood’

POc *lolo (V) ‘flood’

Adm:	Andra	<i>lolo(mat)</i>	‘windward part of reef flat, covered at high tide’
NNG:	Gedaged	<i>lolo(ani)</i>	(V) ‘inundate, flood, drown, stream over, flow over, cause to sink under water’
Fij:	Bauan	<i>lolo</i>	‘beginning to rise, of the tide’
Pn:	Samoan	<i>lolo</i>	(V) ‘overflow’, (N) ‘flood’

POc *lomak (N,V) ‘flood, of sea’

NNG:	Takia	<i>lom</i>	‘flood’
NNG:	Gedaged	<i>lom, lom-lom</i>	‘the dirty water that flows off after rain, the water that lies around after rain’
MM:	Sursurunga	<i>lom-lom</i>	‘high tide, flood’

PPn *lo(o)ma, *lo(o)maki ‘flood caused by high seas or tides’ (Biggs & Clark 1993)

Pn:	Tongan	<i>lōmaki</i>	(N) ‘flood, deluge’
Pn:	E Futunan	<i>lōmaki</i>	‘flooded as by large waves’
Pn:	W Uvean	<i>lo-loma</i>	‘sea flood, tide’
Pn:	Maori	<i>roma</i>	‘flood, flood tide, stream, current’
Pn:	Tuamotuan	<i>roma</i>	‘flood’

The reconstruction below appears to have referred to flooding or gushing.

POc *ñoro ‘flood, gush, flow everywhere’ (Blust 1998b)

Adm:	Lou	<i>norō</i>	‘flood’
NNG:	Mangap-M.	<i>no-nor</i>	‘tidal wave, flood’
MM:	Halia	<i>nolo</i>	‘flood’
MM:	Tolai	<i>norō</i>	‘to pour forth, gush, flow quickly’
SV:	Anejom	<i>ya</i>	‘flow everywhere, out of control’

9.6 Storm, hurricane

Terms for destructive winds and storms are treated in Chapter 5. They include POc *paRiu ‘cyclone’ (from PAn *baRiuS ‘typhoon’), POc *mal(i,e)u ‘wind’ which gives rise to PMic *malu-malu ‘storm, typhoon’ and POc *apaRat ‘wet season when northwesterlies blow and sea is rough’ from which come PCP *avā ‘storm’, PPn *afā ‘storm, hurricane’.

9.7 Whirlpools, waterspouts, whirlwinds

Whirlpools and waterspouts and some other phenomena such as rainbows and echoes, are regarded in many Austronesian-speaking communities as supernatural occurrences, and are sometimes treated as a natural category, ‘taboo thing’ or similar. Accordingly we sometimes find ‘rainbow’ and ‘whirlwind’ within the same cognate set, or even, as in Mortlockese (Mic) *awúniyar* ‘whirlwind, tornado, rainbow’, referred to by the same word.

The meanings of the prefix *qā-, and the alternative form *pua- (blowing?) in the following set are uncertain.

PEOc **siosio* '(?) whirlwind, rainbow'

NCV: Mota *ga-siosio* 'rainbow' (see note above)

PPn **qā-siosio* 'whirlwind, waterspout'

Pn:	Niuean	<i>hio-hio</i>	'whirlwind, tornado' (from McEwen. Sperlich gives <i>tiotio</i> .)
Pn:	Tongan	<i>ʔa-hiohio</i>	'whirlwind'
Pn:	E Futunan	<i>ʔā-siosio</i>	'waterspout'
Pn:	Samoan	<i>ā-siosio</i>	'whirlwind'
Pn:	Tokelauan	<i>ā-hiohio</i>	'whirlwind, waterspout'
Pn:	Rarotongan	<i>puā-ʔioʔio</i>	'whirlwind'
Pn:	Tahitian	<i>pua-hiohio</i>	'whirlwind, cyclone'
Pn:	Maori	<i>ā-fiofio</i>	'whirlwind'
Pn:	Hawaiian	<i>pua-hiohio</i>	'whirlwind'

The next item may be associated in some way with POC **piro* 'twist together' (vol. 1, p.287).

POc **piru-piru* 'whirlwind, waterspout'

NNG:	Kove	<i>vili-viliu</i>	'small whirlwind'
PT:	Kiriwina	<i>vi-vilu(wa)</i>	'whirlwind, waterspout'
PT:	Wedau	<i>virī-virī(toto)</i>	'whirlwind, waterspout'
MM:	Roviana	<i>vi-viru(a)</i>	'waterspout'
SES:	Ghari	<i>viru</i>	'waterspout'

PEOc **libo* 'eddy, whirlpool'

SES:	Kwaio	<i>libo</i>	'eddy in stream, whirlpool'
Pn:	Niuean	<i>lipo, lipo-lipo</i>	'ripples' (not incl. in Sperlich)
Pn:	Tikopia	<i>(mā)ripo-ripo</i>	'whirl'
Pn:	Tahitian	<i>ripo-ripo</i>	'wavelets in a ring'
Pn:	Maori	<i>ripo</i>	'eddy, whirlpool'

10 Conclusion

Proto Oceanic terms are readily reconstructable for a number of landscape features, including land, island, beach, sandy ground, cape, bay, river, mountain, inland mountain country, valley, flat land, bushland, cultivated land, fallow land, lake, swampy ground, rock, and sand. Other reconstructable terms refer to fresh water sources and to the productive or unproductive nature of the land, both matters of crucial importance to human settlement. There are POC reconstructions for mineral substances, including obsidian and other stone, sand and gravel, coral and lime, pumice, earth, salt and clay. Although obsidian is found only in a few widely scattered locations, and clay suitable for potmaking is also limited in its range, both were sought-after items, and archaeological evidence indicates that POC speakers would have been familiar with either the raw material or its manufactured form through well-established trade networks.

But there are salient parts of Oceanic land environments for which we cannot reconstruct a POc term (and often no PWOC or PEOc term either). Reconstructions for features associated with volcanic action, such as hot springs and ash are tentative, based on apparent reflexes which vary quite widely in meaning. There are reconstructions for 'earthquake' and 'flood', but not for 'tidal wave'. What does this tell us? Probably not that POc lacked these terms, but that they have been lost, or are not widely enough reflected for us to be able to identify them as POc. It may be that POc had compound terms for certain of these concepts, and it seems that compounds are less stable than simple lexemes.

4 *The seascape*

MEREDITH OSMOND, ANDREW PAWLEY AND MALCOLM ROSS

1 Introduction

This chapter presents reconstructions pertaining to the inanimate marine environment, the seascape.¹ As experienced sailors (see Chapter 6), Proto Oceanic speakers would have possessed a vocabulary to express the physical details of their maritime world, of waves, currents and swells, and, more locally, of tides, of treacherous rocks and reefs, of passages through the reef and sheltered water. As fishermen and gatherers of reef foods their descendants have demonstrated an extensive knowledge of the reef in all its parts (McEldowney 1995, Hviding 1996, Akimichi 1978, Dye 1983). Data have been organized within two main categories: (i) the sea and its features — currents, waves and tides; and (ii) the reef environment.

As in Chapter 3, some of the nouns reconstructed here had both a common-noun and a local-noun sense. It is the common-noun senses that are treated here. For further discussion and reconstruction of local-noun senses, see Chapter 8, §2.

2 The sea and its features

2.1 Sea, salt water

Four POc words denoting ‘sea’ have been reconstructed: **tasik*, **masawa(n,η)*, **laman* and **laur*. Of these, **tasik* has the most general reference. In addition to its sense of ‘sea’ as opposed to ‘land’, it has a second sense, ‘salt water, sea water’ contrasting with ‘fresh water’. It also had a local-noun sense (see p.240). Its reflexes have wide distribution and also occur frequently in compounds. Of the others, **masawa(n,η)* emphasized the sense of open sea, **laman* evidently denoted deep water in contrast to the shallow water on or within the fringing reef, while **laur* seems to have functioned primarily, and perhaps

¹ Thanks are due to Ann Chowning, Ralph Lawton, John Lynch, Françoise Ozanne-Rivierre and Ian Scales who have all made useful suggestions and contributed additional data to this chapter.

exclusively, as a local noun meaning ‘seawards’, and is reconstructed in this sense in Chapter 8, p.239. A few common-noun reflexes of **laur* are given below.

PMP **tasik* ‘sea’ (Dempwolff 1938)

POc **tasik* ‘sea, salt water’

Adm:	Loniu	<i>tas</i>	‘sea, ocean, salt water, salt’
Adm:	Seimat	<i>tax</i>	‘sea’
Adm:	Titan	<i>ⁿras</i>	‘ocean, salt water’
NNG:	Manam	<i>tari</i>	‘strong sea current’
NNG:	Bariai	<i>tad</i>	‘ocean’
NNG:	Kove	<i>tari</i>	‘sea, salt water’
PT:	Bwaidoga	<i>tagiga</i>	‘salt deposit on skin after bathing in sea’
PT:	Motu	<i>tadi</i>	‘sea water’
MM:	Patpatar	<i>tes</i>	‘ocean’
MM:	Ramoaaina	<i>tai</i>	‘sea’
MM:	Sursurunga	<i>tas</i>	‘salt water; salt’
MM:	Tangga	<i>tes</i>	‘salt water’
MM:	Tolai	<i>ta</i>	‘sea, salt water’
MM:	Teop	<i>tahī</i>	‘sea, ocean’
		<i>ta-tahi(ana)</i>	‘salty’
SES:	Gela	<i>tahi</i>	‘sea’
SES:	Bugotu	<i>tahi</i>	‘sea, salt water, salt’
SES:	Arosi	<i>asi</i>	‘salt, salt water, the sea’
SES:	Lau	<i>asi</i>	‘sea, salt water’
SES:	Kwaio	<i>asi</i>	‘sea, salt, seawater’
NCV:	Raga	<i>tahi</i>	‘sea, salt water’
NCV:	Tamambo	<i>tasi</i>	‘sea’ (old word)
NCV:	Nguna	<i>na-tasi</i>	‘sea, salt water’
SV:	Lenakel	<i>tehe</i>	‘the sea’
SV:	SW Tanna	<i>tahik</i>	‘sea, salt water’
NCal:	Nemi	<i>dalik</i>	‘sea’ (<i>talik</i> ‘seaside’ (locative))
Mic:	Kosraean	<i>te</i>	‘beach, seaside’
Mic:	Mokilese	<i>cæt</i>	‘sea, salt’
Mic:	Puluwatese	<i>hæ̃t</i>	‘sea, ocean, tide’
Mic:	Woleaian	<i>tati</i>	‘sea, salt water’
Fij:	Bauan	<i>taði</i>	‘the sea’

PPn **tahi* ‘shallow sea near shore or in lagoon, salt water; tide’

Pn:	Tongan	<i>tahi</i>	‘sea, sea-water, tide’
Pn:	E Futunan	<i>tai</i>	‘shallow sea over the reef as opposed to the open ocean (<i>moana</i>); the shore as opposed to inland (<i>?uta</i>); tide’
Pn:	Pukapukan	<i>tai</i>	‘sea, beach, tide’
Pn:	Rennellese	<i>tai</i>	‘ocean, lake, saltwater’
Pn:	Samoa	<i>tai</i>	‘tide, the sea’

Pn:	Tikopia	<i>tai</i>	‘sea, near the shore; coastal as opposed to inland’
Pn:	Rarotongan	<i>tai</i>	‘sea, sea water, coast bordering the sea, tide’
Pn:	Maori	<i>tai</i>	‘sea near shore, tide; shore as opposed to inland’
Pn:	Hawaiian	<i>kai</i>	‘sea, seawater, area near the sea’

In addition to these simple terms, a number of compound terms consisting of **tasik* plus a modifier probably existed in POc, denoting conditions or defined areas of sea. Many contemporary languages possess such compounds. For example, Lau (SES) distinguishes the following compounds whose first element is *asi* (< **tasik*).

<i>asiʔabua</i>	‘deep blue sea’
<i>asidalafa</i>	‘open ocean’
<i>asidaudau</i>	‘open sea outside reef’
<i>asifolā, asimae</i>	‘sea within reef’
<i>asimauri</i>	‘sea outside reef’
<i>asinamo</i>	‘lagoon within reef’
<i>asīle</i>	‘where reef drops to deep water’
<i>asirū</i>	‘sea where there is no reef’

In Polynesian languages reflexes of **tasik* chiefly refer to the sea near the shore, the shallow coastal waters, while another term, PPn **moana* (see below) has been adopted to refer to the open sea.

POc **masawa(n,ŋ)* has reflexes in both Western Oceanic and Eastern Oceanic meaning ‘deep ocean’ or ‘open sea’. It appears also to have had the sense ‘open space, clear space’ and to be etymologically related to POc **sawa(n,ŋ)* ‘channel, passage’ (§3.5).

POc **masawa(n,ŋ)* ‘open sea’

NNG:	Bariai	<i>madaoan</i>	‘deep ocean’
NNG:	Manam	<i>masaoa-saoa</i>	‘far, distant, remote’
SES:	Bugotu	<i>maha</i>	(V) ‘be deep of sea, (N) the deep sea’
SES:	‘Are’are	<i>matāwa</i>	‘the open sea’
SES:	Sa’a	<i>matawa</i>	‘the open sea’
SES:	Lau	<i>matak^wa</i>	‘open sea’
SES:	Arosi	<i>matawa</i>	‘open sea far from land’
NCV:	Raga	<i>mahava</i>	‘space (time or place)’
NCV:	Lonwolwol	<i>meha</i>	‘clear place, sky, air, space, void, open sea’
NCV:	Atchin	<i>masaw</i>	‘open sea’
NCV:	Nguna	<i>masawa(ga)</i>	‘space between fingers’
SV:	Kwamera	<i>(k^wán)mahan</i>	‘storage place, space, nothingness, an opening between the clouds’
Mic:	Mokilese	<i>mataw</i>	‘open sea’
Mic:	Woleaian	<i>metaw</i>	‘sea, ocean, lagoon, a big body of sea water’
Mic:	Puluwatese	<i>metaw</i>	‘deep sea, ocean’

Polynesian languages reflect another term for ‘ocean’:

PPn **moana* ‘sea beyond the reef, ocean’ (Biggs & Clark 1993)

Pn:	Niuean	<i>moana</i>	‘ocean, deep sea’
Pn:	Tongan	<i>moana</i>	‘deep sea, sea beyond the reef’
Pn:	Rennellese	<i>moana</i>	‘sea beyond the reef, ocean’
Pn:	Samoa	<i>moana</i>	‘deep sea, deep water’
Pn:	Tikopia	<i>moana</i>	‘sea, esp. deep sea, ocean, as distinct from inshore waters on and around reef’
Pn:	Maori	<i>moana</i>	‘sea’
Pn:	Hawaiian	<i>moana</i>	‘ocean, open sea’

Ross Clark (pers. comm.) hypothesises that **moana* may be derived from POc **masawa(n,ŋ)*, once the final consonant has been lost. He suggests that if we assume **masawa* could carry a possessive suffix (as a relational noun, ‘open sea between ...’ or ‘open sea off ...’), then **masawa-ña* would have given PPn ***mahawana*. The reduction of ***-aw-* to **-o-* is a common sporadic change. Clark notes a parallel in the treatment of **qasawa-na* ‘spouse’, which becomes Nuclear Pn **qāwaja* (unexplained **n* > *ŋ*), but Tongan *ʔohoana*, Niuean *hoana*.

The PCEMP reconstruction in the next set is supported by cognates in the Central Malayo-Polynesian languages Yamdena, Fordata and Kei, and the South Halmahera/Irian Jaya languages Buli and Numfor, all meaning ‘deep’ or ‘depth’. Cognates in Oceanic languages fairly consistently refer to deep water, and most probably to deep water just beyond the reef, i.e. where the sudden change of depth is significant.

PCEMP **laman* ‘deep’ (Blust 1984)

POc **laman* ‘deep sea beyond the reef’

Adm:	Mussau	<i>lamana</i>	‘sea near the shore’ (cf. <i>malioŋe</i> ‘deep blue sea beyond the reef’)
Adm:	Penchal	<i>lam</i>	‘deep sea beyond the reef’
Adm:	Loniū	<i>laman</i>	‘deep sea just beyond the reef’
NNG:	Gitua	<i>laman</i>	‘deep’
MM:	Ramoaina	<i>laman</i>	‘sea, blue water close to shore’
MM:	Tolai	<i>lamana</i>	‘deep, of the sea’
		<i>lamana(na)</i>	‘the deep sea, the depth of the sea’
MM:	Patpatar	<i>lam-lamana</i>	‘deep ocean’
MM:	Sursurunga	<i>laman</i>	‘deep’
MM:	Teop	<i>namana</i>	‘deep ocean’
MM:	Roviana	<i>lamana</i>	‘the ocean; deep, of water’
SES:	Sa’a	<i>lama</i>	‘lake’
SES:	Lau	<i>lama</i>	‘pool at low tide in the reef’
SES:	Arosi	<i>rama</i>	‘water between reef and shore; long deep channel in the open sea’
		<i>rama-rama</i>	‘deep water beyond the edge of the reef’
NCV:	Mota	<i>lama</i>	‘open sea’
SV:	Lenakel	<i>līm^wnān</i>	‘deep water’

Listed below are common-noun reflexes of **laur*. However, these are few and scattered, and it is possible that this term had no common-noun use in POc. For local-noun uses, see p.239.

PMP **lahud* ‘downriver, towards the sea’ (Dempwolff 1938, Blust 1997)

POc **laur* ‘sea, seawards’

NNG:	Gedaged	<i>lau</i>	‘the high seas, an open unenclosed portion of the sea’
MM:	Tabar	<i>ro-rau</i>	‘sea’
MM:	Tolai	<i>lau</i>	‘open sea, horizon’; (for bush people) ‘any place out of sight’
MM:	Nehan	<i>laur</i>	‘water’
SES:	Gela	<i>lau</i>	‘shore, sea; shorewards, seawards (from a speaker inland)’
NCV:	Mota	<i>lau</i>	‘seashore as opposed to inland; beach as approached from land’
NCV:	Raga	<i>(a)lau</i>	‘on beach, on lee side’

PMic **lau* ‘pool, pond’ (Marck 1994:313)

Mic:	Kosraean	<i>la-la</i>	‘pond, shallow lagoon’
Mic:	Kiribati	<i>nei</i>	‘pond, pool, swamp, marsh’
Mic:	Satawalese	<i>lā</i>	‘pool, pond’
Mic:	Carolinian	<i>lālā</i>	‘all manner of standing water (puddles, pools, ponds, lakes), typically in reference to fresh water’

2.2 Sheltered or open sea

For sheltered or calm water, reflexes of POc **[ma-[d]]rapu* ‘still, calm, windless’ or POc **malino* ‘calm’ were used (for the full cognate sets see Chapter 5, §5.1). In Proto Eastern Oceanic, sheltered seas were referred to as ‘dead’ (**mate*), while open or exposed seas were described as ‘alive’ (**maqurip*). Codrington and Palmer write that this distinction also occurs in Malagasy (1896:205).

PEOc **tasik mate* ‘sheltered sea, lee shore’

SES:	‘Are’are	<i>āsi mae</i>	‘quiet sea in the lagoon’
SES:	Lau	<i>asi mae</i>	‘area within reef’
SES:	Arosi	<i>asi mae</i>	‘lee side of an island’
SES:	Sa’a	<i>esi mae</i>	‘lee shore’
NCV:	Mota	<i>tas mate</i>	‘a district of Mota to the leeward where the sea is quiet or dead’
NCV:	Raga	<i>tahi mate</i>	‘calm sea, lee shore’
NCV:	Paamese	<i>tasi mat</i>	‘calm sea’
Pn:	Hawaiian	<i>kai make</i>	‘ebb tide; calm sea’
cf. also:			
Pn:	Tongan	<i>mate-mate</i>	‘calm, of wind or sea’

PEOc **tasik maquri(p)* ‘open sea; ocean on the weather side; weather shore’

SES:	’Are’are	<i>āsi mauri</i>	‘open sea, as opposed to <i>āsi mae</i> ’
SES:	Lau	<i>asi mauri</i>	‘sea outside reef’
SES:	Arosi	<i>asi mauri</i>	‘the weather side’
NCV:	Mota	<i>tas maur</i>	‘the weather side where the sea is lively’
NCV:	Raga	<i>tahi mauri</i>	‘ocean on the weather shore’

These compounds are echoed in Wayan (Fij) terms *wai mate* ‘quiet sea’ and *wai ðola* ‘sea with free-flowing current’, with the reflex of POC **waiR* ‘water’ replacing **tasik*, and *ðola* ‘alive’ replacing **maqurip*.

In a number of languages, rough water is described by reflexes of POC **saqat* ‘bad’.

PT:	Kiriwina	<i>(ipai)saga</i>	‘rough, of sea, weather’
SES:	’Are’are	<i>āsi taʔa</i>	‘rough sea’
SES:	Arosi	<i>asi taʔa</i>	‘confused sea’

2.3 Current

Several terms denoting current or flow of water can be reconstructed for POC. Reflexes of **qaRus* and **tape* occur as both noun and verb. A third term, POC **ma-qañur* ‘floating, adrift’ is a stative verb. There is also the doublet POC **qaliR*/**saliR* ‘to flow, drift, float’, which has general application, i.e. to the movement of birds, winds and liquids.

PMP **qaRus* (N) ‘current’, (V) ‘flow’ (Dempwolff 1938)

POC **qaRus* (N) ‘current’, (V) ‘flow’

PT:	Motu	<i>aru</i>	‘current of river or sea’
PT:	Tubetube	<i>kalusi</i>	‘current (in the sea)’
PT:	Kiriwina	<i>yelu</i>	‘sea; current’
PT:	Kukuya	<i>anue</i>	‘float away’
PT:	Molima	<i>ʔaluwa</i>	‘float, be borne away by water or wind’
PT:	Muyuw	<i>yeiwl</i>	‘current’
NCV:	Mota	<i>ar</i>	‘currents in the sea between Mota and Gaua’
SV:	N Tanna	<i>aeh</i>	‘flow’
SV:	Kwamera	<i>arəs</i>	‘flow’
SV:	Anejom	<i>areθ-raθ</i>	‘flow’
		<i>n-areθ</i>	‘current’
NCal:	Nêlêmwa	<i>aut</i>	‘wave, swell’
NCal:	Nemi	<i>kōt</i>	‘flow’
NCal:	Cèmuhî	<i>ōot</i>	‘current’
Mic:	Kosraean	<i>εs</i>	‘current, stream’
Mic:	Woleaian	<i>yaɪt</i>	‘current, tidal or nontidal movement of lake or ocean water’
Mic:	Puluwatense	<i>yawɪt</i>	‘current; to flow, as a current’
Fij:	Bauan	<i>yau</i>	‘carry, bring’

Pn:	Tongan	<i>ʔau</i>	‘current, stream; (of pus) to ooze out, flow (but blood is said to <i>tafe</i>); (of a boil, etc.) to give out pus’
Pn:	Rennellese	<i>ʔau(a)</i>	‘float’
Pn:	Samoan	<i>au</i>	‘flow on, roll on; continue; current; stream; carry (in the hand)’
		<i>au-au</i>	‘current’
Pn:	Anutan	<i>au</i>	‘ocean current’
Pn:	Nukuoro	<i>au</i>	‘the generic term for the major types of currents in the open sea’
Pn:	Rarotongan	<i>au</i>	‘a current, as of a river or of the ocean; the wake of a boat or ship’
Pn:	Maori	<i>au</i>	‘current, wake of a canoe; rapid; whirlpool’
Pn:	Hawaiian	<i>au</i>	‘current; movement, eddy, tide, motion; to move, drift, float, walk, hurry, stir’

The bare PAn verb **qañud* ‘drift on a current, carried away by flowing water’ does not appear to have reflexes in Oceanic languages, but the form **ma-qañud* is well represented:

PAn **ma-qañud* ‘adrift’ (ACD)

POc **maqañur* ‘float, be afloat or drifting’ (ACD has ‘floating, adrift’)

Adm:	Seimat	<i>man</i>	(VI) ‘drift, float on a current’
SES:	Sa’a	<i>manu</i>	‘float’
SES:	Arosi	<i>manu</i>	‘float in water or air, as pumice, the moon, frigate hawk’
NCal:	Nengone	<i>n^hae</i>	‘float, be afloat or drifting’
Mic:	Chuukese	<i>mār</i>	‘be becalmed, adrift; drift; soar (without flapping wings), glide; do a dance movement with outstretched arms’
Mic:	Puluwatese	<i>mān</i>	‘drift, as a becalmed canoe’
Mic:	Woleaian	<i>mār̄i</i>	‘drift, be adrift (as a canoe)’
Fij:	Rotuman	<i>manu</i>	‘float’
Pn:	Tongan	<i>maʔanu</i>	‘be afloat, not to be resting on or touching the bottom’
Pn:	E Uvean	<i>maʔanu</i>	‘afloat, float’
Pn:	Rennellese	<i>maʔanu</i>	‘float, drift, soar; to leap, as in a dance’
Pn:	Samoan	<i>mānu</i>	‘come to the surface, emerge (as a turtle)’
Pn:	Tikopia	<i>mānū</i>	‘floating on water’
Pn:	Maori	<i>mānu</i>	‘float; be launched: so start, of an expedition by water; overflow; be flooded’

POc **tape* (V) ‘(current) flow’, (N) ‘current, flow’

PT:	Motu	<i>taha (i rame)</i>	‘current in the sea’
SES:	Bugotu	<i>tave</i>	(V) ‘flow’
SES:	Gela	<i>tave</i>	(V) ‘(liquids, air) flow’

SES:	Lau	<i>afe</i>	‘current, wave, tide’ (also <i>afea</i> , <i>afeafe</i> , <i>afela</i> ‘current, tide rip’)
SES:	Kwaio	<i>afe</i> <i>afe-afe</i>	(V) ‘flow, drip, run down, dissolve’; (N) ‘current’ ‘current’
SES:	Sa’a	<i>ahe</i>	(N) ‘surf; currents from wind or tide’; (V) ‘flow’
SES:	‘Are’are	<i>?ahe</i>	‘tidal current, tidal rip’
SES:	Arosi	<i>ahe</i> <i>ahe(ra)</i>	(V) ‘(current) flow’ ‘current’
NCV:	Paamese	<i>tahe</i>	(N) ‘wave’
NCal:	Nemi	<i>davec</i>	‘flood’
Fij:	Bauan	<i>dave</i>	(V) ‘(liquids in a small stream) flow’
Pn:	Niuean	<i>tafe</i>	(V) ‘flow’
Pn:	Tongan	<i>tafe</i>	‘(liquids) flow, run’
Pn:	Anutan	<i>ta-tape</i>	‘for water to flow; particularly for an ocean current to run’ (Feinberg 1988:197)
		<i>tape</i>	‘tide, current’
Pn:	Samoa	<i>tafe</i>	‘flow, run’
Pn:	Rennellese	<i>tahe</i>	‘float, drift’
Pn:	Tikopia	<i>tafe</i>	(N) ‘current’; (V) ‘drift at sea; trickle’
Pn:	W Futunan	<i>tafe</i>	‘flow, melt’
Pn:	Emae	<i>tafe</i>	(V) ‘flow’
Pn:	Hawaiian	<i>kahe</i>	(V) ‘flow’

PAn **qaluR*(?) (V) ‘flow’ (Blust 1999)

POc **qaliR* ‘flow, drift, float’ (doublet **saliR*)

MM:	Tolai	<i>alir(en)</i>	‘rivulet or small stream caused by the rain’
		<i>alir</i>	‘swim, float, drift’
MM:	Ramoaina	<i>alir</i>	‘flow, float, drift, swim’
MM:	Roviana	<i>ale</i>	‘float’
SES:	Lau	<i>alilo</i>	(V) ‘shift, of wind’; ‘an eddy’
SES:	‘Are’are	<i>arir(o?a)</i>	(N,V) ‘eddy, of wind’

PMP **saliR* ‘flow’

POc **saliR* (V) ‘flow, float, drift’

MM:	Meramera	<i>sali</i>	(V) ‘flow’
MM:	Nakanai	<i>sali</i>	(V) ‘flow’
NCV:	Mota	<i>sale</i>	‘float, drift, flow, run with water’
NCV:	Raga	<i>hala</i>	‘float, drift, wave hands in dancing’
NCV:	Lonwolwol	<i>hal</i>	‘(liquids) gush out; float, spread, flow, float’
Pn:	Niuean	<i>hili</i>	‘float’

2.4 Waves

Two types of wave commonly distinguished in Oceanic languages are (a) surf, waves breaking on the shore, and (b) ocean swells, typically unbroken although the wind can

whip up white caps. For instance, Mussau (Adm) has *koto* ‘surf, breakers’ and *toje-tojea* ‘wave, swell in the open sea’, Motu (PT) has *hure-hure* ‘surf’ and *sinaia* ‘ocean swell, high waves which do not break’. In Roviana (MM) the corresponding terms are *tovovo* ‘breakers, esp. on sea reef or exposed shore’ and *bogusu* ‘ocean swell’, and in Tongan (Pn), *ηalu* ‘surf’ and *ākefua* ‘to have an ocean swell (no breaking waves)’. Although we can reconstruct three POc terms for types of wave, **napo(k)* ‘breaking wave, surf’, **ηalu(n)* ‘mounting wave, ocean wave’ and **bayau* ‘ocean swell’, there is some crossover of meaning in reflexes of the first two forms. POc **bayau* is the only reconstruction which appears to refer unambiguously to ocean swells. Three other reconstructions are relevant here. POc **loka* referred to ‘high sea or tide, heavy breakers’, while POc **[u]Ruap* with primary meaning ‘high tide’ (see §2.6 below) evidently referred also to ‘wave’. The term **bari* ‘(waves) pound the coast at high tide’ is reconstructable for Proto Central Pacific.

PAn **Nabek* ‘breakers, surf, waves’ (ACD)

POc **napo(k)* ‘breaking wave; surf’

MM:	Tabar	<i>nava</i>	‘wave’
MM:	Lihir	<i>i-nah</i>	‘tide’
SES:	Lau	<i>nafo</i>	‘surf, wave’
SES:	Kwaio	<i>nafo</i>	‘surf, waves’
SES:	‘Are’are	<i>naho</i>	‘wave, surf’
SES:	Sa’a	<i>naho</i>	‘surf, wave’
SES:	Arosi	<i>naho</i>	‘surf, waves on the beach’
NCV:	Mota	<i>nawo</i>	‘salt water, surf’
NCV:	Raga	<i>navo</i>	‘wave, surf, salt’
Mic:	Kiribati	<i>nao</i>	‘wave, swell’
Mic:	Mokilese	<i>no</i>	‘wave’
Mic:	Puluwatese	<i>no</i>	‘wave, be many waves, as in a strong sea’
Mic:	Woleaian	<i>lo</i>	‘wave, surf’

Reflexes of POc **ηalu(n)* in some languages refer to ocean waves in general and in others to breaking waves or surf.

PMP **qalun* ‘long rolling wave, swell, billow’ (ACD, Dempwolff 1938)

POc **ηalu(n)* ‘mounting wave, ocean wave’

NNG:	Manam	<i>(ma)ηalu</i>	‘breakers, surf’
PT:	Tubetube	<i>yalu</i>	‘backwash from wave breaking on the beach’
SES:	Lau	<i>ηalu-ηalua</i>	‘a rough confused sea’
Mic:	Marshallese	<i>ηal</i>	‘ocean swell, mounting wave which does not break, billow’
Mic:	Mokilese	<i>ηal-ηal</i>	‘low tide’
Pn:	Tongan	<i>ηalu</i>	‘wave (when rolling in), breaker or surf’
Pn:	Samoa	<i>ηalu</i>	‘wave, breaker; to be rough’
Pn:	Tikopia	<i>ηaru</i>	‘wave, swell (normally used as collective in singular)’
Pn:	Maori	<i>ηaru</i>	‘wave of the sea, corrugation’
Pn:	Anutan	<i>ηaru</i>	‘wave (generic); breaker’ (Feinberg 1988:192)
Pn:	Hawaiian	<i>nalu</i>	‘surf’

POc **bayau* ‘ocean wave, ocean swell’

Adm:	Nyindrou	<i>bayau</i>	‘wave away from shore or reef’
PT:	Motu	<i>beu-beu</i>	‘wave of the sea, generally of swell inside reef’
Fij:	Bauan	<i>biau</i>	‘wave, billow (not breaking)’
Pn:	Tongan	<i>peau</i>	‘wave, billow’
Pn:	Samoan	<i>peau</i>	‘wave, billow’
Pn:	Rennellese	<i>peau</i>	‘wave, esp. white caps’
Pn:	Tuvalu	<i>peau</i>	‘wave of sea’
Pn:	Tokelauan	<i>peau</i>	‘billow, roller’
Pn:	W Futunan	<i>peau</i>	‘white caps; swell in ocean’
Pn:	Tikopia	<i>peau</i>	‘foam, spindrift at sea’

cf. also:

NNG:	Dami	<i>uyau</i>	‘wave’

POc **loka* (N) ‘high sea or tide, heavy breakers’; (V) ‘be high, rough, of sea or surf’

Adm:	Lou	<i>loka</i>	‘high tide, flood’
Fij:	Wayan	<i>loka-loka</i>	‘of sea, be rough during calm weather, indicating strong winds will come later’
Fij:	Bauan	<i>loka</i>	(N) ‘heavy breakers over a reef, very heavy tides that flow inland, floods’; (V) ‘break, of breakers, tidal wave’ (<i>ua loka</i> ‘tidal wave’)
Pn:	Niuean	<i>loka</i>	‘be rough, usually of sea’
Pn:	Tongan	<i>loka</i>	(of harbour, lagoon, passage, or sea where it meets coast) ‘be rough’
		<i>loka-tau</i>	(of sea near the coast) ‘be rough and roaring’
Pn:	Tikopia	<i>roka</i>	‘rough of sea; great wave, as in heavy surf’

PCP **bari* ‘(waves) pound the coast, as at high tide’

Fij:	Bauan	<i>bari</i>	‘nibble at a hard thing, as waves against a rock face’

PPn **pali* ‘to pound the coast, as at high tide’

Pn:	Tongareva	<i>pari</i>	‘rough, of waves’
Pn:	Rarotongan	<i>pari</i>	‘high, full, as the tide’
Pn:	Tahitian	<i>pari-pari</i>	‘spray breaking on the shore’
Pn:	Tuamotuan	<i>pari</i>	‘(waves etc.) pound against and wear away; flow over, as the tide’
Pn:	Maori	<i>pari</i>	‘flowing, of tide; flow over s.t., of tide’

2.5 Foam

Blust (ACD) has reconstructed several forms denoting ‘foam’ for PAn and lower-order protolanguages, all showing some degree of formal similarity:

PAn	<i>*buCaq</i>	‘foam, froth’
PAn	<i>*puCaq</i>	‘foam, froth, lather’
PMP	<i>*budaq</i>	‘foam, bubbles, lather, scum, froth’
POc	<i>*puro</i>	‘foam, bubbles’
PMP	<i>*busa</i>	‘foam’
PAn	<i>*bujeq</i>	‘foam, bubbles, lather, scum, froth’
PAn	<i>*bua</i>	‘foam, bubbles, froth’

PAn **buCaq* and **puCaq* are to our knowledge not reflected in Oceanic languages (the expected POc reflexes of either would be ***puta(q)* and ***buta(q)*). Of the other forms, PMP **budaq* (POc **pura(q)*) and POc **puro* are discussed in Chapter 3 (see p.61 and p.83 respectively), whilst PMP **busa* and PAn **bujeq* are referred to below. Blust’s reflexes of **bua* are two from Taiwan, together with the Tolai and Maori reflexes that we prefer to attribute to PMP **busa* (the expected Maori form is ***puha*).

No single contemporary Oceanic language we know of has reflexes of two of these forms with identical meaning. However, Arosi has a contrast between *?abuta* ‘the break of a wave, the foam and white of the crest of a wave’ and *huto-huto* ‘foam, froth’, while ‘Are’are contrasts *aputa* ‘(surf) break’ with *huto-huto* ‘slime, saliva’. This suggests that POc **busa* and **puso* may have differed in meaning, with the former perhaps denoting foam of the sea and the latter a more general term for foaming or slimy substances.

There is an additional formal complication, namely that PMP **bujeq* seems to have two sets of reflexes in Oceanic languages, pointing to two POc forms: **buso* and POc **puso*. It may be that POc indeed had both, **buso* perhaps a verb, **puso* a verb or a noun (see vol. 1, pp.30–31). Alternatively, forms apparently reflecting **buso* may represent a conflation of **busa* and **puso*, implying that **buso* did not in fact occur in POc.

PMP **busa* ‘foam’ (ACD)

POc **busa* ‘foam, froth’

MM:	Sursurunga	<i>bus-bus</i>	‘foam coming from the mouth; bubbles’
MM:	Tolai	<i>bua</i>	(N) ‘foam of the sea’; (V) ‘foam, bubble, boil’
SES:	Arosi	<i>(?a)buta</i>	‘the break of a wave, surf’; (<i>?abutasi</i> ‘to break in foam upon’)
SES:	‘Are’are	<i>(a)puta</i>	‘break, of surf’
NCV:	Namakir	<i>buha</i>	‘foam’
Pn:	Maori	<i>pua</i>	‘foam of the sea; foaming, breaking’
cf. also:			
Pn:	Samoan	<i>pusa</i>	‘give out smoke, steam, vapour’
Pn:	Tongan	<i>pu-puha</i>	‘be hot and perspiring’

PMP **bujeq* ‘foam, bubbles, lather, scum, froth’ (ACD)

POc **buso* ‘foam, froth’

Adm:	Mussau	<i>bīso</i>	‘foam, froth, bubbles’
NNG:	Manam	<i>buso</i>	‘foam’
PT:	Dobu	<i>buso-buso</i>	‘foam’
NCV:	Raga	<i>buso</i>	‘foam’
Mic:	Kiribati	<i>buro-buro</i>	‘froth, bubbles, foam, lather’
Mic:	Ponapean	<i>p^wuto-p^wut</i>	‘foam, scum’
Mic:	Woleaian	<i>φuzo-φuz</i>	(N,V) ‘bubbles, foam, froth’

PAn **bujeq* ‘foam, bubbles, lather, scum, froth’ (ACD)

POc **puso* ‘foam, froth, slime’

PT:	Kiriwina	<i>polu</i>	(N) ‘foam, spray’ (vowel metathesis)
MM:	Nakanai	<i>pu-puso</i>	‘pumice’
SES:	Sa’a	<i>huto-huto</i>	(N) ‘froth, foam’
SES:	Arosi	<i>huto-huto</i>	‘froth, foam’
SES:	’Are’are	<i>huto-huto</i>	‘slime, saliva’
Fij:	Wayan	<i>vuso</i>	‘froth, foam’
Fij:	Bauan	<i>vuso</i>	(N,V) ‘froth, foam’
Pn:	Niuean	<i>fiho</i>	(N) ‘froth, foam’
Pn:	Tongan	<i>fiho</i>	‘phlegm’
Pn:	W Futunan	<i>fiso</i>	(V) ‘foam, bubble’

2.6 Tides

Tidal patterns are an important regulator of the daily life of communities which obtain much of their food by foraging on the reef, and by netting and trapping reef fish. They are also important in localities where canoe access through the reef is only possible under certain tidal conditions. Although we have reconstructed terms only for the high and low points of tidal movement, communities evidently had names for a number of intermediate tidal stages, for tides at particular times of day and for seasonal tides. The following description of Lau (SES) terms is from Akimichi (1978:306). With one exception, these are all descriptive compounds based on either *lua* (< POc **[u]Ruap*) ‘high tide’ or *mai* (< POc **maqati* ‘low tide’).

Tide or tidal movement (*afe*) [from POc **tape* ‘to flow’] is divided into *lua* (flux) and *mai* (reflux), and these are further subdivided into several phases, given here in a sequential order. The lowest phase is termed *mai laŋa* [dry], then the tide starts to come up (*lua kariabulo*) [turn around]. Then the intertidal rocks become invisible or submerged (*lua e fakaelua*), and soon disappear under the water (*lua e dalafa*). The fullest phase is termed *lua e hata*. Then the tide begins to go out (*gouna asi majoli*), and it ebbs to a slight degree (*mai toli*). The rocks emerge from under the water (*mai tarafafoa*), and they come in sight completely (*mai tete*). Then the tide turns to be the lowest phase (*mai laŋa*) again.

In addition to their daily ebb and flow, tides have a seasonal cycle, with extreme highs and lows at certain times of year that correspond to phases of the lunar and solar cycles. Communities would have been aware of these spring or king tides, when there would be possible flooding, and of the unusually small neap tides which might permit such activities as the building and maintenance of stone fish traps on the reef. A detailed description of the seasonal cycle of tides comes from McEldowney (1995) who has written about Andra, a sand cay with surrounding reef just off the north coast of Manus in the Admiralties. She describes a community which has built hundreds of stone fish traps along the northern reef edge so that they form a nearly continuous wall. For Andra speakers, the times of neap tides signal the opportunity for rebuilding the trap walls and are the most opportune time for many fishing methods. McEldowney writes (p.283–284) that the lowest tides occur over four consecutive days when

the reef is called *matahun* [perhaps **maqati* ‘low tide’ + **puna* ‘origin, beginning’] and ‘new’ because the reef is becoming newly exposed. The low tides of *matahun* are characterised as receding quickly and earlier than those on succeeding days; they do not drop as far as on following days; their duration is relatively short; and they are quickly replaced by the returning tide. This initial phase of the low water sequence is seen as the most opportune time for many fishing methods.

Hviding (1996:52) describes in some detail the seasonal variation in tides in Marovo, NW Solomons, and the way in which this affects the activities of its community. He notes how the time of the southeast tradewinds coincides with the occurrence of low tides during daytime (*mati rane*), and the time of northwest monsoons with low tides at night (*mati ipu*), and describes how these constitute predictable and distinct juxtaposed seasons. He writes:

This recurring pattern, particularly the tidal one, is important for the yearly cycles of fishing and shellfish gathering and is tied in with knowledge and observation of a number of other cyclic events in nature. ... Within the general two-season pattern, Marovo people recognize a number of predictable shorter-term fluctuations and climatic extremes that act as markers of important ceremonial occasions and productive activities. Among these are the particularly low tides occurring from mid-morning around June, announcing the ripening of the Canarium nut trees and aptly termed *mati buruburu* (low tide of nut trees). *Mati buruburu* also signifies the beginning of the period during which marriages were traditionally concentrated, when peak harvests from both fishing and gardening could be expected. The extreme low tides in mid-morning provide ideal conditions on the barrier reef flats for *kuarao* fishing, large communal efforts using an encircling line, yielding extraordinarily large catches, and associated with large feasts.

In Wayan (spoken in the Wasaya group, western Fiji), terms for spring and neap tides include *ua kurakura* ‘spring tide, highest tide of the month, when moon is full’, *ua qē* ‘neap tide, very quickly turning high tide, a low high tide’, and *ðere uaua* ‘very quickly turning low tide, a high low tide’. Wayan speakers also have a range of terms for high tides occurring at different times of day: *ua qwata* ‘morning tide, be high tide in morning’, *ua siŋa* ‘midday tide, be high tide at midday’, *ua vakiavi* ‘late afternoon tide, be high tide at evening’ and *ua boŋi* ‘night tide, be high tide at night’. It is probable that in POc also, there were a number of compounds based on *[u]Ruap and **maqati* that denoted specific kinds of high and low tide. However, on the evidence to hand we cannot recover the precise forms of such compounds.

The reconstruction for low tide, POc **maqati*, which continues a PAn form, is a well-supported one. The same form is also widely attested in the sense ‘dry reef, reef exposed at low tide’.

PAn **ma-qaCi* ‘ebb, of water in streams; low tide’ (ACD)

POc **maqati* (N) ‘low tide; dry reef’; (V) ‘ebb; dry, of reef’

Adm:	Mussau	<i>mati</i>	‘low tide; dry reef’
		(<i>poŋa</i>) <i>mati</i>	‘coral reef’
Adm:	Wuvulu	<i>maʔi</i>	‘low tide’
Adm:	Seimat	<i>mat</i>	‘tide’
Adm:	Lou	<i>met</i>	‘low tide; reef; dry reef’
Adm:	Titan	<i>mat</i>	‘beach, tide’
Adm:	Drehet	<i>m^wak</i>	‘ebb tide, dry reef’

Adm:	Nyindrou	<i>mek</i>	‘reef; low tide’
NNG:	Mangap	<i>magat</i>	‘low tide; dry reef’
NNG:	Manam	<i>mati</i>	‘reef’ (<i>mati-ibara</i> ‘ebb, ebb-tide; low water’)
MM:	Nakanai	<i>mahati</i>	‘be out, of the tide; low tide; dry season’
MM:	Vitu	<i>mayati</i>	‘low tide, reef’
MM:	Lavongai	<i>mat</i>	‘low tide’ (<i>kuli-mat</i> ‘reef’)
MM:	Tigak	<i>mat</i>	‘low tide; reef’
MM:	Kara (East)	<i>mat</i>	‘reef’
MM:	Tiang	<i>mat</i>	‘low tide; reef’
MM:	Nalik	<i>(sara)mat</i>	‘low tide’
MM:	Sursurunga	<i>məs</i>	‘low tide/shallow; dry spot’
MM:	Tolai	<i>mat (i marum)</i>	‘low tide during darkness’ (<i>mat i qai</i> ‘low tide during moonlight’)
MM:	Siar	<i>maiat</i>	‘reef’
MM:	Teop	<i>masi</i>	‘low tide with the reef visible’
MM:	Simbo	<i>mati</i>	‘low tide’
MM:	Marovo	<i>mati</i>	‘shallow reef; dry land; low tide; reef exposed by receding tide’
MM:	Halia	<i>mac</i>	‘coral reef; low tide’
SES:	Lau	<i>mai</i>	‘ebb tide; reef, dry reef; to ebb’
SES:	Kwaio	<i>mai</i>	‘low tide’
SES:	’Are’are	<i>mai</i>	‘low tide, ebb tide’
SES:	Sa’a	<i>mei</i>	‘ebb tide, low tide’
SES:	Arosi	<i>mai</i>	‘low tide, ebb’
		<i>mairara</i>	‘dead low water at spring tide’
		<i>mainiharisi</i>	‘neap tide’ (<i>harisi</i> ‘season’)
		<i>maitē, maiuru</i>	‘very low tide’
NCV:	Paamese	<i>a-mati</i>	‘tide’
NCV:	Nguna	<i>māti</i>	‘low tide’
NCV:	Namakir	<i>maʔat</i>	‘shallow (water), low tide’
SV:	Sye	<i>mah</i>	‘low tide’
SV:	Kwamera	<i>maha</i>	‘low tide’
SV:	Anejom	<i>mas</i>	‘low tide’
NCal:	Nemi	<i>māc</i>	‘part of the reef exposed at low tide’
Fij:	Rotuman	<i>mafi</i>	‘low-tide water; tide in general’
Fij:	Bauan	<i>mati</i>	(v) ‘ebb, of the tide, as opposed to the flow’; ‘part of the reef exposed at low tide’

POc *[ma]maca ‘dry up, evaporate’, has some reflexes which refer to low tide or to exposure of the reef at low tide. These may represent parallel semantic specialisations. (See also Chapter 7, §5.6)

PMP **maja* ‘be dry’

POc **[ma]maca* (V) ‘dry up, evaporate, be empty of liquid’; (N) ‘low tide’

NNG:	Kove	<i>mamasa</i>	‘dry’
PT:	Kiriwina	<i>mamala</i>	‘low tide’
PT:	Motu	<i>(ko)mada</i>	‘low water’
MM:	Nakanai	<i>mamara</i>	‘(water) partly dried up by sun; extremely low tide’
MM:	Ramoaina	<i>māma</i>	‘reef; low tide, shallow’
MM:	Tolai	<i>mamā</i>	‘reef; low tide; coral; shallow’
MM:	Roviana	<i>masa</i>	‘beach, sea shore’ (<i>masa-masa</i> ‘shallow’, <i>masa herepata</i> ‘very low tide’)
SES:	Gela	<i>mamaha</i>	‘dry’
SES:	Sa’a	<i>mamata</i>	‘be high and dry, of a reef; be dry at low water’
SES:	Arosi	<i>mamata</i>	‘dry’
NCV:	Raga	<i>mamasa</i>	‘dry’
NCV:	Paamese	<i>mese</i>	‘dry; (of tide) low, go out’
SV:	Anejom	<i>mesei</i>	‘dry’
SV:	Kwamera	<i>maha</i>	‘low tide; empty, of liquid’
NCal:	Nemi	<i>mat</i>	‘dry up; low tide’
NCal:	Iaai	<i>m^{he2}</i>	‘dry up, dry reef; low tide’
Mic:	Kiribati	<i>mara</i>	‘moistened, soaked, softened’
Mic:	Kosraean	<i>m^{ues}</i>	‘shallow place in reef’
Mic:	Mokilese	<i>mat</i>	‘portion of reef exposed at low tide’
Mic:	Marshallese	<i>mmat</i>	‘protrude from surface (water or land), emerge’
Mic:	Ponapean	<i>mat</i>	‘dry’
Mic:	Carolinian	<i>mmata</i>	‘low tide, dry’
Mic:	Puluwatese	<i>mmat</i>	‘be low, of tide’
Mic:	Woleaian	<i>mmata</i>	‘dry, low tide’
Fij:	Rotuman	<i>mamasa</i>	‘be dry’
Fij:	Bauan	<i>maōa</i>	‘empty, dry of liquids’
Pn:	Niuean	<i>maha</i>	‘empty, dry’
Pn:	Tongan	<i>maha</i>	‘dry’
		<i>mamaha</i>	‘shallow; (tide) be out’
Pn:	E Futunan	<i>masa</i>	‘dry’
Pn:	E Uvean	<i>maha</i>	‘empty, dry’
Pn:	Rennellese	<i>masa</i>	‘empty of liquid, (tide) shallow’.
Pn:	Samoaan	<i>masa</i>	‘be shallow’
Pn:	Nukuoro	<i>masa</i>	‘empty, low tide’
Pn:	Emae	<i>masa</i>	‘empty of liquid’

POc **Ruap* has been long-established as a term for high tide, with a PMP antecedent, **Ruab*. Further evidence in the form of the POc verb **[ma-]uRua(p)* ‘flood, be flooded’ (see below) leads us to conclude that **Ruap* had an alternant form **uRuap*.

² In Iaai *m^h* reflects PNCal **mm* and POc **mam*. (For a fuller discussion, see Ozanne-Rivierre 1986:39.)

PMP **Ruab* ‘high tide’ (Blust 1984–85)

POc *[*u*]*Ruap* (N) ‘high tide’; (V) ‘flow in, of tide’; (N) ‘wave’

Adm:	Lou	<i>ua</i>	‘high tide’
NNG:	Malasanga	<i>rua</i>	‘flow’
MM:	Tolai	<i>ruap</i>	‘breakers; break heavily, of the sea’
SES:	Gela	<i>lua</i>	‘full tide’; (V) ‘flow, of tide’
SES:	Lau	<i>lua</i>	‘high tide; flow in, of tide; heavy sea, big waves’ (<i>lua-lua</i> ‘breakers’, <i>lua ni odu</i> ‘a big swell’)
SES:	Sa’a	<i>lue</i>	‘flood tide’
SES:	Kwaio	<i>lua</i>	‘high tide’
		<i>lua-lua, lu-luafe</i>	‘flood tide’ (<i>lua</i> + <i>afe</i> ‘flow’)
SES:	’Are’are	<i>rua</i>	‘flood tide, incoming tide’ (<i>rua paina</i> ‘high tide’)
SES:	Arosi	<i>rua-rua</i>	‘flood of water’
NCV:	Mota	<i>rue</i>	‘flow of tide, high tide, flood tide’
NCV:	Fortsenal	<i>ua</i>	‘make waves’
NCV:	Paamese	<i>ue</i>	‘high tide’
SV:	Kwamera	<i>a-rə-ruk^w</i>	‘be high tide’
NCal:	Nyelāyu	<i>wap</i>	‘high tide’
Fij:	Bauan	<i>ua</i>	‘the tide, a wave’, (<i>ua levu</i> ‘high tide’)
Fij:	Wayan	<i>ua</i>	‘wave; tide’ (<i>ua levu</i> ‘high tide’)

POc **ma-[u]Ruap* and its counterpart, **ma-qati* ‘low tide; be low tide, to ebb’ each had both a dynamic and a stative sense (Evans & Ross 2001).

POc [**ma-JuRua(p)* ‘flood, be flooded’ (from p.86)

NNG:	Manam	<i>urua</i>	‘flood, torrent’
PT:	Molima	<i>moluva</i>	‘flood of river or stream’
PT:	Dobu	<i>muluwa</i>	‘flood’
NCV:	Tamambo	<i>moruae</i>	‘flood, big river’

Other reconstructions for high tide include the following (see also POc **lomak* ‘flood, of sea’ (Ch. 3, p.87)):

PMP **lubuk* ‘deep pool in water’ (Dempwolff 1938)

POc **lubu(k)* ‘high tide; deep water’

Adm:	Drehet	(<i>m^wak</i>) <i>ulup</i>	‘high tide’
		<i>lu-lup</i>	‘tidepool’
NNG:	Yabem	<i>lop</i>	‘flood tide’
MM:	Vitu	<i>lobo</i>	‘high tide’
MM:	Meramera	<i>lubu-lubu</i>	‘high tide’
MM:	Tolai	<i>lubu</i>	‘to rise, flow or flood, of the tide; full tide’
MM:	Ramoaina	<i>lubu</i>	‘deep water; full tide; the change of the monsoon’
SES:	Lau	<i>lobo</i>	‘deep water in lagoon’ (Akimichi 1978)
NCal:	Nemi	<i>nigi</i>	‘deep water’

PWOC **tunan* ‘high tide’

PT:	Molima	<i>tunana</i>	‘high, of water’
PT:	Muyu	<i>tan</i>	‘high tide’
MM:	Notsi	<i>tun</i>	‘high tide’
MM:	Lihir	<i>ton</i>	‘high tide’
MM:	Sursurunga	<i>tun</i>	‘tide’
MM:	Tangga	<i>tun</i>	‘high tide’
MM:	Konomala	<i>tun-tun</i>	‘high tide’

Sometimes reflexes of POC **ponuq* ‘full’ are used to refer to a high tide (SES: Sa’a *asi e honu* ‘high spring tide’, Pn: Takuu *fonu* ‘deep; full, of tide’).

3 The reef environment

3.1 Coral

POC **laje* was both a generic term for coral and the name for branching coral in contrast to **buŋa* ‘smooth round or table coral’. The term **laje* is widely attested in Oceanic but we know of only one probable cognate outside Oceanic, Lauje (Tomini-Tolitoli, Sulawesi) *lais* ‘coral’. For **giri-giri* ‘coral, coral rubble’, see Chapter 3, §7.3.

PMP **lajay* ‘coral’POC **laje* (i) ‘coral’; (ii) ‘branching coral’

Adm:	Lou	<i>las</i>	‘limestone’
Adm:	Loniu	<i>lac</i>	‘coral’
NNG:	Takia	<i>lad</i>	‘coral’
NNG:	Gedaged	<i>lad</i>	‘coral’
PT:	Motu	<i>lade</i>	‘k.o. coral; coral reef’
PT:	Kukuya	<i>nai</i>	‘reef; coral’
PT:	Sudest	<i>laje</i>	‘coral’
PT:	Kiriwina	<i>lai</i>	‘coral’
MM:	Babatana	<i>laji</i>	‘coral’
MM:	Maringe	<i>(glae)laje</i>	‘coral’
SES:	Gela	<i>lade</i>	‘all kinds of branching coral’
SES:	Arosi	<i>rade</i>	‘coral’
SES:	Kwaio	<i>lade-lade</i>	‘coral’
SES:	Lau	<i>lade</i>	‘branching coral’
NCV:	Mota	<i>las</i>	‘live coral, of the branching kinds’
NCV:	Namagir	<i>les</i>	‘branching coral’
SV:	Anejom	<i>(n)las</i>	‘live coral on a reef’
Mic:	Kosraean	<i>læs</i>	‘k.o. coral’
Fij:	Wayan	<i>lase</i>	‘coral (alive or dead), esp. branching coral; burnt coral, powdered coral, lime’
		<i>vatu lase-lase</i>	‘brain coral, smooth round coral’
		<i>lase iviu</i>	‘sea fan coral’

Fij:	Bauan	<i>lase</i>	‘common branchy coral and the lime made from it’
Pn:	Tongan	<i>lahe</i>	‘lime (coral)’
Pn:	Rennellese	<i>gase</i>	‘k.o. common branching coral’

POc **buŋa* ‘smooth round coral’ is evidently derived from PMP **buŋa* ‘blossom’ through the latter’s extension of meaning to PMP **buŋa ni batu* ‘coral sponge’ (lit. ‘blossom of stone’), which then reduced simply to **buŋa* in Oceanic.

PMP **buŋa* ‘flower, blossom’, **buŋa ni batu* ‘coral sponge’ (ACD)

POc **buŋa* ‘smooth, round coral’

NNG:	Takia	<i>buŋ</i>	‘large white coral’
NNG:	Gedaged	<i>buŋ</i>	‘a round coral growth’
MM:	Nakanai	<i>buga</i>	‘plate-shaped coral’
MM:	Bola	<i>buŋa</i>	‘k.o. coral’
MM:	Babatana	<i>buŋa-na</i>	‘large whitish stones found on the reef, calcified coral’
NCV:	Mota	<i>puŋa</i>	‘k.o. coral (madrepore)’
Fij:	Bauan	<i>vuŋa</i>	‘a porous coral rock in the sea’

PPn **puŋa* ‘coral rock’

Pn:	Niuean	<i>puŋa</i>	‘limestone, coral rock’ (<i>puŋa-puŋa</i> ‘limestone platform on the reef’)
Pn:	Tongan	<i>puŋa, (mata)puŋa</i>	‘k.o. rather soft rock or stone, apparently a compact form of coral’
Pn:	Samoan	<i>puŋa</i>	‘k.o. coral, used for polishing and as weights in breadfruit storage pits’
Pn:	Rennellese	<i>puŋa</i>	‘general name for flat or round sharp coral’
Pn:	Tikopia	<i>puŋa</i>	‘marine rock, prob. coral’
Pn:	Tahitian	<i>puʔa</i>	‘coral sp., lime, abrasive stone’
Pn:	Maori	<i>puŋa-puŋa</i>	‘pumice’
Pn:	Hawaiian	<i>puna</i>	‘coral’

In Polynesian languages, reflexes of **puŋa* typically contrast with those of **feo*.

PPn **feo* ‘coral, possibly branching coral’

Pn:	Niuean	<i>feo</i>	‘coral’
Pn:	Tongan	<i>feo</i>	‘coral’
Pn:	E Futunan	<i>fe(o)-feo</i>	‘branching coral’
Pn:	Samoan	<i>feo-feo</i>	‘branching coral’
Pn:	Tikopia	<i>feo</i>	‘coral, generic’
Pn:	Tuamotuan	<i>heo</i>	‘k.o. coral rock’

3.2 Reefs

Coral reefs are a dominant feature not only of atolls, but also of the coastal environments of parts of mainland New Guinea and of many of the high islands of the tropical Pacific. Reef systems can be loosely classified into atolls, fringing reefs which border shores, and barrier reefs which are some distance offshore. Although many atolls are in fact islands, some consist only of reef.

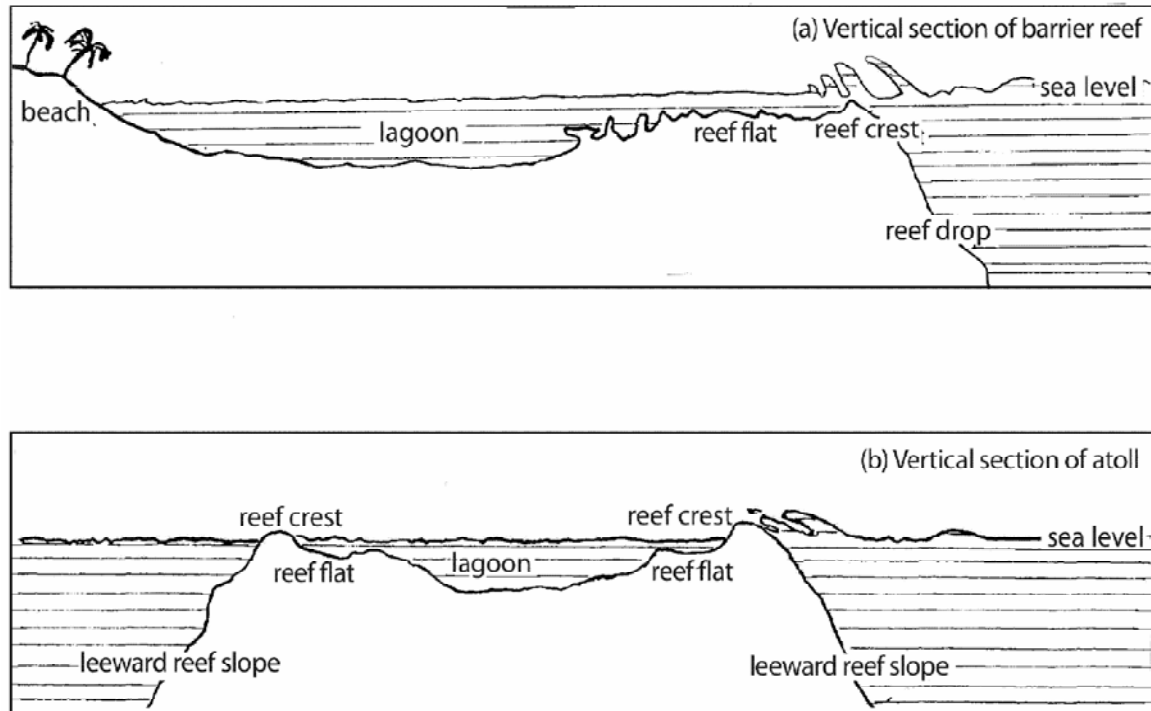


Figure 3: Reef forms

Coral reefs generally have a number of features in common, as shown in Figure 3. These include a windward slope, with often a steep drop to the ocean floor on the seaward side, a crest and a reef flat which is exposed at low tide and contains holes and channels. Reef flats in general are easily accessible and support a wide variety of fish and shellfish. A natural division is between the windward and leeward sides of the reef, with the windward more heavily scoured by tides and wave action, and the leeward supporting a much more varied and fragile coral community. Atolls and barrier reefs enclose a body of sheltered water, the lagoon, within which occur patch reefs, coral heads and sand patches.

Two POC reconstructions are glossed simply as 'reef', **sakaRu* and **oda*. Oceanic reflexes of **sakaRu* are extremely widespread. Outside Oceanic, we have located two terms from Austronesian languages in the Cenderawasih Bay area, Yeretuar *s?aru* 'coral stone' and Iresim *haru* 'coral reef', both from the Anceaux collection of wordlists of Irian Jaya languages (Smits & Voorhoeve 1992:228), which suggest a PEMP reconstruction. Blust (ACD) has recorded Chamorro *sahagu* 'deep water' as cognate and thus proposes promotion of the POC reconstruction to PMP, albeit with questionable gloss. In Tryon (1995), which lists terms for 'reef' in around 50 non-Oceanic languages, the most common terms are cognates of the compound **patu karanj*, literally 'coral rock'. It may be that reefs were not as central to life in many parts of Indonesia as they are in Oceanic settlements.

PMP/PEMP **sakaRu* ‘reef, shoal’POc **sakaRu* ‘reef, shoal’

Adm:	Baluan	<i>suk</i>	‘beach’
NNG:	Dami	<i>sā</i>	‘sky, reef’
NNG:	Mangap	<i>sakar</i>	‘reef’
NNG:	Manam	<i>sakaru</i>	‘reef’
NNG:	Sissano	<i>saʔar</i>	‘reef’
PT:	Motu	<i>hayaru</i>	‘rise, of the tide’
MM:	Bali	<i>zayaru</i>	‘reef’
MM:	Nakanai	<i>sakalu</i>	‘reef’
MM:	Bola	<i>rakaru</i>	‘reef’
MM:	Teop	<i>han</i>	‘a reef coming near the surface of the ocean, but is always under water’
MM:	Halia	<i>sāl</i>	‘between the deep edge of the reef and where the surf breaks’
MM:	Roviana	<i>sayaru</i>	‘reef’
SES:	Bugotu	<i>hagalu</i>	‘reef’
SES:	Sa’a	<i>taʔalu</i>	‘shoal water, a coral patch under water’
SES:	Lau	<i>taʔalu</i>	‘a shoal, shoalwater’
SES:	’Are’are	<i>taʔaru</i>	‘shoal, reef in shallow water’
SES:	Arosi	<i>taʔaru</i>	‘shoal, shallow spot in the sea; coral reef’
NCV:	Mota	<i>sakaru</i>	‘rough coral stones between surf and beach’
NCV:	Namakir	<i>hako</i>	‘reef’
Mic:	Kiribati	<i>rakai</i>	‘block of coral rocks; rock; reef’
Mic:	Kosraean	<i>taka</i>	‘island, atoll’
Mic:	Marshallese	<i>təkæ, təkər</i>	‘strip of reef; long reef between two islets’
Mic:	Ponapean	<i>teke</i>	‘small island’
Mic:	Puluwatese	<i>tā</i>	‘uninhabited reef island’
Fij:	Wayan	<i>ḍakau</i>	‘reef, shoal’
Fij:	Bauan	<i>ḍakau</i>	‘coral reef’
Pn:	Tongan	<i>hakau</i>	‘coral reef or rock which appears above the surface at low tide’
Pn:	Samoa	<i>aʔau</i>	‘coral reef’
Pn:	Rennellese	<i>akau</i>	‘coral reef in general’
Pn:	Tikopia	<i>akau</i>	‘reef fringing an island or in atoll form’
Pn:	Tuvalu	<i>akau</i>	‘reef formations in the lagoon’
Pn:	Marquesan	<i>akau</i>	‘coral outcrops’

POc **oda* ‘reef’ is widely reflected in Micronesian languages, but otherwise is retained as a separate word (in our data) only in one Papuan Tip language.

POc **oda* ‘reef’

PT:	Kiriwina	<i>oda(iaga)</i>	‘coral reef’
Mic:	Kiribati	<i>ora</i>	‘low tide, expanse of beach, strand’
Mic:	Ponapean	<i>ōt</i>	‘reef’ (archaic)

Mic:	Marshallese	<i>wər</i>	‘coral reef’
Mic:	Mokilese	<i>wos</i>	‘reef’
Mic:	Chuukese	<i>wōç, woço-</i>	‘reef’
Mic:	Carolinian	<i>wōş, woşo-</i>	‘reef, esp. fringing barrier reef’
Mic:	Woleaian	<i>woş, woşo</i>	‘reef, coral, lime’
Mic:	Puluwatese	<i>wōr</i>	‘reef’

However, further evidence supporting *oda* as a term for ‘reef’ lies in two reconstructions made by Ross Clark (1991), POc **paŋ-oda* ‘gather shellfish and other seafood on the reef’ and **p-in-aŋ-oda* ‘shellfish, seafood gathered on the reef’ (where **paŋ-* is the verbal suffix (underlying form **paN-*) and *-in-* the noun-deriving infix discussed in vol. 1, p.29 and p.33 respectively). A selection of reflexes follows:

PT:	Motu	<i>haoda</i>	(V) ‘fish’
SES:	Bugotu	<i>vagoda</i>	‘hunt for shellfish on the reef’
SES:	Gela	<i>vaŋoda</i>	‘collect food on the reef; anything on the reef; gatherer of reef food’
SES:	Sa’a	<i>haŋoda</i>	‘haliotis (sea ear) used as bait for crayfish’
NCV:	Mota	<i>vaŋona</i>	‘catch fish with a line; get shellfish on the reef or in a canoe’
NCV:	Nguna	<i>(pa)vagoda</i>	‘look for shellfish’
		<i>vinagoda</i>	‘shellfish’
NCV:	Lonwolwol	<i>fogōr</i>	‘look for fish (on reef etc.)’
SV:	Anejom	<i>a-haŋeč</i>	‘forage on reef’

The following reconstruction is attested only in SE Solomonian languages and Rotuman.

PEOc **papo* ‘shore reef, fringing reef’

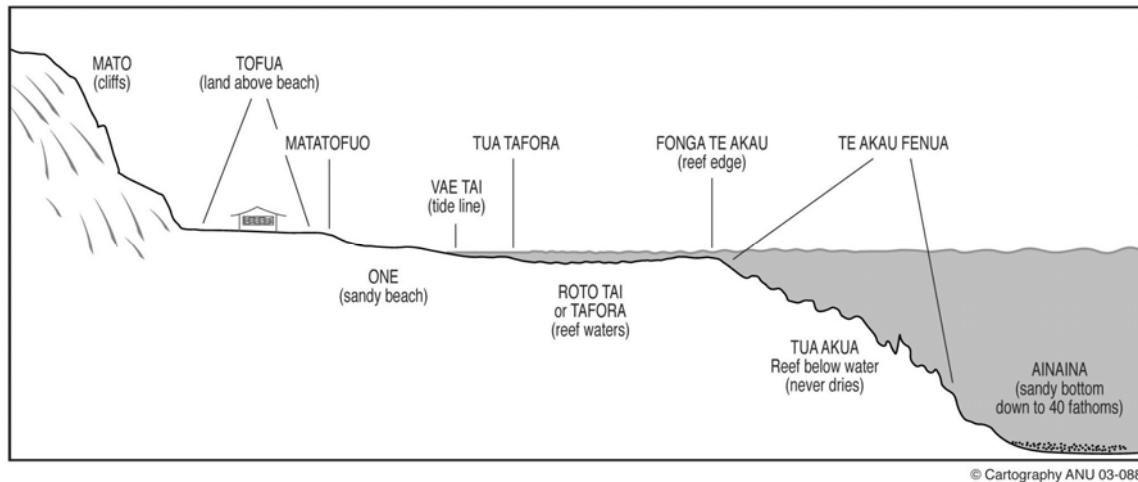
SES:	’Are’are	<i>haho</i>	‘the shore reef’
SES:	Sa’a	<i>haho</i>	‘the shore reef’
SES:	Arosi	<i>haho</i>	‘encircling reef’
Fij:	Rotuman	<i>haho</i>	‘coral reef’

In addition to a general term for the reef, communities have terms for various zones within the reef. The Admiralties language spoken on Andra, a sand cay with fringing reef, distinguishes five major reef zones (McEldowney 1995:484–488): the windward reef slope (*awea kontoh*); the windward reef crest (name not given) which is the most elevated portion of the reef, the reef flat (*lomat*); the leeward reef margin consisting of alternating series of coral patches and sand chutes (*lonpai* ‘sand chute’), and the leeward reef slope (*chechen*). These in turn are divided into eleven subzones. For instance, the reef flat (*lomat*) consists of two segments, the windward two thirds (*lolomat*) dominated by live coral and largely exposed during the lower tides, and the leeward third (*lonpapi*) mainly covered by sand deposits which remain largely submerged even during the lowest tides. Also scattered through the reef flat are some areas of sea grass, referred to as *korekt*, and small deep pools known as *lolu*.

Raymond Firth in his *Tikopia–English dictionary* (1985:613) provides an illustration, reproduced here as Figure 4, of a reef profile with main features labelled. Tikopia is a high island with fringing reef. The features labelled include the ocean side of the reef (*tua akau*, lit. ‘back of reef’), the reef crest (*foŋa te akau*), that part of the reef dry at low tide (*roto tai*

or *tafora*, ‘middle salt water/reef waters’), the tide line (*vae tai* ‘foot of salt water’), the sandy beach (*one* ‘sand’), and the land above the beach (*tofua* ‘sandy dunes’).

A second Polynesian example comes from Niuatoputapu, an island with a volcanic ridge and fringing reef located halfway between Tonga and Samoa. Dye (1983:246) records a local division of the marine environment into four major biotopes: the reef flat (*namo*) including littoral zones, the shallow salt-water lagoon (*tahi*), the living fringing and barrier reef fronts (*mataʔuluʔulu*) and the open ocean (*moana*). The reef flat and reef edge are further divided into leeward and windward zones, although Dye gives the local name only for the windward reef flat, *lafo-lafo*.



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Figure 4: Tikopia reef profile
(Firth 1985:613, reproduced with permission)

Although we can be confident that there were Proto Oceanic names for various reef zones, we have reconstructions only at lower levels. PPn **tuqa-hakau* (from **tuqa* ‘back’ + **hakau* ‘reef’) refers variously to the reef’s outer edge or to the ocean just beyond. Marovo (MM), spoken on New Georgia, has a term *tabikale* ‘steep reef dropoff, into deep water’. Lau (SES) also has an unrelated term, *fafo-ʔile*, for the seaward side of the reef translated by Ivens as literally ‘overhanging the precipice’.

PPn **tuqa-hakau* ‘ocean side of the reef, ocean beyond the reef’ (from PPn **tuqa* ‘back’ + **hakau* ‘reef’)

Pn:	Rennellese	<i>tuʔā</i>	‘side of reef facing the ocean’
Pn:	Samoa	<i>tua-aʔau</i>	‘outside the reef in deep water’
Pn:	Tikopia	<i>tua-akau</i>	‘open sea just beyond the reef’
Pn:	Hawaiian	<i>kua-au</i>	‘basin inside the reef; lagoon’

A PCP reconstruction that may also apply to the reef’s outer edge is **qulu-qulu*, (possibly from POC/PPn **qulu* ‘head’).

PCP **qulu-qulu* ‘outer edge of shore reef where waves break’

Fij:	Wayan	<i>ululu</i>	‘pool or sandbar at mouth of a stream’
Pn:	Niuean	<i>ulu-ulu</i>	‘reef’

Pn:	Tongan	<i>ʔulu-ʔulu</i>	‘low-lying rocks adjoining shore or inner reef’
Pn:	Niuatoputapu	<i>(mata)ʔulu-ʔulu</i>	‘reef front’
Pn:	E Futunan	<i>ʔulu-ʔulu</i>	‘outer edge of reef where waves break’
Pn:	Pukapukan	<i>ulu-ulu(akau)</i>	‘outer reef, reef shelf’
Pn:	Rennellese	<i>ʔugu-ʔugu</i>	‘outer barrier reef’
Pn:	K’marangi	<i>(mata) uru-uru</i>	‘reef where waves come in and immediately beyond’

Reflexes of POc **mata* with its extended meaning ‘edge’ are sometimes used in compounds to refer to reef edge. They include Molima (PT) *mata-ʔipi* ‘edge of reef and beyond’ and Tikopia *mata akau* ‘edge of reef’ as well as the Niuatoputapu and Kapingamarangi forms cited above.

The windward and leeward sides of the reef were possibly described by the terms reconstructed in the previous chapter for windward and leeward coasts, PEOc **liku* ‘windward side’ and POc **ruru* ‘calm, sheltered’ or by the terms for rough and sheltered water, PEOc **tasik maquri(p)* and PEOc **tasik mate* respectively, which evidently could be used to include also the weather and lee coasts of barrier islands (p.95).

3.3 Submerged reefs, rocks and sandbanks

Isolated patches of submerged reef occur in the open sea between the outer (barrier) reef and islands with shore reefs. These submerged reefs are dangerous to boats but are valuable fishing grounds. In some languages they are referred to by the generic word for ‘coral reef’, in others there is a separate term for a submerged patch of reef or rocks. In the following reconstruction, retention of the final vowel in Anejom and Mota suggests POc final **-q* (John Lynch pers. comm.).

POc **m^waloq* ‘submerged rock or coral reef, coral head’

NNG:	Takia	<i>mal</i>	‘reef, a chain of rocks, coral, or a ridge of sand at or near the surface of water’
NNG:	Manam	<i>m^walo(bo)</i>	‘sink, submerge, be drowned’
MM:	Nakanai	<i>malo</i>	‘wandering stones or reefs that chase and sink canoes’
MM:	Lamasong	<i>mano</i>	‘reef’
MM:	Bola	<i>malo</i>	‘steep face of reef that goes down into the deep’
SES:	Lau	<i>walo</i>	‘coral reef’
SES:	Kwaio	<i>walo</i>	‘reef’
SES:	’Are’are	<i>maro</i>	‘submerged coral reef’
SES:	Sa’a	<i>m^walo</i>	‘sunken rock, reef at sea’
SES:	Arosi	<i>m^waro</i>	‘hidden rock or shoal’
NCV:	Mota	<i>m^walo</i>	‘a sunken rock where the sea breaks’
NCV:	Raga	<i>malo</i>	‘reef’
NCV:	Nguna	<i>m^wālo</i>	‘coral head’
SV:	Anejom	<i>in-m^woče</i>	‘coral reef’
Pn:	Tongan	<i>ʔalo</i>	(VI) ‘sink, submerge’

POc **nuku* ‘sand bank, sand spit, sandy ground’ is listed with full cognate set in Chapter 3 (p.45). From two of its cognates, Bugotu and Bauan Fijian, we can also reconstruct PEOc **nuku potu* ‘point of reef or sandbank (presumably one that appears at low tide)’ (**potu* ‘appear, emerge’).

PEOc **nuku potu* ‘point of reef or sandbank (that appears at low tide)’

SES:	Bugotu	<i>nuyu votu</i>	‘point of a reef’
Fij:	Bauan	<i>nuku votu</i>	‘sandbank’

Both the SE Solomonian and Micronesian reflexes of PEOc **baro* refer to flat rocks in or near the sea.

PEOc **baro* ‘flat rock or ledge (in or near sea)’

SES:	Lau	<i>baro</i>	‘flat rock in the sea’
SES:	Kwaio	<i>balo</i>	‘flat reef stones’
Mic:	Kiribati	<i>ba</i>	‘rock or ledge, continuous and solid’
Mic:	Marshallese	<i>p^{uu}a^{uu}</i>	‘rock’
Mic:	Puluwatese	<i>porōw</i>	‘sandstone, calcified coral’
Mic:	Woleaian	<i>pozou</i>	‘beach rock, huge flat rock’

PPn **toka* ‘rock, as a submerged rock or reef’ (Biggs & Clark 1993)

Pn:	Niuean	<i>toka</i>	‘bedrock of sea’
Pn:	E Futunan	<i>toka</i>	‘reef rock’
Pn:	Pukapukan	<i>toka</i>	‘coral growth’
Pn:	Samoaan	<i>toʔa</i>	‘sea rock, reef’
Pn:	Tahitian	<i>toʔa</i>	‘rock, coral rock variety’
Pn:	Hawaiian	<i>koʔa</i>	‘coral, coral head’
Pn:	Anutan	<i>toka</i>	‘rock in sea, visible at low tide’

Reflexes of POc **baban* ‘flat; flat rock, any hard flat surface’ are also used in some languages to refer to flat rock surfaces underwater (see vol. 1, p.58).

3.4 Lagoon, sheltered water

A feature of coral atolls and of some high islands with barrier reefs is the enclosed or sheltered water usually referred to as a lagoon. These can be very large, examples being the Marovo and Lau lagoons in the Solomons within which are located a number of inhabited islands. Reflexes of POc **namo* refer at times to the lagoon within a reef, and at others to a deep hole in the reef. The common meaning ‘enclosed water’ is retained.

PMP **namaw* ‘sheltered water: deep place in a river; cove, harbour, lagoon’ (ACD)

POc **namo* ‘lagoon inside a reef; deep pool or hole in reef’

PT:	Motu	<i>nomu</i>	‘deeper place on shore reef’ (irreg. vowel change)
MM:	Kara	<i>nam</i>	‘lagoon’
SES:	’Are’are	<i>nāmo</i>	‘lake; crevice, deep places in between the reefs’
SES:	Sa’a	<i>namo</i>	‘land-locked harbour’

SES:	Arosi	<i>namo</i>	‘a landlocked, shallow lagoon near the shore’
SES:	Lau	<i>namo</i>	‘the lagoon inside a reef, near the reef (the deep) pools towards the shore’
SES:	Kwaio	<i>namo</i>	‘lake, pool, deep place in river’
NCV:	Mota	<i>nam^wo</i>	‘lagoon within a reef’
Mic:	Kiribati	<i>namo</i>	‘harbour’
Mic:	Ponapean	<i>nām^w</i>	‘deep place within the barrier reef; lagoon’
Mic:	Puluwatese	<i>nām^w</i>	‘lagoon’
Mic:	Woleaian	<i>ram^w</i>	‘lagoon, lake’
Fij:	Wayan	<i>namo</i>	‘deep-water hole within reef’
Pn:	Niuean	<i>namo</i>	‘lake, lagoon’
Pn:	Tongan	<i>namo</i>	‘lagoon’
Pn:	Niuaotupapu	<i>namo</i>	‘the reef flat’
Pn:	E Futunan	<i>namo</i>	‘large shallow area on reef’
Pn:	Tokelauan	<i>namo</i>	‘lagoon’

In languages where the community’s activities are centred on the lagoon there are usually dozens of terms for particular features. For instance, Akimichi (1978:305–306) reports that Lau has terms for shallow water (*mai* or *fafo-mai* ‘low water’ or ‘above low water’); intermediate depths (*fafo-buso*) and deep water (*lobo*). He adds a host of other terms for features of the lagoon and its boundaries:

Rarabala is applied to the places where the passes and the lagoon meet and the shelf area between the ocean and the lagoon, and where the depth is 6–7 m. *Fakana aba* also is applied between passages and the lagoon, but only to those 4–5 m deep. Areas of the lagoon where the depth and the nature of the bottom changes are also named. For instance, *fakana matakwa* indicates the area intermediate between *rarabala* ‘reef shelf’ and *asi matakwa* ‘ocean’, *fakana lobo* is the off-shore border between *lobo* ‘lagoon deeps’ and *fafobuso* ‘intermediate’ (*fakana* ‘outer terminal’), *raona lobo* is the in-shore border between *lobo* and *fafobuso* (*raona* ‘inner terminal’).

Small deep holes are a feature of the reef flat, but the only reconstructable term we have other than **namo* is PPn **loto* (see below). Ross in Chapter 8 has reconstructed POc **loto* ‘space within a concave object’, and lists POc **lalo*, **lo-* and **la-*, all as relational nouns referring to the space within something. Non-cognate terms include Andra (Adm) *lolu* ‘small deep pools in reef’, Lau (SES) *lobo* ‘a pool in the reef or in a river’ and Niuean (Pn) *lili* ‘small hollow in the reef, as opposed to pools or puddles elsewhere’ and to deeper holes in the reef, which in Niuean are called *pupuo*.

POc **loto* ‘space within a concave object’ (see p.248 for full cognate set)

PPn **loto* ‘pool, depression in reef; inside’ (Biggs & Clark 1993)

Pn:	Niuean	<i>loto</i>	‘small pool on the reef’
Pn:	Tongan	<i>loto</i>	‘hole or depression in coral reef or sea bed’
Pn:	Rennellese	<i>goto</i>	‘lagoon inside reef’
Pn:	Samoan	<i>loto</i>	‘pool, stretch of deep (or deeper) water’
Pn:	Tikopia	<i>roto</i>	‘lake, in interior of island’
Pn:	Tuamotuan	<i>roto</i>	‘depression in reef, pool’
Pn:	Tahitian	<i>roto</i>	‘lagoon’
Pn:	Maori	<i>roto</i>	‘lake, pool’
Pn:	Hawaiian	<i>loko(kai)</i>	‘lagoon’ (<i>loko-loko</i> ‘puddles’)

3.5 Channel in fringing reef

A typical coral-fringed coastline or atoll has breaks in the reef which permit canoes to move from sheltered water to the open sea and back. The Lau people refer to passages connecting the ocean and the lagoon as *dari* (lit. ‘gulleys’), while canoe traffic at low tide uses a channel in the lagoon known as *tafaʔa* (Akimichi 1978:306). According to Fox’s Lau dictionary, *tafaʔa* can also be used for a pass in a mountain range. Two POC terms are reconstructable; **sawa(n,ŋ)* ‘channel, passage’ continues PMP **sawaq* ‘channel’, while **mata (qi/ni) *sawa(n,ŋ)* ‘channel in fringing reef giving passage to boats; landing place’ refers specifically to a reef opening or channel associated with landing canoes. POC **wasas* may have had a more abstract meaning, ‘space between’ or similar, but in at least one of its reflexes refers to the passageway through a reef.

The final nasal of **sawa(n,ŋ)* is unexpected but attested in languages that retain POC final consonants.

PMP **sawaq* ‘channel’ (ACD)

POC **sawa(n,ŋ)* ‘channel, passage’

Adm:	Wuvulu	<i>tawa</i>	‘channel, passage between islands’
Adm:	Mussau	<i>soana</i>	‘channel, passage through the reef’
NNG:	Yabem	<i>sawa</i>	‘space, empty area’; (ADJ) ‘empty’
PT:	Dobu	<i>ʔawa</i>	‘channel through reef’
PT:	Kiriwina	<i>sawa</i>	‘area of reef etc possessed by a village as its traditional fishing ground’
PT:	Kukuya	<i>awa(haha)</i>	‘valley; gap between two peaks’
PT:	Motu	<i>dara</i>	‘lagoon in atoll’
MM:	Teop	<i>hoa</i>	‘a place in a reef where a canoe can cross through breakers’
MM:	Nduke	<i>savaŋa</i>	‘passage’
MM:	Roviana	<i>savaŋa</i>	‘strait between two islands’
SES:	Gela	<i>hā</i>	‘open place’
SES:	Bugotu	<i>hā</i>	‘landing place’
SES:	Arosi	<i>tawa</i>	‘common prefix to names of landing places’
SES:	’Are’are	<i>tawa</i>	‘channel in the shore reef; landing place; parting in the hair’
SES:	Sa’a	<i>tawa</i>	‘opening in the shore reef; used in the names of landing places’
NCV:	Mota	<i>salava</i>	‘landing place’ (<i>savala</i> reinterpreted as <i>sawa</i> ‘landing place’ + <i>lava</i> ‘large’??)
Mic:	Kiribati	<i>rawa</i>	‘channel, passage through reef’
Mic:	Mokilese	<i>taw</i>	‘channel, passage through reef’
Mic:	Carolinian	<i>tawur</i>	‘channel, passage through reef’
Mic:	Woleaian	<i>tawa</i>	‘channel, harbour’
Fij:	Wayan	<i>ḏawa</i>	(N LOC) (i) ‘(when speaker is on coast) the beach or reef flat’; (ii) ‘(when speaker is inland) the coast, seaside’

PPn **awa* ‘channel, passage through reef’ (Biggs & Clark 1993; loss of initial *s- is unexpected)

Pn:	Niuean	<i>ava</i>	‘channel, opening in the reef; harbour’
Pn:	Rennellese	<i>aba</i>	‘pass, channel, canoe anchorage’
Pn:	Samoan	<i>ava</i>	‘channel, passage (in the reef), gap’
Pn:	Maori	<i>awa</i>	‘channel, landing place for canoes’
Pn:	Hawaiian	<i>awa</i>	‘port, harbour; channel or passage, as through a reef’

POc **mata* (*qi/ni*) *sawa(n,ŋ)* ‘channel in fringing reef giving passage to boats; landing place’ (Pawley & Pawley 1994; **mata* ‘eye’, **qi* or **ni* ‘genitive linker’)

Adm:	Lou	<i>mara-sa</i>	‘channel, passage between islands’
Adm:	Titan	<i>mata-caw</i>	‘channel, passage between islands’
Adm:	Loniu	<i>ma-caw</i>	‘ocean passage between two islands’
SES:	Gela	<i>mata ni hā</i>	‘landing place’
SES:	Lau	<i>mā-i-takwa</i>	‘landing place, opening’
SES:	Arosi	<i>ma-e-tawa</i>	‘landing place where the sea is calm’
SES:	Kwaio	<i>mā li takwa</i>	‘landing place’
SES:	’Are’are	<i>maritawa</i>	‘landing place, channel’
Mic:	Kiribati	<i>mata n rawa-rawa</i>	‘channel, gap in reef’
Fij:	Bauan	<i>mata-sawa</i>	‘landing place’
Fij:	Wayan	<i>mata-ōawa</i>	‘beach’

In similar vein, Nakanai has (*la*)*mata-la-sakalu* ‘passage through the reef’ (*la* article).

POc **wasas* seems basically to have denoted a space between two points, expanding its meaning in Central Pacific languages to mean ‘distance at sea’ and then finally simply ‘ocean’.

POc **wasas* ‘passage, space between, particularly at sea, distance between two points’

PT:	Gumawana	(<i>neg</i>) <i>wasas</i>	‘sea’
PT:	Dobu	(<i>a</i>) <i>wasasa</i>	‘passage in reef’
PT:	Muyuw	(<i>a</i>) <i>wasas</i>	‘space, gap, bay, gulf, inlet’
NCV:	Mota	<i>wasas(ŋiu)</i>	‘narrow space or interval between’
Fij:	Rotuman	<i>vasa</i>	‘far out at sea; stand between.’
Fij:	Bauan	<i>wasas-wasas</i>	‘sea, ocean’

PPn **wasas* ‘open sea; space, distance, especially at sea’ (not in Biggs and Clark 1993, which has PPn **wā* ‘interval of space or time’)

Pn:	Tongan	<i>vaha</i>	‘space between; space, distance, especially at sea’
		<i>vasa-loa</i>	‘wide expanse, esp. of sea’
		<i>vaha-mohe</i>	(of two islands) ‘so far apart that at least one night must be spent at sea in travelling from one to the other’ (<i>mohe vaha</i> ‘to sleep at sea’)
Pn:	Rennellese	<i>basa</i>	‘far, deep ocean’
Pn:	Samoan	<i>vasa</i>	‘open sea’

Pn:	Tikopia	<i>vasa</i>	‘open space; empty space, esp. of cosmic kind; in marine context, ocean wastes’
Pn:	E Futunan	<i>vasa</i>	‘separation, interval’
Pn:	Tokelauan	<i>vasa</i>	‘open sea’
Pn:	Mangareva	<i>vaʔa</i>	‘space, interval’

Where a Polynesian language includes reflexes of both **moana* (p.94) and **wasa*, (as for example Tongan, Samoan and Tikopia do), the former generally refers to deep sea, the latter to open unlimited sea.

4 Conclusion

There can be no doubt that the physical world outlined by reconstructions in this chapter is consistent with the nature of Lapita settlements as reconstructed by archaeologists and described in Chapter 2. The reconstruction of terms for the marine physical environment in this chapter is substantially better supported than the reconstruction of terms for the terrestrial environment in Chapter 3. It includes a plethora of terms for the sea, for reefs, and for features associated with them, with such detail as submerged reefs and passageways through the reef for canoes, features relevant to human marine activities rather than simply features that dominate the landscape. As we noted in the conclusion of Chapter 3, the main reason that terms for certain landscape features are not reconstructable is probably that early Oceanic speakers were on the move from one landscape to another. By the same token, the fact that a reasonably detailed seascape terminology is reconstructable implies (i) that the seascape and coastal environment remained fairly constant even when the landscape changed; and (ii) that the sea and the coastline were of crucial importance to the economies of Proto Oceanic speakers and their descendants. The constancy of speakers’ coastal environments does not mean that they are identical on all Pacific islands—for they are not. Rather, it implies that Oceanic speakers have had a strong tendency to seek out coastal environments of a certain kind, namely those with accessible reefs.

5 *Meteorological phenomena*

MALCOLM ROSS

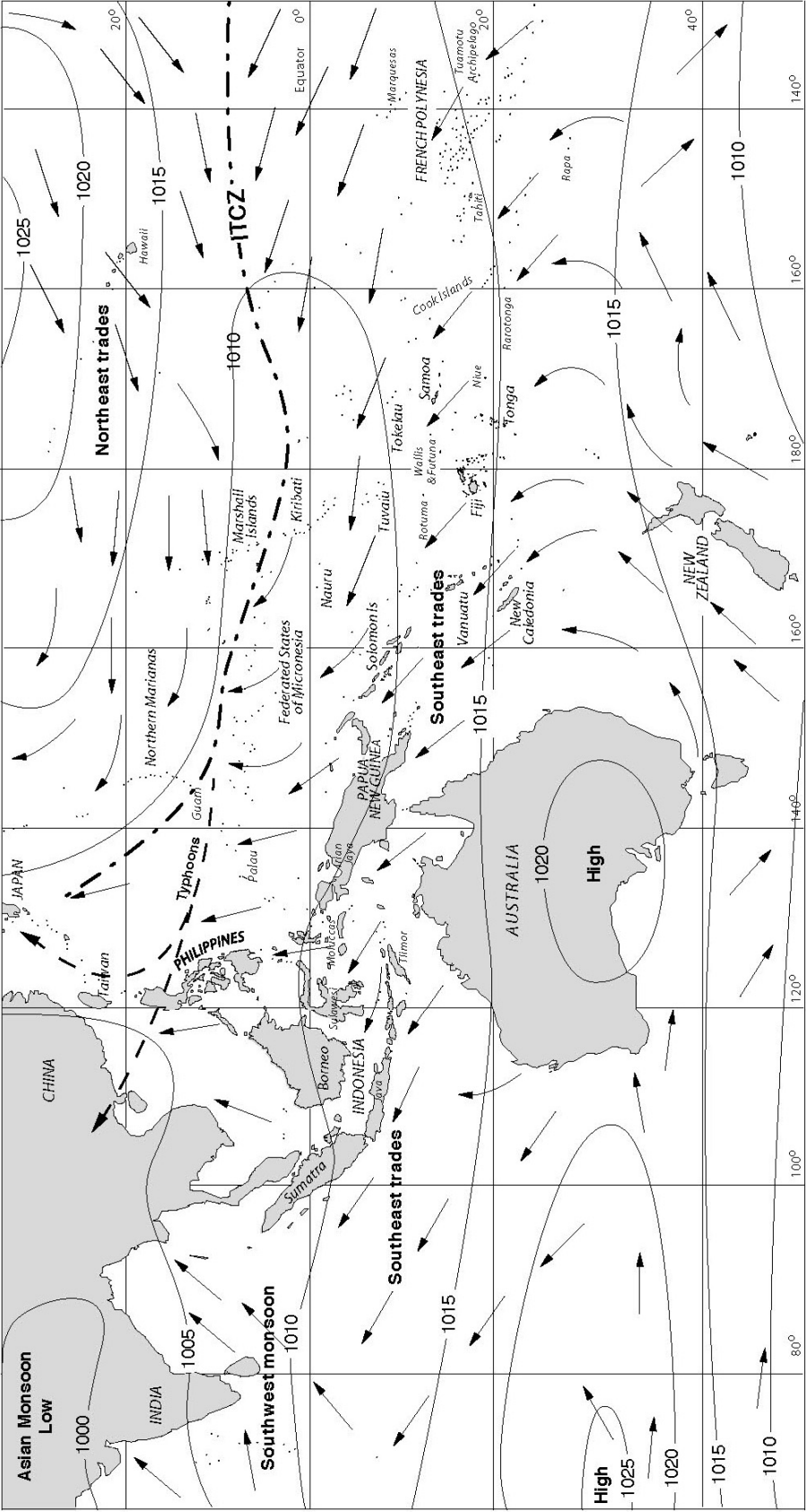
1 Introduction

The reconstruction of any terminology brings its own peculiar problems. In this case, the challenge was associated with the fact that meteorological conditions are not the same throughout the Austronesian speaking area. It is a necessary inference that as Austronesian speakers settled the regions they now occupy, they encountered new conditions which required adaptations in their terminology. Thus the meanings of the terms in a given language need to be related to the weather conditions which occur where the language is spoken. For this reason, §2 gives a short account of Pacific wind systems, while in §3 the weather patterns that Austronesian speakers encountered during their (largely eastward) migrations are described. Less trivially, a hypothesis about the semantic structure of POc speakers' weather terminology must rest on a hypothesis about where POc was spoken—and the same is true of any protolanguage for which weather terms are reconstructed. My assumption here that POc was spoken in the Bismarck Archipelago. I return to this matter in the concluding section.¹

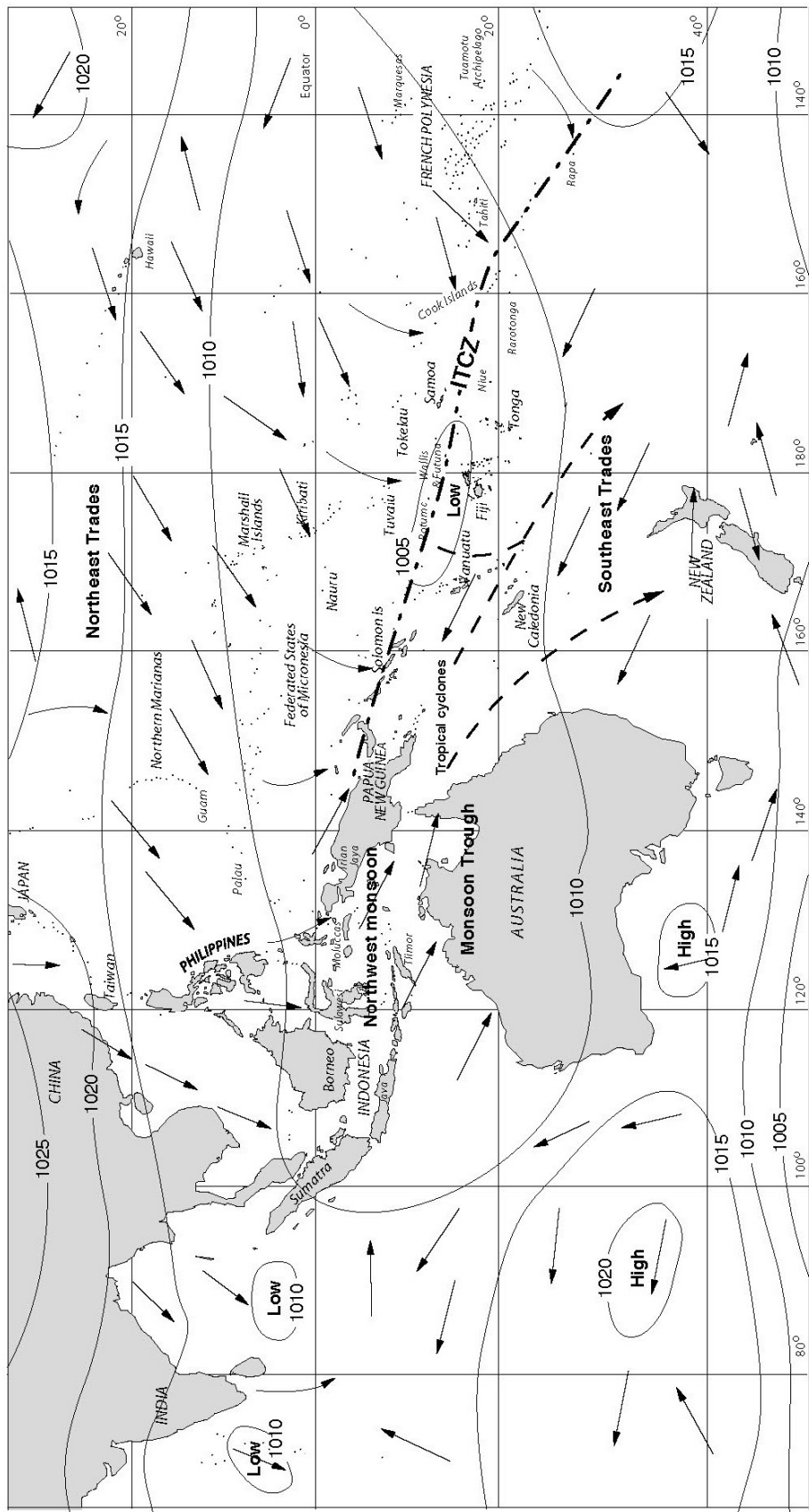
2 Pacific wind systems

The main planetary surface wind system affecting tropical regions consists of the trade winds. The trades blow from the sub-tropical high-pressure zones of both hemispheres to the equatorial low-pressure zone, but are deflected by the earth's rotation (the Coriolis effect) so that they blow from the southeast in the southern hemisphere and from the northeast in the northern. The equatorial low-pressure zone where the southeast and northeast trade winds meet is known as the Inter-Tropical Convergence Zone (ITCZ), colloquially 'the Doldrums'.

¹ This is a revised version of a paper published in *Oceanic Linguistics* 34:261–304 (1995). My thanks go to Andrew Pawley, Gerard Ward, Robert Blust, Robert Bugenhagen, Ann Chowning, Ross Clark, Mark Donohue, Alex François, Paul Geraghty, Charles Grimes, Waruno Mahdi and Meredith Osmond for their comments on earlier versions of this chapter.



Map 10: Prevailing winds in the Indian and Pacific Oceans during the southern hemisphere winter (July)



Map 11: Prevailing winds in the Indian and Pacific Oceans during the southern hemisphere summer (January)

The trade winds and the ITCZ are two of the major ingredients of the weather in the region inhabited by Austronesian speakers. Map 10 provides a general overview for the period from (roughly) April to October.²

The trades are noted for their consistency and force, especially over the eastern side of the ocean (Hawaii has quite consistent trade wind flow, bringing sunshine with sporadic cumulus and some humidity). Over the western Pacific (e.g. in the Bismarck Archipelago), they are less consistent because of monsoonal and other disturbances. Near their high-pressure source the trade winds are quite dry, but as they blow over the ocean towards the Equator they pick up moisture which they deposit as orographic rain when they hit high islands. Orographic rainfall occurs when air is forced to ascend the side of a mountain range, and is particularly common where mountains lie parallel to the coast over which blow moist winds from the sea. This is the situation on the large islands of the Philippines; in Papua New Guinea on Manus Island, the tip of Papua, the Huon Peninsula and the island of New Britain; in the New Georgia group and on Guadalcanal in the Solomons; and on the high islands of Fiji. All of these experience heavy rain on their windward coasts during the trades, whilst areas in the lee of their mountain ranges remain relatively dry. In these areas the trades are therefore associated with rain (and sometimes with the rainiest season), whereas in most Pacific locations they bring the dry season.

The ITCZ has weather effects of a different kind. It is a low-pressure belt with relatively little wind but various local perturbations. Incoming airflow has nowhere to go but up—in large numbers of isolated columns. Each island becomes capped with a cloud build-up resulting from evaporation due to the sun's heat and there is thundery convective rain, but little lee effect. Thus the ITCZ is characterised by frequent, more or less windless rainfall.

On non-monsoonal Pacific islands (i.e. islands well away from the land masses of Australia and mainland Asia) the main determinant of seasonal variation is the annual movement of the ITCZ. Because most of the languages I am concerned with in this paper are spoken in places south of the Equator, I will refer to the seasons as the southern hemisphere 'winter' (SHW) and the southern hemisphere 'summer' (SHS), using these terms also to refer to the northern hemisphere 'summer' and 'winter' respectively.

The movement of the ITCZ roughly tracks the zenith sun southward in the SHS, northward in the SHW. This movement is visible if one compares Maps 10 and 11. But because the northern hemisphere has larger land masses than the south, forming the areas of greatest heating, the mean annual position of the ITCZ generally lies well north of the Equator. On the leading edge of the ITCZ (the south in the SHS, the north in the SHW), tropical cyclones—'typhoons' in the northwest Pacific—sometimes arise. They are small intense low-pressure systems. The wind whirls around them, often with torrential rainfall, as they move away from the ITCZ. The movement of the ITCZ of course means that the trades system also moves with the seasons: the southeast trades blow further north in the SHW, the northeast trades further south in the SHS.

² This section is based on general information about wind systems culled from Monkhouse (1966:Chs. 16 and 18), Hare (1984), Lamb (1984) and Irwin (1992) and on information about Pacific weather from Howlett (1967:36–38), Brookfield with Hart (1971:5–13), Cotter (1984); Gentili (1984), and the *Atlas of the South Pacific* (New Zealand Government Printing Office, 1986). One difficulty that I encountered in writing this short conspectus was that there is disagreement in the literature about the weather patterns at some Pacific locations.

Among non-monsoonal Pacific islands there are just a few inhabited locations which lie more or less constantly within the ITCZ despite its movement and hence have little seasonal variation in temperature or rainfall. These include the northern islands of Kiribati and the southern Marshall Islands between about 2° N and 6° N.

On other non-monsoonal islands there are two asymmetric seasons—a ‘wet’ and stormy season of about four months when the more intense effects of the ITCZ are felt, and a ‘dry’ and stormfree season during the rest of the year when the trade winds blow more or less without interruption. However, the terms ‘wet’ and ‘dry’ are merely relative in many Pacific locations, and exceptions to this pattern in any case occur where the trades bring heavy orographic rain.

In the southern hemisphere, when the ITCZ moves south in the SHS bringing the ‘wet’, islands closer to the Equator (easternmost parts of the island of New Guinea and the Bismarck Archipelago, the northern Solomons, Tuvalu, Tokelau) are directly within the ITCZ and receive relatively windless convectional rains. When the wind does blow, it is generally from the northwest. Islands further south (the southern Solomons, Vanuatu, Fiji, Tonga, Samoa) experience variable weather as the southeast trades are sporadically disrupted by westerly and northwesterly winds and tropical cyclones caused by perturbations in the ITCZ.

Non-monsoonal islands in the northern hemisphere experience the converse seasonal regime. When the ITCZ moves north in the SHW, the northeast trades are interrupted by wet weather with westerly and southwesterly winds and typhoons.

The main disruptions to the regime described above are the seasonal reversals of pressure and wind over the land masses and neighbouring oceans which are known as monsoons, which affect the weather on the islands close to the land masses of Australia and mainland Asia. Monsoons are caused by the summer heating of the land, which effectively causes an extension of the equatorial low-pressure zone well north into Asia in July and south into northern and central Australia in January.³ The Asiatic low-pressure area centring on northwestern India is so intense that it supersedes the equatorial low in the SHW, so that the southeast trades cross the Equator and become the southwest monsoon in peninsular India, whilst Malaysia, Indonesia, the Philippines, China and Japan experience winds from the south, varying to southeast and southwest as they blow in towards the heated continent. This phenomenon can be seen in Map 10. The extension of the equatorial low into Australia in the SHS is less intense, but is sufficient to draw the northeast trades across the Equator, where they become the northwest monsoon, bringing cloudy and rainy weather to Indonesia and western and southern parts of the island of New Guinea (see Map 11). From the perspective of this paper, the most important effect of the monsoon is that it brings a marked seasonal reversal. Whereas the wet on non-monsoonal islands either consists of the windless rain of the ITCZ or of variable, stormy weather, the monsoon draws the trade winds across the Equator into the opposite hemisphere, eliminating the doldrums and giving a clear reversal of wind direction.

³ A geographer expert in this field would probably consider this definition an oversimplification, but it will suffice for present purposes (Gentili 1984:389).

3 The Austronesian weather experience⁴

It is clear from this account of wind systems in Austronesian speaking areas that people in different parts of the area experience somewhat different configurations of wind and season. It follows from this that during their spread through the region, Austronesian speakers encountered new weather conditions and had either to adapt old terms to new conditions or to add new terms to their vocabularies.

Table 3 summarises the seasonal conditions pertaining in various Austronesian speaking areas. It is at best a crude summary, as local conditions may change considerably from one side of an island to the other, especially where orographic rain occurs. The locations are set out in very roughly the sequence in which I assume them (on the basis of Figure 1) to have been occupied by Austronesian speakers.

I assume that Proto Malayo-Polynesian was spoken in the northerly part of the Philippines. Here the northeast trades prevail in the SHS, but are replaced by monsoonal southerlies in the SHW. On the larger islands this means that east-facing slopes receive orographic rain during the trades and convectional rains in the monsoon, whilst west-facing slopes get orographic rain during the monsoon and have drought during the trades (Alip & Borlaza 1984). During the monsoon typhoons often strike the northern and central islands, but Benedek (1991:13) reports for the islands between the Philippines and Taiwan that there is sometimes a period when the sea is becalmed and the heat becomes intolerable.

As Austronesian speakers moved south into Mindanao and then Borneo, Sulawesi and perhaps Halmahera, they left the trade winds behind and entered the equatorial region with two monsoon seasons where rain falls all the year round. North of the equator, the accustomed monsoonal southerlies or southwesterlies continued in the SHW, but in the SHS the northeast trades became the northeast monsoon as they accumulated moisture prior to crossing the Equator. When our travellers crossed the Equator, they experienced a reorientation of wind directions: the southerly monsoon of the SHW became decidedly southeasterly or easterly, whilst the northeast monsoon of the SHS veered to the northwest or west.

Even in the equatorial zone, there is some seasonal variation in rainfall, the peak occurring in the SHS when the airflow is from Asia to Australia. This difference became more pronounced the further south and east (i.e. the closer to Australia) Austronesian speakers moved, and Sumba and Timor are quite dry during the SHW when the easterly monsoon brings dry air from Australia. By the time it reaches western Indonesia or moves north of the Equator and becomes the southwest monsoon, its winds have become humid and a source of rain, so that Sumatra and Borneo have no dry season, whilst Java divides into a wet west (from orographic rain) and a dry east (McDivitt 1984).

When Austronesian speakers travelled eastwards, probably from Halmahera, and moved along the north coast of the island of New Guinea, they gradually experienced a lessening of the effects of the southeast monsoon, as the central cordillera provided an increasingly large obstacle to it. The northwest monsoon of the SHS continued to provide the rainy season, however.

⁴ As well as the sources indicated in the text, this section relied quite heavily on Brookfield and Hart (1971), Gentili (1984), and the *Atlas of the South Pacific* (New Zealand Government Printing Office, 1986).

As the migrants emerged from the lee of the cordillera onto the Huon Peninsula and crossed to New Britain, two things occurred which presumably came to be reflected in POc terminology. First, they had left the monsoonal region behind them, and during the SHS they experienced the fairly windless rainy season of the ITCZ, with some sporadic northwesterly winds. Secondly they encountered for the first time the southeast trades of the SHW, during which the north coasts of the Huon Peninsula and of New Britain have their dry season, whilst their south coasts suffer torrential orographic rain (Howlett 1967:36–38). As they later spread around the coasts and offshore islands of Papua New Guinea and into the Bismarck Archipelago and then the New Georgia group of the northwest Solomons, they continued to encounter this and other kinds of local variation, but the southeast trades always continued to be the prevailing winds.

Table 3: Approximate summary of seasons in some Pacific locations

	Southern Hemisphere Winter	Southern Hemisphere Summer
Philippines	southwest monsoon, wet season; in centre and north some cyclones	northeast trades, dry season, orographic rain
Sumatra, Borneo	in north, southwest monsoon; in south, southeast monsoon; humid wind and rain	in north, northeast monsoon in south, northwest monsoon, clouds and rain
rest of Indonesia	southeast monsoon, dry season; in west, some orographic rain	northwest monsoon, clouds and rain
Manus Island, New Britain, Huon Peninsula, tip of Papua	southeast trades, heavy orographic rain	ITCZ convectonal rain
Papua New Guinea rest	southeast trades, dry season	ITCZ convectonal rain
New Georgia group	southeast trades heavy orographic rain	ITCZ convectonal rain
rest of northwest Solomon Islands	southeast trades dry season	ITCZ convectonal rain
southeast Solomon Islands, Vanuatu, New Caledonia	southeast trades dry season	variable stormy weather some cyclones
Fiji	southeast trades, dry season heavy orographic rain	variable stormy weather some cyclones
Tonga, Samoa, Wallis, Futuna, Cooks, Tahiti, Tuamotus	southeast trades dry season	variable stormy weather some cyclones
Tuvalu, Tokelau, southern Gilberts, Nauru	southeast trades humid wind, some rain	ITCZ convectonal rain
northern Gilberts, southern Marshalls	ITCZ convectonal rain	ITCZ convectonal rain
northern Marshalls, Carolines	variable stormy weather	northeast trades some rain
Hawaii	northeast trades some orographic rain	northeast trades some orographic rain

As Oceanic speakers moved further into the Pacific, the lie of the islands ensured that they first also moved further south as well as east. In the southeast Solomons, Vanuatu, New Caledonia, Fiji and Samoa this took them right out of the ITCZ into the southern tropical zone where the rainy season of the SHS is relatively short (around four months) and the winds are variable: sometimes the southeast trades continue to penetrate, but often they are disrupted by stormy northwesterlies and sometimes by cyclones. There is a long dry season when the southeast trades blow consistently, except when they deposit orographic rain on high islands, particularly in Fiji.

It was from somewhere in this zone that Oceanic speakers moved northwards into Micronesia. In Tuvalu and the southern Gilberts⁵ they encountered a climate similar to that of the smaller islands in the Bismarcks: the southeast trades continue to predominate, but become more moist nearer to the Equator, and the northwesterlies and cyclones give way again to the much less windy wet season of the ITCZ. Further north, in the northern Gilberts and southern Marshalls, they found themselves permanently in the ITCZ, with relatively little wind and a good measure of convectional rain. Finally, in the scattered archipelagoes of the northern tropical zone—the northern Marshalls, the Carolines and the Marianas—they left the ITCZ to their south and entered a region in which the climate is the converse of that in the southern tropical zone. Here in nuclear Micronesia there is a long dry season when the northeast trades prevail in the SHS and a short rainy season with variable winds and storms in the SHW.

In the sections below I set out my reconstructions of POc terms referring to and associated with winds and the weather.

4 Winds

4.1 Wind and wind strengths

Winds seem to have been classified in two ways in POc. In this section I will present generic terms for wind and wind strengths, in the next section terms for seasonal winds and wind directions.

The generic term for ‘wind’ in POc was **aŋin*, which continues PMP **haŋin*.

PMP **haŋin* ‘air, wind’ (Dempwolff 1938)

POc **aŋin* ‘wind’

NNG:	Mangap	<i>yaŋ</i>	‘rain’
NNG:	Bing	<i>yaŋ</i>	‘wind’
PT:	Minaveha	<i>yagina</i>	‘wind’
PT:	Wedau	<i>ḏayina</i>	‘wind’
PT:	Balawaia	<i>ayi</i>	‘wind’
PT:	Motu	<i>lai</i>	‘wind’
MM:	Konomala	<i>yaŋin</i>	‘wind’
NCV:	Port Sandwich	<i>n-ean</i>	‘wind’
Mic:	Kiribati	<i>aŋ</i>	‘wind’
Mic:	Woleaian	<i>yaŋ</i>	‘wind’

⁵ Tuvalu is today Polynesian speaking, but may well once have been colonised by the people who first entered the Gilberts. I use the term ‘Gilberts’ here to denote the island group, rather than ‘Kiribati’, which denotes the national entity that also includes the Phoenix and Line Islands.

Fij:	Bauan	<i>ḍaŋi</i>	‘wind’
Pn:	Tongan	<i>aŋi</i>	‘(wind, breeze) blow’
Pn:	Samoan	<i>aŋi</i>	‘(wind, breeze) blow’

Three terms for winds of differing strengths are reconstructable. POc **jaŋi* referred to a strong wind, **sau/*sau-ŋ(a)* and **mur[i,e]* to breezes. It seems that **sau* was a verb (‘blow freshly’), and **sau-ŋ(a)* a nominalisation referring to the breeze itself. I cannot reconstruct a difference in meaning between **sau* and **mur[i,e]*.

POc **jaŋi* (N) ‘strong wind; (?) (V) ‘be windy’

NNG:	Bing	<i>sāŋ</i>	‘wind strong directly against’
NNG:	Mapos Buang	<i>saŋ</i>	‘strong winds which blow up the valley around November’
SES:	Arosi	<i>daŋi</i>	‘wind’
SES:	Sa’a	<i>deŋi</i>	‘wind’
NCal:	Nemi	<i>dān</i>	‘wind’
Pn:	Tongan	<i>(ma)taŋi</i>	(N) ‘wind’, (V) ‘be windy’
Pn:	Samoan	<i>(ma)taŋi</i>	(N) ‘wind’, (V) ‘be windy, stormy’

POc **sau* (V) ‘(breeze) blow’, (?) (N) ‘breeze’; **sau-ŋ(a)* (N) ‘breeze’

Adm:	Lou	<i>soso</i>	‘wind, breeze’
Adm:	Titan	<i>só-sou-n</i>	‘wind from a particular direction’
NNG:	Kilenge	<i>-sou</i>	‘(wind) blow’
NNG:	Bilibil	<i>sau</i>	‘rain’
NNG:	Poeng	<i>saū</i>	‘wind; large, damaging with black, foreboding sky’
MM:	Solos	<i>seou-ŋ</i>	‘wind’
SES:	Gela	<i>sau(toŋa)</i>	‘north wind’
Fij:	Wayan	<i>ḍau-ḍau</i>	‘light to moderate wind, of early mornings and early evenings’
Fij:	Bauan	<i>ḍau-ḍau</i>	‘land breeze’
Pn:	Rapanui	<i>hau</i>	‘breeze, wind; blow freshly; cool’
Pn:	Hawaiian	<i>hau</i>	‘cool breeze’
Pn:	Maori	<i>hau</i>	‘wind, breeze’
Pn:	W Futunan	<i>sau</i>	‘(wind) blow; sound of wind’

POc **mur[i,e]* (N) ‘breeze’; (V) ‘blow gently’

NNG:	Lukep (Pono)	<i>muru</i>	‘breeze’
NNG:	Mangap	<i>mīri</i>	‘wind’
		<i>mir-mīri</i>	‘little breeze’
NNG:	Kilenge	<i>na-mule</i>	‘wind’
NNG:	Yabem	<i>mu</i>	‘wind’
MM:	Tabar	<i>mur</i>	‘wind’
Fij:	Rotuman	<i>mure</i>	‘blow gently’
Fij:	Bauan	<i>mudre</i>	(V) ‘(wind) blow gently’, (N) ‘cool breeze’, (ADJ) ‘cool, breezy’ (- <i>dr-</i> for expected <i>*-r-</i>)

Fij:	Wayan	<i>mure</i>	‘(breeze) blow lightly’
Pn:	Maori	<i>muri-muri</i>	‘breeze’
Pn:	Tuamotuan	<i>mure</i>	‘fail (of breath)’

The terms below may also reflect POc **mur[i,e]*, but with a change in meaning.

NNG:	Amara	<i>o-mur</i>	‘southeast trade’
NNG:	Bing	<i>mur-mōriy</i>	‘wind which blows strongly from the west, often causing damage’
PT:	Motu	<i>miri(gini)</i>	‘north wind’
PT:	Mekeo	<i>mili(kini)</i>	‘north wind’

The Mangap, Motu and Mekeo terms have *-i-* where *-u-* is expected. This may reflect vowel assimilation.

Another term for wind was POc **mal(i,e)u*, but it is not possible to determine its meaning precisely from its reflexes. In Proto Micronesian, it referred to a typhoon, but this was presumably its denotation after the ancestral Micronesians crossed out of the ITCZ into the northern hemisphere.

POc **mal(i,e)u* ‘wind’

SJ:	Sobei	<i>maro</i>	‘wind’ (<i>-o</i> < <i>*-ew</i>)
PT:	Tawala	<i>malewa</i>	‘favourable wind, wind from behind’ ⁶
MM:	Lavongai	<i>malu</i>	‘(wind) blow’
MM:	Kara (West)	<i>maliu</i>	‘wind’
MM:	Nalik	<i>maliu</i>	‘wind’
MM:	Notsi	<i>mal</i>	‘wind’
MM:	Madak	<i>man-man</i>	‘wind’
MM:	Maringe	<i>maloa</i>	‘air, open space’ (<i>-oa</i> < <i>*-ewa</i>)
Mic:	Mokilese	<i>mɛl-mɛl</i>	‘storm, typhoon’
Mic:	Ponapean	<i>mɛli-mɛl</i>	‘windstorm, typhoon’
Mic:	Woleaian	<i>marɪ-mer</i>	‘storm, typhoon’

In Ross (1995a) I wrote:

my attempts to reconstruct POc terms for ‘typhoon’, ‘cyclone’ and ‘whirlwind’ have failed completely. On reflection, this is not surprising, as I have hypothesised that POc was spoken in the Bismarcks—too close to the Equator and to the ITCZ to be affected by winds of this kind.

Lynch (1997), however, points out that there is a South Vanuatu reflex of PAn **baRiuS* ‘typhoon’, and that POc **paRiu* ‘cyclone’ is therefore reconstructable. The lack of reflexes elsewhere is perhaps to be attributed, then, to their loss in languages whose speakers do not normally experience cyclones.

PAn **baRiuS* ‘typhoon’

POc **paRiu* ‘cyclone’

SV:	Anejom	<i>(n)eheyo</i>	‘cyclone, hurricane’

⁶ Tawala *malewa* includes the final *-a* which is added after a final consonant, indicating that at an interstage ancestral to Tawala **malew*, rather than **maleu*, should be reconstructed.

Although a number of etyma referring to a wind seem to have been used both as a noun denoting that wind and as a verb expressing the action of the particular wind, there are also several reconstructable POc terms which seem to have been primarily used as verbs of blowing with reference to winds or people.

Three of these, **upi*, **ipu* and **ip(w)i*, are clearly related to each other phonologically. The pair **upi* and **ipu* ‘blow’ are strikingly parallel to POc **ubi/*ibu* ‘half coconut shell used as a drinking cup’, 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. In the case of POc **upi/*ipu* ‘blow’, it seems likely that the pre-existing member was **ipu*, since it can be traced back to PMP **ibut* ‘breeze, draught of wind’, and that **upi* was the late-generated form. However, its generation predates POc, as Blust has reconstructed PCEMP **upi* ‘(wind, person) blow’ (1993).⁷ Similarly, the generation of the pair **ubi/*ibu* ‘half coconut shell ...’ also predates POc, as both forms are reconstructable in Proto Eastern Malayo-Polynesian (Blust 1978a).

PCEMP **upi* ‘(wind, person) blow’ (Blust 1993)

POc **upi* ‘(wind, person) blow’ (cf. vol. 1, pp.107–108)

Adm:	Seimat	<i>uhi</i>	‘blow on the fire’
NNG:	Mangap	<i>-wi</i>	‘(wind) blow’
NNG:	Apalik	<i>uwi</i>	‘northwest monsoon’
NNG:	Takia	<i>-wi</i>	‘(wind) blow’
NNG:	Yabem	<i>yu</i>	‘(s.o.) blow’
NNG:	Kaiwa	<i>u</i>	‘(wind) blow’
NNG:	Misim	<i>yuv</i>	‘(wind) blow’
NNG:	Vehes	<i>vin</i>	‘wind’
NNG:	Mangga	<i>va-vi</i>	‘wind’
NNG:	Medebur	<i>-wi</i>	‘(wind) blow’
MM:	Tabar	<i>uvi</i>	‘(wind) blow’
SES:	Gela	<i>uvi-uvi</i>	‘blow with the breath, play pipes’
SES:	Lau	<i>ufi</i>	‘blow with the mouth; blow a conch or panpipes’
SES:	Arosi	<i>uhi</i>	‘blow, breathe on’
NCV:	Mota	<i>uw</i>	‘blow with the mouth, or of wind’
NCV:	Raga	<i>uvi</i>	‘blow’
NCV:	Paamese	<i>uhi</i>	‘blow’
Fij:	Wayan	<i>uvi, uvu</i>	‘(fire, flute) be blown with the mouth, (ball, balloon) inflated, blown up’
		<i>uvi</i>	‘blow s.t. with the mouth’

In a number of NNG languages in the region of the Vitiaz Strait and the Huon Gulf, a nominalised form of **upi* ‘blow’ has become the generic term for ‘wind’ (see vol. 1, pp.33–34 with regard to nominalising morphology):

⁷ Blust (1993) derives PCEMP **upi* from PMP **hiup* ‘blow’, and it is possible that the generation of pairs was triggered by the existence of similar forms with close meanings.

PNNG **upi-ŋ(a)* ‘wind’

NNG: Atui	<i>uvin</i>	‘wind’
NNG: Kaiwa	<i>(wa)vin</i>	‘wind’
NNG: Duwet	<i>fiŋ-fiŋ</i>	‘wind’
NNG: Danggal	<i>fiŋ</i>	‘(wind) blow’
NNG: Silisili	<i>fiʔg</i>	‘wind’
NNG: Adzera	<i>fi-fiŋ</i>	‘strong, fierce wind’

PMP **ibut* ‘breeze, draught of wind’ (ACD)POc **ipu* ‘(wind) blow’ (cf. vol. 1, pp.107–108)

NNG: Bing	<i>yu</i>	‘(wind) blow’
NNG: Sissano	<i>-iu</i>	‘(wind) blow’
MM: Tinputz	<i>viu</i>	‘(wind) blow’ (metathesis)
MM: Mono	<i>ihu</i>	‘(wind) blow’
MM: Lungga	<i>ivu</i>	‘blow’
MM: Roviana	<i>ivu-a</i>	‘blow on (fire), blow into (conch)’
MM: Maringe	<i>ifu</i>	‘blow’
SES: Bugotu	<i>ifu</i>	‘blow (fire, pan-pipes)’

It seems likely that the form **ip^(w)i* is the result of an idiosyncratic change to **upi*, **ipu* or both. A couple of forms, NNG: Kaulong *e-ip* ‘the wind’ and MM: Nalik *if* ‘(wind) blow’, may reflect either **ipu* or **ip^(w)i*.

POc **ip^(w)i* ‘(wind, person) blow’

MM: Ramoaina	<i>ipi</i>	‘(wind) blow’
MM: Tolai	<i>ipi</i>	‘(wind) blow’
MM: Teop	<i>ivi</i>	‘(wind) blow’
Pn: Tongan	<i>ifi</i>	‘blow with the mouth; blow or blow into or play (a whistle, or wind instrument)’
Pn: Samoan	<i>ifi</i>	‘blow smoke’
Pn: Maori	<i>ihi</i>	‘blow, of wind’

Two other forms meaning ‘blow’ are also reconstructable. These are also formally rather similar to each other, but this similarity evidently dates back to well before the genesis of POc. I know of no proper non-Oceanic cognates of POc **p^(w)usi*, but it appears to reflect the same monosyllabic root (**bus*) as PMP **qembus* ‘snort, pant’ (ACD) (with regard to monosyllabic roots, see vol. 1, pp.27–28).

POc **p^(w)usi* ‘(wind) blow’

NNG: Aria	<i>-pu</i>	‘(wind) blow’
NNG: Sengseng	<i>pe-puh</i>	‘wind’
NNG: Numbami	<i>pusie</i>	‘(wind) blow’
NNG: Patep	<i>plu</i>	‘blow’
MM: Konomala	<i>fus</i>	‘(wind) blow’
MM: Minigir	<i>vusu</i>	‘(wind) blow’
MM: Tolai	<i>vu</i>	‘(wind) blow’
MM: Hahon	<i>vus</i>	‘wind’

MM:	Tinputz	<i>vuh</i>	‘wind’
SV:	Sye	<i>o-vosi</i>	‘wind’ (Lynch 1978b)
Pn:	Rennellese	<i>pusi</i>	‘(wind) blow; blow (flute)’
Pn:	Maori	<i>pu-puhi</i>	‘blow (as the wind, a whale); shoot (as a gun)’

The initial *p-* of the Pn items reflects POc **b-* or **p^w-*: hence the suggestion that there was a POc alternant **p^wusi*.

PAN **pu+put* ‘blow’ (Zorc 1994)

PMP **putput* ‘puff, blow suddenly and hard’

POc **(pu)put* ‘(wind) blow’

MM:	Kara (West)	<i>fifit</i>	‘(wind) blow’
MM:	Siar	<i>fut</i>	‘(wind) blow’
MM:	Selau	<i>wut</i>	‘(wind) blow’
MM:	Papapana	<i>pute</i>	‘wind’

4.2 Seasonal winds

If POc speakers lived in the Bismarcks, then they encountered two seasons: the dry, when the southeast trades blew with reasonable consistency, and the wet, when there were sporadic northwesterly winds. The POc terms for the winds associated with these seasons were respectively **raki* and **apaRat*. They may also have referred to the seasons, with typical weather and wind direction as inevitable components of their meanings, as well as having associations with navigability and agriculture. Modern uses of wind terms suggest strongly that they also served as terms for cardinal directions in POc, and that the two major wind directions were perhaps the only cardinal directions for POc speakers (Ch. 8, §1).

POc **raki* ‘southeast trades’ has no obvious non-Oceanic cognates. This is hardly surprising. When Austronesian speakers came out of the lee of the New Guinea cordillera into the Bismarcks and encountered the southeast trades of the SHW and the attendant dry season, they met what was for them a new phenomenon. The only part of Indonesia with a similar season is in the southeast in the area around Timor, where the southeast monsoon brings a dry season. But it is unlikely that people ancestral to Oceanic speakers migrated via that area.

POc **raki* probably also denoted the dry season when the southeast trades blow. In the Admiralties its reflex refers to a northeasterly wind, in Micronesia to the southerly direction and to the summer season (SHW) when the breadfruit grow. In both cases, the seasonal conditions familiar to POc speakers do not occur. On Manus Island in the Admiralties, there is a double rainfall maximum and no true dry season. Micronesia lies north of the Equator and has seasons the converse of those of POc. In both cases, reflexes of **raki* have been applied to a new referent. In the Admiralties it has retained its association with a cooler wind and now applies to a cool wind from the mountains of Manus Island. In Micronesia it refers to the same period of the year and roughly the same wind direction as in POc, but because of the northern tropical location it now refers to the wet season rather than the dry. It is noteworthy, however, that in both the Admiralties and Micronesia, **raki* continues to have a referent which is considered to be pleasant—in the

Admiralties because the wind is cool, in Micronesia because the season produces breadfruit.

A selection of data supporting the reconstruction of **raki* follows.

POc **raki* ‘southeast trades’ (probably also ‘dry season when the southeast trades blow’)

Adm: Lou	<i>ra</i>	‘northeast, northeast wind’
Adm: Titan	<i>ⁿray</i>	‘wind from the mainland, mountain breeze, blows at night’
NNG: Kove	<i>hai</i>	‘southeast trade, year’
NNG: Bariai	<i>rai</i>	‘year’
NNG: Gitua	<i>rak</i>	‘southeast trade’
NNG: Lukep	<i>rai</i>	‘year’
NNG: Mangap	<i>rak-rak</i>	‘fresh morning (during windy season)’
NNG: Tami	<i>lai</i>	‘southeast trade’
NNG: Maleu	<i>na-lai</i>	‘southeast trade’
NNG: Ali	<i>rai</i>	‘southeast trade’
NNG: Tumleo	<i>riei</i>	‘southeast trade’
MM: Vitu	<i>rayi</i>	‘southeast trade’
MM: Bulu	<i>layi</i>	‘southeast trade’
MM: Tigak	<i>rei</i>	‘wind’
NCV: Lewo	<i>lagi(pesoi)</i>	‘east wind’
Mic: Marshallese	<i>ṛ^{uu}ak</i>	‘south, summer’
Mic: Ponapean	<i>rāk</i>	‘breadfruit season, season of plenty’
Mic: Woleaian	<i>zaxi</i>	‘year, age, summer season’
Fij: Wayan	<i>draki</i>	‘weather’
Fij: Bauan	<i>draki</i>	‘weather’

PPn **laki* ‘southwesterly quadrant, southwest wind and weather associated with it’

Pn: Niuean	<i>laki</i>	‘west’
Pn: E Uvean	<i>laki</i>	‘southeast or southwest wind’
Pn: Pukapukan	<i>laki</i>	‘southwest wind’
Pn: Samoan	<i>laʔi</i>	‘southwest veering to northwest’
Pn: Tokelauan	<i>laki</i>	‘hurricane season and westerly quarter winds that blow during it’
Pn: Anutan	<i>laki</i>	‘the whole southwestern quadrant; westerly or southwesterly wind; the period of the year when the wind is from that quarter’
Pn: Rennellese	<i>gaki</i>	(N) ‘west or southwest wind’; (V) ‘(of this wind) blow’
Pn: Takuu	<i>laki</i>	‘season of westerly winds’
Pn: Hawaiian	<i>laʔi</i>	‘calm, stillness, quiet (of sea, sky, wind)’
Pn: Tuamotuan	<i>raki</i>	‘wind from southwesterly quadrant’

Much of the data for the reconstruction of PPn wind directions is drawn from Biggs and Clark (1993), but the glosses of the protoforms are mine. For example, for PPn **laki* Biggs and Clark give the gloss ‘the westerly quarter, wind from that quarter and weather associated with it’. If this were its denotation, we might expect reflexes to range in

meaning between northwest and southwest, but no reflex denotes a direction north of west. From this I infer that it denoted the southwesterly quadrant. Similar argumentation applies to PPn **toŋa* 'southeasterly quadrant, southeast wind' and PPn **tokelau* 'northwesterly quadrant, north-west winds' below.

POc **apaRat* 'northwest wind' has non-Oceanic cognates. It is descended from PMP **habaRat*, and from the reflexes listed below, I infer that this meant 'southwest monsoon, wet season' in its homeland. However, in Mindanao, where Manobo is spoken, there are two monsoons, the southwest and the northeast. Because the northeast monsoon is a much moistened version of the northeast trades, it evidently blows harder than the southwest monsoon and has taken over the 'monsoon/wet season' label. When the northeast monsoon changes direction to northwest south of the Equator, it retains the same label right across Indonesia, and POc **apaRat* 'northwest wind' is its natural continuation in the Bismarcks.

PAn **SabaRat* '(?) south wind' (ACD; Zorc 1994: 'monsoon wind')

PMP **habaRat* 'west monsoon' (Dempwolff 1938, ACD)

WMP: Belau	<i>ŋəbarð</i>	'west wind' (Josephs 1990)
WMP: Yami	<i>kavalat-an</i>	'west or southwest wind' (Benedek 1991)
WMP: Itbayat	<i>havayat</i>	'west wind (blows from late July to September)'
WMP: Tagalog	<i>habagat</i>	'west or southwest wind; monsoon'
WMP: Bikol	<i>habagat</i>	'south wind'
WMP: Cebuano	<i>habagat</i>	'strong wind that hits Cebu from the southwest, common from June to September'
WMP: Manobo	<i>evayat</i>	'the strongest wind: the northeast monsoon' (Elkins 1968)
WMP: Tiruray	<i>barat</i>	'the rainy season'
WMP: Aceh	<i>barat</i>	'west, westerly'
WMP: Old Javanese	<i>barat</i>	'strong wind, storm; west'
WMP: Wolio	<i>bara</i>	'west, west monsoon'
CMP: Manggarai	<i>warat</i>	'rainy season (primarily in January and February); violent storm'
CMP: Buru	<i>fahat</i>	'west monsoon'
SHWNG: Numfor	<i>barek</i>	'west'
	<i>(wam)barek</i>	'west wind or monsoon'

POc **apaRat* probably also denoted the accompanying wet season (SHS). The glosses of a number of its reflexes denote the wind direction rather than the season, whereas we might expect *a priori* that the word would refer primarily to the season rather than to the wind, as the latter does not blow consistently. This may be a product of elicitation techniques which asked for wind names rather than for seasons. In any case, there is no serious competitor for 'wet season', and a sufficient spread of reflexes referring to the season, to rain, to rough seas and to storms to establish **apaRat* as the word for the season as well as for the wind. In Central Pacific languages (Fijian and Polynesian) reflexes refer to the storms and cyclones associated with the wet in the southern tropical zone.

POc **apaRat* 'northwest wind; wet season when northwesterlies blow and sea is rough'

Adm: Mussau	<i>apae</i>	'strong wind, storm wind'
Adm: Wuvulu	<i>afā</i>	'northwest wind'

Adm: Drehet	<i>yaha</i>	‘stormy season, generally from November to March; strong wind and rough sea from the northwest’
NNG: Kove	<i>awaha</i>	‘rain’
NNG: Gitua	<i>yavara</i>	‘north wind’
NNG: Tami	<i>yawal</i>	‘northwest wind’
NNG: Kairiru	<i>yavar</i>	‘northwest wind, makes sea rough’
PT: Muyuw	<i>yavat</i>	‘west, west wind’
PT: Iduna	<i>yavalata</i>	‘rains with wind from the northwest in February and March’
PT: Tawala	<i>yawalata</i>	‘light rain from southwest during dry season’
PT: Motu	<i>lahara</i>	‘northwest wind, season of northwest wind’
MM: Bali	<i>vurata</i>	‘northwest wind’
MM: Nakanai	<i>le-avala</i>	‘year, wet season’
MM: Kara (East)	<i>yefet</i>	‘wet season’
MM: Barok	<i>awat</i>	‘year’
MM: Siar	<i>yahrat</i>	‘year’
MM: Tinputz	<i>ivat</i>	‘strong wind’
NCal: Nêlêmwa	<i>(w)āvac</i>	‘north wind’ (Lynch pers. comm.)
NCal: Pije	<i>(y)avec</i>	‘north wind’
NCal: Fwâi	<i>(y)avec</i>	‘north wind’
NCal: Nemi	<i>(y)avec, (y)aec</i>	‘north wind’
NCal: Jawe	<i>(y)aec</i>	‘north wind’
PCP <i>*avā</i> ‘storm, gale, hurricane’		
Fij: Wayan	<i>ḍavā</i>	‘storm, strong wind bringing rain’
Pn: Tongan	<i>afā</i>	‘hurricane, gale or very severe storm’
Pn: Niuean	<i>afā</i>	‘storm, hurricane, gale’
Pn: Samoan	<i>afā</i>	‘storm, hurricane’
Pn: Tokelauan	<i>afā</i>	‘storm, hurricane’
Pn: E Futunan	<i>afā</i>	‘storm, hurricane’
Pn: E Uvean	<i>afā</i>	‘storm, hurricane’
Pn: Rennellese	<i>ahā</i>	‘storm, hurricane’
Pn: W Futunan	<i>afa</i>	‘gale, storm winds, hurricane winds’
Pn: Tuamotuan	<i>āfā</i>	‘(storm) break forth violently’
Pn: Maori	<i>āfā</i>	‘storm, hurricane’

Related forms also occur in Southeast Solomonic and Micronesian languages, but all appear to be borrowed rather than directly inherited. The Southeast Solomonic forms below reflect a (non-existent) POc ***awaRosi* rather than **apaRat*. They are evidently the outcome of borrowing from a Western Oceanic language where POc final consonants were retained with paragogic **-i* (the only group of languages which satisfy this criterion today are the Suauc languages of the Papuan Tip, and they are geographically somewhat unlikely candidates for the source).

SES:	Arosi	<i>worosi</i>	‘northwest gale’
SES:	’Are’are	<i>awarosi</i>	‘the northwest wind’
SES:	Sa’a	<i>awalosi</i>	‘northwest wind’

The Micronesian forms are odd in two ways. Firstly, if sound correspondences are applied to infer their putative POc ancestor, the result is ***barat[a]*, a form which is certainly not POc, but which is consistent with an early borrowing from a WMP language, perhaps a Philippine language. Its initial **b-* and final **-t* reflect the corresponding phonemes of PMP **habaRat*. Certain Philippine languages also reflect PMP **habaRat-an* with the locative suffix **-an*, e.g. Cebuano *habagatan* ‘southwest’, and the suffix may be the source of the final *-a* of Trukic and Woleaian forms. Secondly, the forms mean ‘(northeast) trade wind’, not, as we might here expect, something like ‘southwest storm wind’:

Mic:	Ponapean	<i>(nan-)par</i>	‘tradewind season’
Mic:	Proto Trukic	<i>*parata</i>	‘tradewind’
Mic:	L. Mortlockese	<i>paras</i>	‘rain that comes in due to wind’
Mic:	Woleaian	<i>pazasa</i>	‘tradewind’

Blust (ACD) takes it that PMP **habaRat* ‘southwest monsoon season, wet season’ formed a pair with PMP **timuR*, implying that the latter referred to the northeast trades and the dry season. However, such a pairing seems to have arisen among the WMP languages of Indonesia, where reflexes of **habaRat* mean ‘west’ and of **timuR* ‘east’. In Philippine languages, where we might expect the PMP sense to be retained, reflexes of **timuR* refer to a south or east wind, but not a monsoonal wind. (The PMP term for northeast trades seems to have been **qamih-an*,⁸ lost when Austronesian speakers crossed into the southern hemisphere.) PMP **timuR* also has reflexes in Oceanic languages, and POc **timu(R)* seems to have meant ‘wind bringing light rain’. In Papuan Tip languages forms which appear to reflect **timu(R)* have undergone a curious semantic shift and now mean ‘island’ (Ch. 3, §2.2). Relevant data are listed below.

PMP **timuR* ‘south or east wind’ (Dempwolff 1938: ‘wind bringing rain’; Zorc 1994: ‘rain wind from southeast’)

WMP:	Belau	<i>ǫ́iməs</i>	‘south wind’ (Josephs 1990)
WMP:	Tagalog	<i>tīmog</i>	‘south’
WMP:	Cebuano	<i>tímug</i>	‘wind that hits Cebu from the east’ (Wolff 1972)
WMP:	Bilaan	<i>timul</i>	‘south’
WMP:	Malagasy	<i>a-tsimu</i>	‘south’
WMP:	Aceh	<i>timu</i>	‘east’
WMP:	Indonesian	<i>timur</i>	‘east’
WMP:	Sasak	<i>timuq</i>	‘east’
CMP:	Buru	<i>timo</i>	‘east’

⁸ Tsuchida (1976) reconstructs PAN **qamiS* ‘north wind’. Philippine reflexes indicate that the locative suffix **-an* had been appended in PMP, giving **qamih-an*, reflected in Isneg *amiyān* ‘monsoon wind’, Casiguran Dumagat *amian* ‘northeast wind’, Tagalog *amihan* ‘northeast wind’, Bikol *amihan* ‘northeast trade wind’, Maranao *amian* ‘northwest wind’.

POc **timu(R)* ‘wind bringing light rain’

NNG:	Takia	<i>tim</i>	‘wind’
NNG:	Ali	<i>tim</i>	‘dew’
PT:	Iduna	<i>himula</i>	‘island’
PT:	Dobu	<i>simula</i>	‘island’
PT:	Motu	<i>si-simu</i>	‘light shower’
MM:	Ramoaina	<i>timtim</i>	‘drizzle; of rain’
Pn:	Samoa	<i>timu</i>	‘be rainy, rain’
Pn:	Anutan	<i>timu</i>	‘light rain, drizzle’
Pn:	Tongan	<i>jimu-jimu</i>	‘heavy blowing, almost a hurricane’

In Fijian and Polynesian languages the reflexes of POc **raki* ‘southeast trades’ and **apaRat* ‘northwest wind’ listed above reflect shifts in meaning. In Fijian languages, reflexes of **raki* mean ‘weather’, whilst Polynesian reflexes point to PPn **laki* ‘southwesterly quadrant, southwest wind and weather associated with it’ (Biggs & Clark 1993), i.e. a shift from southeast to southwest. In both Fijian and Polynesian languages, reflexes of POc **apaRat* point to PCP **avā* ‘storm, gale, hurricane’.

The closest functional equivalents to POc **raki* and **apaRat* in PPn were evidently PPn **toja* ‘southeasterly quadrant, southeast wind’ and PPn **tokelau* ‘northwesterly quadrant, northwest winds’. Whereas the POc terms evidently referred prototypically to seasonal winds, the central meanings of the PPn terms seem to have been winds from a certain portion—apparently a quadrant—of the compass, as the reflexes below indicate and as Åkerblom (1968:52) has observed. In Rarotongan, for example, *toja* refers to winds from south-by-west to south-southeast (but prototypically to south), *tokerau* to winds from northwest-by-north to west-northwest (prototypically to northwest); in Pukapukan *toja* refers to winds from south-by-east to southeast-by-south (but prototypically to south-southeast), *tokelau* to winds from north to northwest (Lewis 1972:74–75). Åkerblom goes a step further and suggests that neither term refers specifically to the trade wind. However, he recognises that throughout Polynesia a feature of the meaning of each is the prevailing wind and that they are often used with reference to the southeast trades and to northwest storm winds.

The ancestry of PPn **toja* is unclear, and I return to this below. Data supporting its reconstruction are as follows:

PPn **toja* ‘southeasterly quadrant, southeast wind’

Pn:	Niuean	<i>toja</i>	‘south wind’
Pn:	Tongan	<i>toja</i>	(N) ‘south’, (V) ‘(wind) be south’
Pn:	E Uvean	<i>toja</i>	‘south wind’
Pn:	E Futuna	<i>toja</i>	‘south (wind)’
Pn:	Pukapukan	<i>toja</i>	‘south-southeast wind’ (Lewis 1972:75)
Pn:	Rennellese	<i>toja</i>	‘east’
Pn:	Samoa	<i>toja</i>	‘south wind’
Pn:	Tuvalu	<i>toja</i>	‘south’
Pn:	Tikopia	<i>toja</i>	‘east, east wind, trade wind; winter’
Pn:	W.Futunan	<i>toja</i>	‘south’
Pn:	Rapanui	<i>toja</i>	‘autumn, winter’
Pn:	Rarotongan	<i>toja</i>	‘one of the wind quarters, south or southerly’

Pn:	Rarotongan	<i>toŋa</i>	‘south wind’ (Lewis 1972:74)
Pn:	Mangareva	<i>toŋa</i>	‘south wind’
Pn:	Tahitian	<i>toʔa</i>	‘south wind’
Pn:	Maori	<i>toŋa</i>	‘south’
Pn:	Tuamotuan	<i>toŋa</i>	‘wind from southerly or easterly quarter’
Pn:	Hawaiian	<i>kona</i>	‘leeward (i.e. south or southwest)’

PPn **tokelau* ‘northwesterly quadrant, northwest winds’ reflects POc **tokalau(r)*, the precise denotation of which is unclear. It presumably did not mean ‘northwest wind’, as this was the meaning of POc **apaRat*. The glosses of its reflexes below suggest that it denoted a northerly, or perhaps northeasterly, wind.

POc **tokalau(r)* ‘(?) northerly wind’

Adm:	Baluan	<i>tolaw</i>	‘north wind’
Adm:	Nyindrou	<i>tolau</i>	‘north’
NNG:	Kairiru	<i>tolau</i>	‘non-seasonal south wind, makes sea rough’
NCV:	Paamese	<i>tōlau</i>	‘northeast wind’
NCV:	Atchin	<i>tola</i>	‘northwest wind’
NCV:	Nguna	<i>tokolau</i>	‘northwest wind’
NCV:	Namakir	<i>tokolo</i>	‘northwest wind’
Fij:	Wayan	<i>tokalau</i>	‘easterly wind’
Fij:	Bauan	<i>tokalau</i>	‘northeast wind; third of compass from N to roughly WSW’ (Neyret 1950)

PPn **tokelau* ‘northwesterly quadrant, northwest winds’ (Biggs & Clark 1993)

Pn:	Tongan	<i>tokelau</i>	‘north’
Pn:	E Futunan	<i>tokelau</i>	‘northerly wind’
Pn:	Pukapukan	<i>tokelau’ (iti)</i>	‘north wind (Lewis 1972:75)
		<i>tokelau’ (matua)</i>	‘northwest wind (Lewis 1972:75)
Pn:	Rennellese	<i>tokegau</i>	‘northwest wind’
Pn:	Samoa	<i>toʔelau</i>	‘trade wind from northeast to east-southeast’
Pn:	Tuvaluan	<i>tokelau</i>	‘north, northerly wind.’
Pn:	Takuu	<i>tokorau</i>	‘north, northerly wind’
Pn:	Sikaiana	<i>tokelau</i>	‘north’
Pn:	Luangiua	<i>koʔolau</i>	‘north’
Pn:	Tikopia	<i>tokerau</i>	‘north wind.’
Pn:	Rarotongan	<i>tokerau</i>	‘northwest wind’ (Lewis 1972:74)
Pn:	Hawaiian	<i>koʔolau</i>	‘windward (northeast) sides of Hawaiian islands.’
Pn:	Marquesan	<i>tokoʔau</i>	‘north or northwest wind’
Pn:	Anutan	<i>tokerau</i>	‘approximately north; northerly wind’

POc **tokalau(r)* ‘(?) northerly wind’ reflects two PMP morphemes, as Dempwolff (1938:134) observed. The first appears to be PMP **tekas* ‘come to rest in a place’ (ACD), the second PMP **lahud* ‘downriver, towards the sea’. It is not clear how the POc meaning is derived from the glosses of these morphemes, and probable that POc **toka-lau(r)* was a lexicalised unit.

POc may also have inherited a semantically related term **toŋa-laur*, reflected in the items below and apparently denoting a northwesterly wind.⁹

MM: Roviana	<i>toŋa-rauru</i>	‘wind from direction of Lauru (approx north to northwest)’
NCV: Mota	<i>toŋa-lau</i>	‘northwest wind’
NCV: Raga	<i>toŋa-lau</i>	‘wind from direction of Ambae, i.e. northwest wind’

This term seems to contain the morpheme **toŋa* (cf. PPn **toŋa* ‘southeasterly quadrant, southeast wind’ above), implying its existence in POc, even though its POc meaning remains unknown. It is perhaps also reflected in Gela *sau-toŋa* ‘north wind’, where *sau* reflects POc **sau* ‘breeze’. However, caution is necessary here: it is possible that the three terms above simply reflect a sporadic sound change in POc **tokalau(r)* ‘(?) northerly wind’.

Other terms relating to a major wind direction or a season and reconstructable in POc or one of its more immediate daughters all refer to the southeast trades, not to the storm winds. This probably reflects the fact that the POc homeland lay within the ITCZ during the SHS, when the winds of the rainy season are fairly unpredictable and sporadic. The southeast trade wind of the SHW, on the other hand, blows consistently, and the various terms presumably reflect its nuances or refer to various aspects of its activity.

POc **karak(a)* seems to have referred to a strong southeast trade wind. Some reflexes suggest ***karak*, but final voiced stops did not occur in POc. Some NNG reflexes imply a POc final vowel, but SES reflexes do not. Some of the SES reflexes lack an expected initial consonant (Gela *ɣ-*, Longgu, Lau, Kwaio *ʔ-*), and so does Woleaian (*x-*). However, the fact that these items have appropriate meanings and otherwise correspond formally suggests that they belong to this cognate set, even if the loss of the initial is unexplained.

POc **karak(a)* ‘(strong?) southeast trade’

NNG: Lukep	<i>karaka</i>	‘southeast trade’
NNG: Bing	<i>karag</i>	‘southeast trade, blows off the sea strongly in August and September’
NNG: Bilibil	<i>karag</i>	‘dry wind’
NNG: Gedaged	<i>kɪlag</i>	‘southeast trade’
NNG: Takia	<i>karag-arag</i>	‘a light southeast wind which appears as part of the initial development of the southeast trade in April’
PT: Gapapaiwa	<i>kara-karata</i>	‘east wind’
SES: Gela	<i>ara</i>	‘southeast wind’
SES: Talise	<i>ɣara-ɣara</i>	‘wind’
SES: Malango	<i>hara-hara</i>	‘wind’
SES: Birao	<i>hara-hara</i>	‘wind’
SES: Longgu	<i>ara</i>	‘a cool, pleasant wind from the southeast’
SES: Lau	<i>āra</i>	‘southeast trades, violent wind’
SES: Kwaio	<i>ala</i>	‘southeast wind’
Mic: Woleaian	<i>aʒa</i>	‘south wind’

⁹ Ramoaaiana *tailaur* ‘wind from New Ireland direction’ (basically east) seems to reflect another compound, where the first morpheme may reflect POc **tasik* ‘sea, saltwater’.

Two other terms which apparently referred to the southeast trades are given below.

POc **marau* 'southeast trade wind'

NNG:	Kove	<i>marau</i>	'light wind from the sea'
NNG:	Bariai	<i>marau</i>	'wind'
NNG:	Bam	<i>marau(lo)</i>	'southeast trade'
MM:	Vitu	<i>marau</i>	'north wind'
SES:	'Are'are	<i>marāu</i>	'southeast trades'
SES:	Sa'a	<i>marāu</i>	'southeast trades'
SES:	Arosi	<i>marāu</i>	'southeast trades'

PNGOc **yawana* 'southerly wind'

NNG:	Bing	<i>yowan</i>	'wind, a cold easterly wind across the land which brings the rain'
NNG:	Takia	<i>yawan</i>	'a southerly wind associated with moderately heavy seas'
PT:	Iduna	<i>yawana</i>	'wind from the sea'
PT:	Tawala	<i>yawana</i>	'south wind, wind from the south'
PT:	Suau	<i>yawana</i>	'northwest monsoon'
PT:	Misima	<i>yavana</i>	'southerly wind'

One more term, **aqura*, seems to have served both as a generic wind term and as a term for the 'default' wind, the southeast trade:

POc **aqura* 'wind, possibly southeast trade'

Adm:	Nauna	<i>eul</i>	'wind' (ACD)
Adm:	Penchal	<i>aul</i>	'wind' (ACD)
Adm:	Lou	<i>our</i>	'wind'
Adm:	Pak	<i>ouh</i>	'wind' (ACD)
NNG:	Tuam	<i>yawur</i>	'wind'
NNG:	Mutu	<i>yagur</i>	'wind'
NNG:	Malai	<i>yagur</i>	'wind'
NNG:	Sio	<i>wǝʔa</i>	'northwest monsoon'
NNG:	Numbami	<i>aula</i>	'wind'
NNG:	Takia	<i>ur</i>	'air'
NNG:	Ali	<i>ur</i>	'wind'
PT:	Motu	<i>laura(bada)</i>	'southeast trade wind' (<i>bada</i> 'big')
SES:	Kwaio	<i>au</i>	'southeast wind, wind from sea'
Mic:	Kosraean	<i>εir</i>	'north'
Mic:	Ponapean	<i>(pali)eir</i>	'south'
Mic:	Carolinian	<i>ār</i>	'south'

The terms I have reconstructed above refer to wind directions and to seasons, sometimes prototypically to the wind, sometimes to the season. A further development is that one of the seasonal terms comes to mean 'year' (perhaps something like 'the annual round' would be more accurate). Relevant examples are repeated here, but this development also affects local seasonal/wind terms. Thus these items reflect POc **raki* 'southeast trades'—

NNG: Kove	<i>hai</i>	‘southeast trade, year’
NNG: Bariai	<i>rai</i>	‘year’
NNG: Lukep	<i>rai</i>	‘year’
Mic: Woleaian	<i>zaxi</i>	‘year, age, summer season’

—whilst the two below reflect POc **apaRat* ‘northwest wind’:

MM: Barok	<i>awat</i>	‘year’
MM: Siar	<i>yahrat</i>	‘year’

5 The weather

5.1 ‘calm’

Four reconstructions with the meaning ‘calm’ (as applied to the weather) are given below. The first two, **malino* and **[ma-[d]]rapu*, are reconstructed for POc (and earlier stages). The multiple bracketing of **[ma-[d]]rapu* does not reflect doubt about the reconstruction, but rather the fact that POc inherited several derivationally related forms: **rapu*, **ma-rapu*, **N-rapu*, **maN-rapu* (it is not clear in what measure these derivations were still productive in POc).

It is difficult to distinguish between the meanings of these two terms but the glosses for reflexes of **malino* imply an emphasis on tranquility, whereas those of **[ma-[d]]rapu* seem to refer to the stillness of the wind.

The cognate set below indicates that speakers of several daughter languages adopted one or other strategy to get rid of **-l-* and **-n-* in the onsets of consecutive syllables in POc **malino*. The two sounds entail different manners of articulation at the same point of articulation, but it is not clear to me why this should have led to the avoidance of the sequence.

PMP **linaw* ‘be clear’ (Dempwolff 1938)

POc **ma-lino* ‘calm’ (Grace 1969)

NNG: Kove	<i>malilo</i>	‘calm’ (consonant assimilation)
NNG: Atui	<i>mullil</i>	‘soft’ (consonant assimilation)
NNG: Takia	<i>malin</i>	‘calm’
NNG: Manam	<i>malino</i>	‘calm’
NNG: Bam	<i>malin</i>	‘calm’
PT: Balawaia	<i>maino</i>	‘calm’
PT: Gabadi	<i>maino</i>	‘calm’
MM: Vitu	<i>manilo</i>	‘calm’ (metathesis)
MM: Nakanai	<i>malilo</i>	‘calm’ (consonant assimilation)
MM: Lavongai	<i>malila</i>	‘calm’ (consonant assimilation)
MM: Minigir	<i>malila</i>	‘calm’ (consonant assimilation)
MM: Mono	<i>malilo</i>	‘calm’ (consonant assimilation)
Pn: Samoan	<i>manino</i>	‘transparent, clear’ (consonant assimilation)
Pn: Tongan	<i>melino</i>	‘at peace’
Pn: Tuamotuan	<i>marino</i>	‘calm’

PMP **(d,r)apu* ‘still, calm, quiet’ (Blust 1972)

POc **[ma-[d]]rapu* ‘still, calm, windless’

Adm:	Nyindrou	<i>"ra-dah</i>	‘breeze’
MM:	Petats	<i>marah</i>	‘calm’
MM:	Haku	<i>maraha</i>	‘calm’
MM:	Taiof	<i>madav</i>	‘calm’
MM:	Teop	<i>mara</i>	‘calm’
Fij:	Bauan	<i>maravu</i>	(N) ‘a calm (at sea)’, (V, ADJ) ‘(sea) calm,’
Fij:	Wayan	<i>maravu</i>	‘(sea) calm, still, windless’

The other two forms, PEOc **ma-lua(s)* ‘soft, gentle, (weather) calm’ and PWOC **siwaRop/*niwaRop* ‘(weather) calm, peaceful’, are reconstructable as weather terms in lower-order protolanguages.

PEOc **ma-lua(s)* ‘soft, gentle, (weather) calm’ is descended from POc **ma-luas* ‘soft’, but only the Eastern Oceanic reflexes refer to the calmness—or perhaps more accurately the gentleness—of the weather.

POc **ma-luas* ‘soft’

MM:	Notsi	<i>məlus</i>	‘soft’
MM:	Konomala	<i>(ma)mlas</i>	‘soft’
MM:	Siar	<i>(ma)maluas</i>	‘soft’
MM:	Ramoaaina	<i>(mal)malua</i>	‘soft’
MM:	Nehan	<i>(mal)malua(n)</i>	‘soft’

PEOc **ma-lua(s)* ‘soft, gentle, (weather) calm’

SES:	Gela	<i>malua</i>	‘soft’
SES:	‘Are’are	<i>mārūrū</i>	‘soft, gentle, flexible’
Mic:	Ponapean	<i>malu-n</i>	‘calm, of the sea’
Mic:	Mokilese	<i>molu-n</i>	‘calm or fine, of weather’
Mic:	L. Mortlockese	<i>maləwa-ləw</i>	‘peaceful’
Mic:	Puluwatese	<i>malīwa-lī</i>	‘to be easy or slow, to be calm (as the sea), to be gentle’
Fij:	Bauan	<i>mālua</i>	‘gently, slowly, quietly’

PWOC **siwaRop/*niwaRop* ‘calm, peaceful’ may well have expressed a nuance of ‘peace’. Again we have two derivationally related forms, the first the base, the second the base prefixed by PMP **N-* (originally ‘antipassive’) or perhaps PMP **<in>/ni-* ‘perfective, perfective nominaliser’.

PWOC **siwaRop, *niwaRop* ‘(weather) calm, peaceful’

PT:	Dobu	<i>siwalowa</i>	‘calm’
PT:	Molima	<i>hiwalova, niwalova</i>	‘calm’
PT:	Iduna	<i>niwalova</i>	‘stillness, season without wind, calm, peace (no fighting)’
PT:	Are	<i>niworoa</i>	‘calm’
PT:	Kiriwina	<i>niwal</i>	‘calm’
PT:	Taboro	<i>(a)siure-ure</i>	‘calm’

MM:	Sursurunga	<i>siaroh</i>	‘peaceful (as waves), calm’
MM:	Siar	<i>siarof</i>	‘calm’
MM:	Solos	<i>sianoh</i>	‘calm’
MM:	Selau	<i>sarowo</i>	‘calm’
MM:	Teop	<i>hiarovo</i>	‘good weather after a rain’

5.2 The sky and clouds

The locus of much of the weather was of course POc **laŋit*, the sky, and there are a few signs that this word also had something of the sense of English ‘weather’, in some languages coming to refer to a particular form of weather. The sky was also very important in the context of navigation (p.157). POc **laŋit* was also used as a local noun meaning ‘up above’ (p.235).

PMP **laŋiC* ‘sky’ (Dempwolff 1938)

PMP **laŋit* ‘sky’

POc **laŋit* ‘sky, weather’

Adm:	Tench	<i>raŋiti</i>	‘rain’
Adm:	Titan	<i>laŋ</i>	‘sky; heaven’
NNG:	Malalamai	<i>laŋ</i>	‘cloud’
NNG:	Buang	<i>yagk</i>	‘sky’
NNG:	Manam	<i>laŋ</i>	‘sky, heavens’
NNG:	Kaiep	<i>laŋit</i>	‘thunder’
MM:	Bali	<i>laŋiti</i>	‘sky’
MM:	Tigak	<i>laŋit</i>	‘rain’
MM:	Tabar	<i>raŋiti</i>	‘sky’
MM:	Siar	<i>laŋit</i>	‘sky’
MM:	Nehan	<i>laŋit</i>	‘sky’
MM:	Haku	<i>laŋic</i>	‘rain; sky’
MM:	Alu	<i>laiti</i>	‘rain’
SES:	Kwaio	<i>laŋi</i>	‘sky, heavens’
SES:	Arosi	<i>raŋi</i>	‘rain’
NCV:	Raga	<i>laŋi</i>	‘wind’
NCV:	Paamese	<i>alaŋ</i>	‘wind’
NCV:	Lewo	<i>laŋi</i>	‘wind’
Mic:	Marshallese	<i>laŋ</i>	‘sky, heavens’
Mic:	Woleaian	<i>raŋi</i>	‘sky; typhoon, rainstorm, wind’
Fij:	Bauan	<i>(vũ-ni)-laŋi</i>	‘horizon’ (lit. ‘base of sky’)
		<i>(lewe-ni)-laŋi</i>	‘full moon’ (lit. ‘flesh of sky’)
Pn:	Tongan	<i>laŋi</i>	‘sky, heavens’
Pn:	Samoa	<i>laŋi</i>	‘sky, heavens’

PNGOc **sabam* ‘sky’ is also reconstructable. It is not clear how this contrasted with **laŋit*.

PNGOc **sabam* ‘sky’

NNG:	Malai	<i>sabam</i>	‘sky’
NNG:	Sio	<i>saba</i>	‘sky’
NNG:	Bing	<i>sɔm</i>	‘sky’
NNG:	Dami	<i>sa</i>	‘sky’
NNG:	Bilibil	<i>sabat</i>	‘sky’
PT:	Ubir	<i>safam</i>	‘sky’
PT:	Are	<i>sapama</i>	‘sky’
PT:	Bwaidoga	<i>yabama</i>	‘sky’
PT:	Kiriwina	<i>labuma</i>	‘sky’

The generic term for ‘cloud’ in POc was **qaRoq*.

POc **qaRoq* ‘cloud (generic)’

PT:	Dobu	<i>yaloa</i>	‘cloud’
PT:	Kwato Suau	<i>yalo</i>	‘cloud’
PT:	Misima	<i>yalu-yalu</i>	‘cloud’
MM:	Maringe	<i>maloa</i>	‘sky’
SES:	Bugotu	<i>(ma)alo(a)</i>	‘sky’
SES:	Lau	<i>salo</i>	‘sky’
SES:	Kwaio	<i>lalo</i>	‘sky’
SES:	Sa’a	<i>(mei)salo</i>	‘cloud’
SES:	Arosi	<i>aro</i>	‘sky’
Fij:	Bauan	<i>ō</i>	‘cloud’
Fij:	Wayan	<i>(ka)ō</i>	‘cloud’
Pn:	Tongan	<i>ʔao</i>	‘cloud(s)’
Pn:	Samoa	<i>ao</i>	‘cloud’
Pn:	Hawaiian	<i>ao</i>	‘any kind of cloud’

The four terms below each possibly denoted a type of cloud. POc **rodo(ŋ)* meant ‘rain cloud’. PNGOc **guba(r,R)* may have denoted a storm cloud, but it is impossible to attribute more exact meanings to POc **ulu* or POc **bala*.

PMP **rendey* ‘wet season’ (ACD)

POc **rodo(ŋ)* ‘rain cloud’

SES:	Talise	<i>ro-rodo</i>	‘cloud’
SES:	’Are’are	<i>roto</i>	‘cloudy, black cloud, squall’
SES:	Arosi	<i>ro-rodo</i>	‘a cloud’
NCV:	Fortsenal	<i>koko</i>	‘rain cloud’
NCV:	Raga	<i>dodo</i>	‘rain cloud’

PNGOc **guba(r,R)* ‘k.o. cloud (possibly storm cloud)’

NNG:	Mangap	<i>gubur</i>	‘dark cloud’
NNG:	Sepa	<i>kuba</i>	‘rain’
PT:	Are	<i>guba</i>	‘cloud’

PT:	Gapapaiwa	<i>guva</i>	‘cloud’
PT:	Maopa	<i>kupa</i>	‘rain’
PT:	Motu	<i>guba</i>	‘sky; heavens; a northwest squall’
PT:	Gabadi	<i>upa</i>	‘rain’
PT:	Mekeo	<i>ufa</i>	‘sky, heavens’

POc **ulu* ‘k.o. cloud’

NNG:	Uvol	<i>ulu</i>	‘cloud’
MM:	Lavongai	<i>ulu-l</i>	‘fog’
SES:	’Are’are	<i>uru</i>	‘cloud, heaven, sky, top’
SES:	Arosi	<i>uru</i>	‘white clouds’
		<i>uru-uru</i>	‘black rainclouds’
		<i>(bara)uru</i>	‘evening bank of clouds; heavy masses of dark clouds’

POc **bala* ‘k.o. cloud’

Adm:	Titan	<i>pala</i>	‘cloud, light white clouds’
MM:	Tabar	<i>bara-bara</i>	‘cloud’
MM:	Lihir	<i>(lo)bal-bal</i>	‘cloud’
MM:	Tangga	<i>bal-bal</i>	‘cloud’
SES:	Arosi	<i>bara(uru)</i>	‘evening bank of clouds; heavy masses of dark clouds’

There are a number of reconstructable POc terms some of whose reflexes mean ‘cloud’, others ‘mist’ or ‘fog’. and yet others have both meanings. It seems reasonable to infer that a mist was conceived as a cloud at sea—or ground—level.

PMP **Ra(m)bun* ‘haze’ (Blust 1972)POc **Rapu(n)* ‘haze, mist’

Adm:	Drehet	<i>kxɔ-kxɔh</i>	‘cloud’
NNG:	Bariai	<i>lau-lau</i>	‘cloud’
PT:	Kiriwina	<i>loa-lova</i>	‘cloud’
SES:	Bugotu	<i>lavo</i>	‘haze, vapour; misty, hazy’
SES:	Lengo	<i>lavo</i>	‘fog’
SES:	Longgu	<i>lavo</i>	‘fog’
SES:	Lau	<i>lafo</i>	‘cloud’
SES:	Kwaio	<i>lafo</i>	‘cloud’
SES:	’Are’are	<i>raho</i>	‘haze, mist, fog, cloud’

Proto North/Central Vanuatu **ma-Ravu* ‘fog, mist’ (Clark 1996)

NCV:	Mota	<i>marav</i>	‘dim, misty’
NCV:	Raga	<i>marav</i>	‘mist’
NCV:	Paamese	<i>mahu-mahu</i>	‘cloud’
NCV:	Nguna	<i>(na)mavu</i>	‘fog, mist’

The meanings of the set below are intriguing: their common denominator seems to be misty rain which gives rise to a rainbow if the sun’s rays are refracted through it, but this gloss is somewhat speculative.

POc **b^wa(p)o* '(?) misty rain'

Adm:	Mussau	<i>bao</i>	'rain'
SJ:	Kayupulau	<i>b^wau</i>	'cloud'
SJ:	Ormu	<i>wawu</i>	'cloud'
PT:	Iduna	<i>bowa</i>	'rainbow'
PT:	Kiriwina	<i>b^wab^wau</i>	'rain clouds'
PT:	Sudest	<i>b^wao</i>	'rainbow'
SES:	Lau	<i>k^wafo</i>	'mist, cloud'
SES:	Kwaio	<i>g^wafo</i>	'mist'

The items below—POc **kapu(t)/*kopu* 'low cloud, mist, fog' and POc **gapu(l)* 'mist'—are intriguing because of their formal similarity to each other. It is eminently likely that **gapu(l)* is derivationally related to **kapu(t)*. If we ignore their putative final consonants, the former appears to be derived from **N + kapu* (see vol. 1, pp.29–30). But the final **-t* of **kapu(t)* is attested by non-Oceanic witnesses, the final **-l* of **gapu(l)* by its Minigir and Tolai reflexes, and I cannot see a way of resolving this conflict.

PMP **kabut* 'mist' (Dempwolff 1938)

POc **kapu(t)* 'low cloud, mist, fog'

Adm:	Titan	<i>aúu</i>	'low lying clouds, mist, not raining'
NNG:	Takia	<i>kau-kau</i>	'fog'
NNG:	Kairiru	<i>qafu-f</i>	'fog'
NNG:	Kove	<i>γau-γau</i>	'misty'
PT:	Motu	<i>γahu</i>	'mist; fog at sea; haze'
PT:	Roro	<i>abu</i>	'fog'
PT:	Mekeo	<i>apu, apu-apu</i>	'fog, cloud'
MM:	Kara (West)	<i>kauf</i>	'fog'
SES:	Talise	<i>γavu</i>	'fog'

The Bali and Fijian forms below are problematic, as they reflect POc **kabu(t)*, not **kapu(t)*

MM:	Vitu	<i>γabu-γabu</i>	'fog'
Fij:	Bauan	<i>kabu</i>	'mist'
Fij:	Wayan	<i>kabu</i>	(N) 'mist, haze, fog'; (V) 'be covered in cloud, mist, fog'

It seems likely that **kopu* already occurred in POc as a doublet of **kapu(t)* resulting from assimilation of the rounding feature of the second vowel to that of the first. Such a change was once productive in both Rotuman and Tongan (Andrew Pawley, pers. comm.).

POc **kopu* 'low cloud, mist, fog'

Adm:	Lou	<i>kəp-kəp</i>	'dust; fog, mist'
Adm:	Drehet	<i>kop^w(ieh)</i>	'mist, fog'
PT:	Molima	<i>k^wau</i>	'cloud'
MM:	Mono	<i>(ma)kohu</i>	'fog'
MM:	Laghu	<i>kō</i>	'fog'
SES:	Bauro	<i>k^wahu</i>	'fog'
NCV:	Raga	<i>govu</i>	'clouded'

Fij:	Bauan	<i>govu</i>	‘light clouds covering land’
Pn:	Mangareva	<i>kou</i>	‘clouds low on the peaks of the hills’
Pn:	Tahitian	<i>ohu</i>	‘cloud settled on the mountain tops’
Pn:	Marquesan	<i>kohu</i>	‘fog, haze’

POc **gapu(l)* ‘mist’

NNG:	Malai	<i>gafu-f</i>	‘fog’
NNG:	Amara	<i>(a)gau-gau</i>	‘fog’
NNG:	Arove	<i>gau-gau</i>	‘fog’
PT:	Tawala	<i>gahu</i>	‘fog’
MM:	Minigir	<i>gavulu</i>	‘cloud’
MM:	Tolai	<i>gavul</i>	‘fog, mist’
SES:	Gela	<i>gavu</i>	‘mist, haze’
SES:	Kwara’ae	<i>goh</i>	‘fog’
SES:	Langalanga	<i>gafu</i>	‘fog’
SES:	Arosi	<i>gahu</i>	‘mist, be misty’
Pn:	Tongan	<i>ka-kapu</i>	‘mist’

As if this were not already complicated enough, a further curiosity is the reconstruction of Proto Nuclear Polynesian **kapuqa* ‘cloud’ (Biggs & Clark 1993), which either entails the addition of **-qa* to a reflex of POc **kapu(t)* or **gapu(l)* or is a derivative of the PPn verb **kaputi* ‘cover over’.

Proto Nuclear Polynesian **kapuqa* ‘cloud’

Pn:	Rapanui	<i>kapuʔa</i>	‘fog, haze, mist’
Pn:	Hawaiian	<i>ʔōpua</i>	‘puffy clouds, as banked up near the horizon’
Pn:	Kʻmaringi	<i>gabua</i>	‘raincloud (sign of rain)’
Pn:	Maori	<i>kapua</i>	‘cloud, mist’
Pn:	Rarotongan	<i>kāpua</i>	‘cloud, mist’

5.3 Rain

The most widely reflected POc word for ‘rain’ (both verb and noun) is **qusan*. Also reconstructable are POc **[ka]dapuR* ‘rain, rain cloud’ and PWOC **(rR)ugu* ‘rain’. It is not known if **(rR)ugu* differed in meaning from **qusan*, but **[ka]dapuR* seems to have referred both to a rain cloud and to the rain it deposits.

PAn **quZaL* ‘rain’ (Blust 1969, Dempwolff 1938)PMP **quZan* ‘rain’POc **qusan* ‘(N, V) rain’

NNG:	Malasanga	<i>kuya</i>	‘rain’
NNG:	Poeng	<i>kue</i>	‘rain’
NNG:	Takia	<i>ui</i>	‘rain’
NNG:	Numbami	<i>usana</i>	‘rain’
NNG:	Kaiwa	<i>ur</i>	‘rain’
NNG:	Manam	<i>ura</i>	‘rain’
PT:	Are	<i>kusana</i>	‘rain’

PT:	Balawaia	<i>yura</i>	‘rain’
MM:	Bali	<i>yuzaya</i>	‘rain’
MM:	Lihir	<i>uos</i>	‘rain’
MM:	Teop	<i>huan</i>	‘rain’ (metathesis)
MM:	Maringe	<i>(na)uha</i>	‘rain’
SES:	Bugotu	<i>uha</i>	‘rain’
SES:	Longgu	<i>uta</i>	‘rain’
SES:	Lau	<i>uta</i>	‘rain’
NCV:	Fortsenal	<i>usa</i>	‘rain’
Mic:	Woleaian	<i>uta</i>	‘rain’
Fij:	Bauan	<i>uḏa</i>	‘rain’
Pn:	Tongan	<i>ʔuha</i>	‘rain.’
Pn:	Samoan	<i>ua</i>	‘rain’

POc *[ka]dapuR ‘rain, rain cloud’

Adm:	Loniu	<i>kaʔæh</i>	‘cloud’
Adm:	Lele	<i>kanrah</i>	‘cloud’
MM:	Bulu	<i>kadavu</i>	‘rain’
MM:	Meramera	<i>adavu</i>	‘rain’
MM:	Kara (East)	<i>rafui</i>	‘rain’
MM:	Nalik	<i>dafur</i>	‘rain’
MM:	Konomala	<i>daf</i>	‘rain’
MM:	Banoni	<i>ɣarau</i>	‘rain’
MM:	Piva	<i>ɣaravu</i>	‘rain’
Mic:	Kiribati	<i>karau</i>	‘rain, heaven, sky’
Mic:	Kosraean	<i>kaʃao</i>	‘sky, heaven’
Mic:	Marshallese	<i>keɾaw</i>	‘cloud, overcast’
Mic:	Ponapean	<i>keɟew</i>	‘rain, to rain’
Mic:	Mokilese	<i>kɔɔw</i>	‘cloud’
Mic:	Chuukese	<i>kuɟũ-</i>	‘cloud’
Mic:	Puluwatese	<i>worow</i>	‘white cloud’
Mic:	Carolinian	<i>uʃow</i>	‘rain’
Mic:	Woleaian	<i>xoʃou</i>	‘rain’

PWOc *(rR)ugu ‘rain’

NNG:	Aria	<i>rugu</i>	‘rain’
NNG:	Mangga Buang	<i>ruq</i>	‘rain’
NNG:	Kumaru Mumeng	<i>ruk</i>	‘rain’
MM:	Roviana	<i>ruku</i>	‘rain’
MM:	Hoava	<i>ruku</i>	‘rain’

A semantically related term was POc **bata*, which, to judge from a constellation of Meso-Melanesian and Polynesian reflexes, probably meant ‘raindrop’. However, a number of Western Oceanic languages also agree on the meaning ‘cloud’.

POc **bata* '(?) raindrop, (?) rain cloud'

NNG:	Apalik	(e)vat	'cloud'
NNG:	Atui	vat	'cloud, sky'
NNG:	Akolet	(e)wat	'cloud'
MM:	Kara (West)	bata	'cloud'
MM:	Tabar	bata	'rain'
MM:	Sursurunga	bət	'sky; cloud'
MM:	Tolai	bata	'rain, to rain'
MM:	Siar	bat	'rain'

PPn **pata* 'raindrop'

Pn:	Niuean	pata	'raindrop'
Pn:	Hawaiian	paka	'raindrop'
Pn:	Maori	pata	'raindrop'
Pn:	Marquesan	pata	'raindrop'

POc **d(r)im(a)-d(r)im(a)* evidently meant 'drizzle, light rain'. I have yet to find a reflex which allows me to diagnose whether the initial consonant was POc **d* or **dr*.

POc **d(r)im(a)-d(r)im(a)* 'drizzle, light rain'

Adm:	Lou	rim-rim	'light rain'
PT:	Iduna	dima-dima	'drizzle, rain of small drops that takes a long time to stop'
MM:	Tolai	ri-rimi	'drizzling rain'
MM:	Ramoaina	rim-rim	'drizzle, sprinkle'

In search of other terms associated in one way or another with rain, I tried to reconstruct terms for 'rainbow' and 'dew'. However, I could only reconstruct a Proto Eastern Oceanic term for the former (but see the note on POc **b^wa(p)o* 'misty rain (?)' above, p.145).

PEOc **nua-nua* 'rainbow'

NCV:	Mota	nunua	'change colour'
NCV:	Araki	nuenue	'rainbow'
NCV:	Tamambo	nuenue	'rainbow'
Pn:	E Futunan	nuanua	'rainbow'
Pn:	E Uvean	nuanua	'rainbow'
Pn:	Pukapukan	nuanua	'rainbow'
Pn:	Tuvalu	nuanua	'rainbow'
Pn:	Samoan	nuanua	'rainbow'
Pn:	Tokelauan	nuanua	'rainbow'
Pn:	Tahitian	(ā)nuanua	'rainbow'
Pn:	Maori	(ā)niwaniwa	'rainbow'
Pn:	Tuamotuan	(a)nuanua	'rainbow'
Pn:	Hawaiian	(ā)nuenue	'rainbow'
Pn:	Marquesan	(ā)nuanua	'rainbow'

For 'dew', a few reflexes of a PMP term occur.

PMP **lamuR* ‘dew’ (Dempwolff 1938)

POc **lamuR* ‘dew’

PT:	Iduna	<i>numura</i>	‘dew’
PT:	Kiriwina	<i>numla</i>	‘fog’
PT:	Lala	<i>lamu</i>	‘dew’
PT:	Balawaia	<i>amo</i>	‘dew’

5.4 Thunder and lightning

I have reconstructed five separate terms for ‘lightning’. POc **qu(s,j)ila(k)* seems to be the generic term for lightning, inherited from Proto Malayo-Polynesian. The glosses of reflexes of PNGOc **lamaR* imply that this item may have referred to lightning and thunder together. The other three reconstructions are **pilak* ‘lightning’, **pitik* ‘lightning’, **lap^(w)a(r,R)* ‘lightning, phosphorescence’. Whilst these may have referred to different kinds of lightning (e.g. sheet and forked) it is also possible that they were descriptive or metaphorical terms. It is reasonably clear, for example, that PNNG **kila(m,p)* ‘lightning’ was a reflex of PMP **kila(p,b)* ‘flash, sparkle’, (and that POc **qu(s,j)ila(k)* ‘lightning’ reflects PMP **silak* ‘beam of light’; cf. Dempwolff 1938:153).

PMP **qusilak* ‘lightning’ (Ross 1988)

POc **qu(s,j)ila(k)* ‘lightning’

Adm:	Nauna	<i>kocil</i>	‘lightning’
Adm:	Seimat	<i>usil</i>	‘lightning’
NNG:	Malalamai	<i>uzila</i>	‘lightning’
NNG:	Tami	<i>kujil</i>	‘lightning’
NNG:	Yabem	<i>osi?</i>	‘lightning’
NNG:	Bukawa	<i>si?</i>	‘lightning’
Pn:	Tongan	<i>ʔuhila</i>	(N) ‘lightning’
Pn:	E Uvean	<i>ʔuhila</i>	(N) ‘lightning’
Pn:	Samoa	<i>uila</i>	(N) ‘lightning’

PMP **bilak* ‘lightning’ (Dempwolff 1925)

POc **p^(w)ilak* ‘lightning’

NNG:	Kove	<i>pelaka</i>	‘lightning’ (final consonant retained: borrowing from Bali?)
NNG:	Bariai	<i>pir</i>	‘thunder’
NNG:	Mangap	<i>bil</i>	‘flash, lightning’
NNG:	Dami	<i>fili</i>	(V) ‘lightning’
NNG:	Medebur	<i>vilik</i>	‘lightning’
MM:	Bola	<i>vila</i>	‘lightning’
MM:	Nalik	<i>uilak</i>	‘lightning’
MM:	Sursurunga	<i>pil</i>	‘lightning’
MM:	Nehan	<i>pil</i>	‘thunder’
MM:	Solos	<i>pina</i>	‘thunder’
MM:	Teop	<i>pira</i>	‘thunder’

MM:	Banoni	<i>pina</i>	‘lightning’
MM:	Maringe	<i>fila</i>	‘thunder’
SES:	Talise	<i>(pila)pila</i>	‘lightning’
SES:	Longgu	<i>pila(ðia)</i>	(N, V) ‘lightning’
SES:	Arosi	<i>hira(ia)</i>	‘lightning’
NCV:	Mota	<i>vila</i>	‘lightning’
NCV:	Raga	<i>vilehi</i>	‘lightning’
NCV:	Paamese	<i>(a)hile</i>	‘lightning’
NCV:	Nguna	<i>(na)vila</i>	‘lightning’

PCEMP **pitik* ‘lightning’

CMP:	Selaru	<i>hitik</i>	‘lightning’ (Coward)

POc **pitik* ‘lightning’

NNG:	Manam	<i>pitik(awa)</i>	‘lightning’
NNG:	Wogeo	<i>fitik</i>	‘lightning’
SES:	Gela	<i>viti</i>	‘lightning’
SES:	Malango	<i>vitih(i-a)</i>	(V) ‘lightning’

POc **lap^(w)a(r,R)* ‘lightning, phosphorescence’

NNG:	Sengseng	<i>(pe)lap</i>	‘lightning’
MM:	Tigak	<i>lapak</i>	‘lightning’
MM:	Kara (West)	<i>lapai</i>	‘lightning’
MM:	Tomoip	<i>lap</i>	‘thunder’
MM:	Haku	<i>(ka)naha</i>	‘lightning’
MM:	Torau	<i>(si)nava</i>	‘lightning’
MM:	Mono	<i>(ilai)laha</i>	‘lightning’
Pn:	Pileni	<i>lapa</i>	‘deep phosphorescent light, distinct from surface phosphorescence, occurring at a depth of from about 1 to 6 feet’ (Lewis 1972:208)
Pn:	Niuean	<i>lapa(sia)</i>	‘dazzled by the sun.’
Pn:	Tokelauan	<i>lapa</i>	‘flash of lightning’

Despite the formal variations in the cognate set above, its members are regular reflexes.

PNGOc **lamaR* ‘lightning’

NNG:	Malalamai	<i>lem</i>	‘lightning’
NNG:	Manam	<i>lama-lama</i>	‘thunder’
PT:	Molima	<i>namala</i>	‘lightning’
PT:	Tawala	<i>nama-namala</i>	‘lightning, bright, glitter’
PT:	Misima	<i>(pi)namal</i>	‘lightning’
PT:	Kwato Suau	<i>nama-namali</i>	‘lightning’
PT:	Hula	<i>rama-rama</i>	‘lightning’

PMP **kila(p,b)* ‘flash, sparkle’ (Dempwolff 1925, ACD)

POc **kilap* ‘flash, sparkle’

PNNG **kila(m,p)* ‘lightning’

NNG:	Gitua	<i>kila-kila</i>	‘lightning’
NNG:	Lukep	<i>kili</i>	‘lightning’
NNG:	Poeng	<i>kilama</i>	‘lightning’
NNG:	Roinji	<i>kirap</i>	‘thunder’
NNG:	Bing	<i>kin</i>	‘lightning’
NNG:	Takia	<i>-ki-kilawi</i>	‘thunder and lightning’
Pn:	Samoa	<i>ʔi-ʔila</i>	‘(of reflected light) shine, glisten, sparkle, twinkle’

POc appears to have had two basic roots for thunder, **kuru* and **p^waraq*, both of which occur in apparent fossilised morphological variants. Firstly, alongside **kuru* we find **guru*. The latter may represent **N + kuru*. Secondly, alongside **kuru*, **guru* and **p^waraq* we find forms with reduplication of the second syllable: **kururu*, **gururu* and **p^wararaq*. This was not to my knowledge a widespread process in POc, and I take its appearance here to be associated with the onomatopaeic nature of the etyma. Thirdly, it seems that the foregoing forms were (at least sometimes) verbal, and we find apparent nominalisations: **guru-ŋ(a)*, **gururu-ŋ(a)*, and **para-ŋ(a)*.

PMP **guruq* ‘noise, tumult’ (ACD)

POc **kuru*, **kururu* ‘thunder’

NNG:	Kove	<i>ku-kururu</i>	‘thunder’
MM:	Bola	<i>kururu</i>	‘thunder’
SES:	Lau	<i>kururu</i>	‘thunder’
SES:	Arosi	<i>(a)kuru</i>	(N, V) ‘thunder’
SES:	Kahua	<i>(yu)ʔuru(hia)</i>	‘thunder’
Fij:	Bauan	<i>kuru</i>	(N, V) ‘thunder’
Fij:	Wayan	<i>kuru-kuru</i>	(N, V) ‘thunder’

PMP **guruq* ‘noise, tumult’ (ACD)

POc **guru*, **gururu* ‘thunder, make loud noise’

Adm:	Drehet	<i>kuruh</i>	‘thunder’
NNG:	Takia	<i>-gurur</i>	‘noise rumbling, thunder, crackling’
NNG:	Buang	<i>klu</i>	‘roar, thunder, explode; like falling or running water, – like a waterfall, or thunder’
NNG:	Sukurum	<i>(mu)ʔkuru</i>	‘thunder’
NNG:	Ulau-Suain	<i>gururu</i>	‘thunder’
PT:	Misima	<i>gulu(m^wawa)</i>	‘thunder’
PT:	Motu	<i>guru</i>	‘noise, clamour’
PT:	Balawaia	<i>ʔulu</i>	‘loud noise’
PT:	Lala	<i>ulu</i>	‘thunder’
MM:	Ramoaina	<i>(pa)guru</i>	‘(thunder, wind in stomach) make a rumbling noise’
MM:	Teop	<i>guru</i>	‘thunder’

MM:	Haku	<i>gururu</i>	‘it thunders’
MM:	Tinputz	<i>guguruh</i>	(V) ‘thunder’
MM:	Maringe	<i>gu-gulu</i>	‘thunder’
SES:	Gela	<i>guru</i>	‘(thunder) rumble’
SES:	Lengo	<i>gururu</i>	‘thunder’
SES:	Arosi	<i>guru-guru</i>	‘thunder’

POc **guru-ŋ(a)*, **gururu-ŋ(a)*, **gururu-aŋ* ‘thunder’

NNG:	Gitua	<i>gururuŋ</i>	‘thunder’
NNG:	Sengseng	<i>kulu-ŋ</i>	‘thunder’
NNG:	Avau	<i>ruŋ-ruŋ</i>	‘thunder’
NNG:	Akolet	<i>ŋu-gruŋ</i>	‘thunder’
NNG:	Bebeli	<i>gu-gurun</i>	‘thunder’
NNG:	Uvol	<i>kurūŋ</i>	‘thunder’
MM:	Tigak	<i>guŋ</i>	‘thunder’
SES:	Longgu	<i>gururua</i>	‘thunder, small thunder, clap of thunder heard in the late afternoon when you get late afternoon rain; a storm’

POc **p^waraq*, **p^wararaq* ‘thunder’

NNG:	Gitua	<i>palaki</i>	‘thunder’
PT:	Gumawana	<i>(lo)pala-pala</i>	(V) ‘thunder’
PT:	Ubir	<i>(wa)ferer</i>	‘loud thunder’
PT:	Tawala	<i>palele</i>	‘thunder’
PT:	Muyuw	<i>pala-pal</i>	‘thunder’
MM:	Kara (East)	<i>(va)barak</i>	‘thunder’
MM:	Notsi	<i>pal-pallek</i>	‘thunder’
MM:	Tabar	<i>para-para</i>	‘thunder’
MM:	Lihir	<i>palal</i>	‘thunder’
MM:	Sursurunga	<i>pər</i>	‘thunder’
MM:	Patpatar	<i>par-parara</i>	‘thunder’
SES:	Arosi	<i>p^wararā</i>	‘thunder’
Mic:	Kiribati	<i>pā</i>	‘thunder’
Mic:	Kosraean	<i>pʌlæl</i>	‘thunder’
Mic:	Mokilese	<i>palar</i>	‘thunder’
Mic:	Puluwatese	<i>paçç</i>	‘thunder’
Mic:	Carolinian	<i>paçç</i>	‘thunder’

POc **para-ŋ(a)* ‘thunder’

Adm:	Mussau	<i>pala-palaŋa</i>	‘thunder’
Adm:	Drehet	<i>palaŋ</i>	‘thunder accompanied by lightning’

6 Concluding remarks

It may seem to the reader that I have turned the *Wörter und Sachen* technique on its head. That is, instead of using reconstructed items to determine something of the culture and environment of POc speakers, I have used climatic information based on a hypothesis

about Austronesian speakers' directions of dispersal and about the location of the POc speech community to set up a hypothesised structure for a POc meteorological terminology, and then set out to fill in its semantic categories. This is a variation on the method of terminological reconstruction used in other contributions to this work. I have deliberately chosen to establish semantic categories on the basis of climatic information rather than of the terminologies of present-day languages because of the variation in these terminologies from one location to another due to climatic differences.

The final step in the method of terminological reconstruction is to examine the hypothesised terminology to see if it needs modification in the light of the reconstructions which have been made. If POc reconstructions can be made for unpredicted items (say for hurricanes and cyclones), or POc reconstructions cannot be made for expected terms, then we must re-examine the initial hypothesis.

Meteorological terms (PAn **baRiuS* 'typhoon' and **qamiS(-an)* 'north, cold season') are among those that have been used as supporting evidence to locate the Proto Austronesian homeland (Blust 1984–85, Pawley & Ross 1993). In the present case, I have been able to reconstruct the POc terms I expected on the hypothesis that the POc speech community was located in the Bismarck Archipelago (except 'rainbow') and have not found that the data forced me to reconstruct unpredicted meteorological terms. So we can say that the hypothesis that POc was spoken in the Bismarck Archipelago has not been disconfirmed by this study.

6 *Navigation and the heavens*

MEREDITH OSMOND

1 Introduction

For as far back as the four or five thousand years that we can trace them culturally, Austronesian speakers have preferred to live close to the sea.¹ They have typically been sailors and fishermen. For as long as their settlements were confined to southeast Asia and northwest Melanesia, virtually all their sailing would have been between intervisible or near-intervisible islands. However, in the late second millennium BC, Austronesian speakers living somewhere in the region of the Bismarck Archipelago—speakers of the language now known as Proto Oceanic—began to move out eastwards, to the Solomons and beyond. Over the next few hundred years their descendants explored and settled many of the major island groups of the southwestern and central Pacific. The dates of these early movements are discussed in Chapter 2.

Building on the experience of their Austronesian ancestors in island southeast Asia, and aided by an increasingly sophisticated canoe-building technology (see vol. 1, Ch.7) these ocean navigators accumulated a body of knowledge that enabled them to sail freely beyond sight of land while retaining their orientation of home. Irwin (1992) has persuasively argued that even purely exploratory voyages into unknown waters were guided by knowledge of the prevailing wind system, ensuring that any push eastwards against the prevailing wind carried with it a good chance of a safe return.

More complex navigation skills had to be brought to bear once new and distant island groups were settled, a development which typically involved some regular trafficking between the old homeland and the new. These skills lay in recognising the regular patterning of naturally occurring phenomena such as star movements, wind systems, currents and swells as they applied to each new sea route, and in developing strategies that could be used in the committing to memory of these features.

¹ An earlier version of this chapter was published in Palmer and Geraghty, eds (2000).

I am particularly grateful to Malcolm Ross, whose work on time expressions has thrown further light on Oceanic knowledge of heavenly bodies. Thanks are also due to Andrew Pawley and Jeff Marck for their advice during the writing of this chapter, and to Ann Chowning and Fred Damon for additional data.

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The best scholarly minds of Europe had spent centuries developing ways of representing a curved world on a flat map and ways in which explorers could locate changing positions on their flat maps by using compass, sextant, chronometer, almanacs and various mathematical tables. When Europeans first ventured into the Pacific they had to grapple with the almost inconceivable notion that Pacific Islanders could navigate their canoes successfully over distances sometimes as great as a thousand miles without benefit of compass or chart or in fact any aids beyond what they held in their heads and what they could sense. In the mid-1960s, David Lewis, an experienced ocean yachtsman, aware that in some parts of the Pacific this skill was still practised, determined to seek out any remaining old-time navigators and sail with them where possible, to try to comprehend and record their navigational strategies. His resulting book, *We, the Navigators* (1972),² is the most complete record we are likely to get of this body of knowledge, rapidly disappearing with the increased presence of motorised boats and Western navigational technology. He was also at pains to record, in the languages of the navigators themselves, the names of the physical features on which they relied, the stars, different kinds of wave movements and so on. He took particular care to describe and name concepts for which Western navigation theory lacks any equivalent. He has thus provided us with an (admittedly small) list of words from Puluwat and Kiribati in Micronesia, Ninigo (= Seimat) in the Western Admiralties, and a number of Polynesian languages, principally those of Tonga and Tahiti, and two Polynesian outliers, Pileni, in the Santa Cruz group, and Tikopia.

The purpose of this chapter is to reconstruct the earliest possible Oceanic words from which are descended existing terms and meanings associated with the field of navigation. For the most part they are terms of the physical world, of the night sky and the ocean seascape. Also explored are terms such as the Polynesian *kaveŋa* (star or other object for which one steers) and the Micronesian *etak* (a ‘moving’ reference point) which refer to concepts incompatible with Western navigation theory. For some of these we may be able to offer a Proto Oceanic (POc) origin. Undoubtedly, as navigation skills developed and were refined in the Pacific, new terms would have been required, or old meanings extended. There is a further complication in that we are not dealing with one homogeneous environment. Take just one example—the night sky. There is no change to the night sky as one travels east or west apart from changes to the times of star rise and star set. But the sky visible from the northern hemisphere is a different sky from that of the southern hemisphere. That part of the globe which we are chiefly concerned with here extends from roughly 15°N (Saipan) to 20°S (Tonga), with the presumed POc homeland in the Bismarck Archipelago lying just a few degrees south of the Equator. Similarly, the patterning of winds, currents and swells varies with latitude and with distance from land mass, ocean depth etc., as well as with the seasons.

2 The sky and the horizon

For early Oceanic navigators, as for the Arabs, the Phoenicians, the Vikings and other early navigators, the fundamental sources of position finding were the heavenly bodies.

² *We, the Navigators* was reissued in 1994 in revised format, including a glossary of terms. Subsequent references to the volume in this chapter are to the 1994 revision.

2.1 Sky, heavens

The most soundly based reconstruction for sky is POc **laŋit* (see also p.142). In some Oceanic languages its meaning has been extended to include weather, apparently both as a general category and as a specific reference to kinds of weather, rain, wind etc.

PMP **laŋiC* ‘sky’ (Dempwolff 1938)

PMP **laŋit* ‘sky’

POc **laŋit* ‘sky’

Adm: Tench	<i>raŋiti</i>	‘rain’
Adm: Titan	<i>laŋ</i>	‘sky, heaven’
NNG: Manam	<i>laŋ</i>	‘sky, heavens’
NNG: Hote	<i>leŋ</i>	‘heaven, sky; air’
MM: Bali	<i>laŋiti</i>	‘sky’
MM: Tigak	<i>laŋit</i>	‘rain’
MM: Nehan	<i>laŋit</i>	‘sky’
MM: Haku	<i>laŋic</i>	‘rain; sky’
SES: Kwaio	<i>laŋi</i>	‘sky, heaven’
SES: Arosi	<i>raŋi</i>	‘rain’
NCV: Raga	<i>laŋi</i>	‘wind’
NCV: Lewo	<i>laŋi</i>	‘wind’
Mic: Marshallese	<i>laŋ</i>	‘sky, heaven; weather’
Mic: Woleaian	<i>raŋi</i>	‘sky; typhoon, rainstorm, wind’
Fij: Bauan	<i>(lomā)laŋi</i>	‘sky, heavens’ (<i>loma</i> ‘inside’)
Pn: Tongan	<i>laŋi</i>	‘sky, heavens’
Pn: Samoan	<i>laŋi</i>	‘sky, heavens’

The sky was typically conceptualised as something spanning a flat world from horizon to horizon. In both Micronesia and Polynesia it was regarded as a dome or a series of domes resting on the earth and forming concentric horizons on its surface (Lewis 1978:121). Tongans identified both *laŋi*, the sky, and *vavā*, which was the space between earth and sky. Some communities referred to the sky in legendary terms, conceiving it, for instance, as the home of the ancestors or of the Polynesian demigod, Maui.³ In Kiribati the heavens, *karawa*, could be subdivided into a lower heaven of birds and clouds where things appear small, *karawa merimeri*; and a heaven of the stars, *karawa uatao*. For a Kiribati navigator, however, the night sky was a vast roof. He never called it *karawa*, the usual Micronesian term for the heavens, but referred to it as *uma ni borau* ‘the roof of voyaging’ (Grimble 1931:197).

2.2 Horizon

The line where sea meets sky is commonly referred to by a compound—either edge/walls/ base of sky, edge of sea, or similar. I have located two sets of cognates, one

³ For instance, a Kiribati creation myth describes how the face of heaven was originally like hard rock stuck to the earth, but was prised apart and then held up by four women, who became like mighty trees (Grimble 1972:39–41). The legend is echoed in Hawaii, where the sky dome is supported by four pillars and in Tahiti where the sky rests on ten pillars (Makemson 1941:199).

limited to Polynesia, the other to Micronesia. The first reflects PEOc **tapa* ‘side’ (p.255) + **qi* ‘non-specific possessor particle’ + **laŋit* ‘sky’. The Tongan form and the East Uvean borrowing of that form reflect the replacement of the PPn preposition **ʔi* by an unexplained *ʔaki*.

PPn **(tafa)tafa-qaki-laŋi*, **(tafa)tafa-qi-laŋi* ‘horizon’ (**tafa* ‘side, edge’, *laŋi* ‘sky’)

Pn:	Tongan	<i>(tafa)tafa-ʔaki-laŋi</i>	
Pn:	E Uvean	<i>tafa-ʔaki laŋi</i>	‘horizon, limit, edge’
Pn:	Samoan	<i>tafa-tafa-ʔi-laŋi</i>	
Pn:	Maori	<i>taha(a)-raŋi</i>	
Pn:	Tikopia	<i>tafa-tafā-raŋi</i>	
Pn:	Tokelauan	<i>tafa-tafā-laŋi</i>	

Similarly, PChk **pai-laŋi* may be from POc **baRa* ‘fence’(see vol.1, p.60) + *qi* + *laŋit* lit. ‘fence of sky’.

PChk **pai-laŋi* ‘horizon’ (Marck 1994)

Mic:	Mortlockese	<i>payiləŋ</i>	‘horizon’
Mic:	Satawalese	<i>ppayileŋ</i>	‘horizon’
Mic:	Puluwatese	<i>(yɔrop) pāələŋ</i>	‘horizon’
Mic:	Chuukese	<i>(ɔrop)peyirer</i>	‘horizon’ (<i>ɔroppa</i> + <i>rer</i> ‘rim of heaven’)

Two SE Solomonic languages describe the horizon in terms of the sea rather than the sky. Lau and Kwaio both have *ʔaena asi*, literally ‘foot/leg of the sea’. Other terms retain the more usual second element meaning ‘sky’ but vary the first element:

PT:	Motu	<i>guba dokona</i>	‘horizon’ (<i>guba</i> ⁴ ‘sky’ <i>doko</i> ‘end’)
SES:	Lau	<i>ʔaena salo</i>	‘horizon’ (<i>ʔaena</i> ‘foot’, <i>salo</i> ⁵ ‘sky’)
SES:	Arosi	<i>waʔa-ni-aro</i>	‘horizon’ (lit. ‘beginning of the sky’)
Mic:	Chuukese	<i>epi-reŋ</i>	‘horizon’ (<i>epi</i> - ‘bottom’, <i>reŋi</i> ‘sky’)
Mic:	Marshallese	<i>kapin laŋ</i>	‘horizon’ (<i>kapi</i> ‘bottom’, <i>laŋ</i> ‘sky’)
Mic:	Kosraean	<i>pe kɪʂa</i>	‘horizon’ (<i>pe</i> ‘side’, <i>kɪʂa</i> ‘sky/heaven’)
Mic:	Kiribati	<i>te tataŋa ni mainiku</i>	‘eastern horizon’ (lit. ‘roof-plate of east’)
		<i>te tataŋa ni maeao</i>	‘western horizon’ (lit. ‘roof-plate of west’)
			(Grimble 1931:198)
Fij:	Bauan	<i>vū-ni-laŋi</i>	‘horizon’ (lit. ‘base of sky’)
Fij:	Wayan	<i>vū-ni-laŋi</i>	‘horizon’
Pn:	Hawaiian	<i>kumu-lani</i>	‘horizon’ (lit. ‘base of sky’)
		<i>pōʔai-lani</i>	‘horizon’ (lit. ‘sky circle’)
		<i>kūkulu-o-lani</i>	‘horizon’ (Åkerblom 1968:15) (<i>kūkulu</i> ‘pillar, post, side, edge, horizon’ denotes the four pillars which were the principal supports of the heavenly dome (Makemson 1939:19))

⁴ From PNGOc **guba(r,R)* ‘storm cloud’ (see Chapter 5, §5.2), but in at least two Papuan Tip languages, Motu and Mekeo, the meaning has become generalised to ‘sky’.

⁵ Reflexes of POc **qaRoq* ‘clouds’ (generic) typically serve as the term for sky in SE Solomonic languages.

It is a peculiarity of Kiribati that features of the sky are typically referred to in terms of roof parts. This is because instruction in navigation was traditionally carried out in the *maneaba* or meeting house, with the great roof substituting for the sky. The night sky was *uma ni borau* ‘the roof of voyaging’; the eastern and western horizons were *tataŋa*, the term for the two large horizontal beams on which the rafters are placed; the meridian was marked by *taubuki* ‘ridge of house roof’ with the spot at which it was supported by a central pillar indicating the position of the zenith star, Rigel. The roof framework was a network of named criss-crossing rafters which served as a kind of grid reference that could, in the imagination, be transferred to the night sky. A Kiribati navigator could thus estimate and identify altitudes of stars within a degree of two (Grimble 1931:197–198).

3 Sun

The sun is the main direction indicator during daylight, but its position must be related to the time of year. Actual points of sunrise and sunset move over a horizontal arc that gets progressively larger the further one is from the equator. Åkerblom (1968:15–17) and Makemson (1941:85) offer linguistic and archaeological⁶ evidence of Polynesian familiarity with the sun’s apparent annual movement, a familiarity that it would be necessary in any event to presuppose to explain navigators’ facility in using the sun as a bearing indicator. Polynesians have terms for the ecliptic, the path along which the sun appears to move over a year. For the Pukapukans, it was *te ala o te la*, literally ‘the path of the sun’. Hawaiians called it *ke ala ula a ke kuʻukuʻu*, ‘the bright road of the spider’. Hawaiian terms have been recorded for the sun’s southern limit, *ke alanui polohiwa a Kanaloa*, literally ‘the black-shining road of Kanaloa’, and for its northern limit, *ke alanui polohiwa a Kane*, literally ‘the black-shining road of Kane’.⁷ In Pukapuka, the terms for the solstices were *lua poto* ‘short pit’ and *lua loa* ‘long pit’, phrases which Beaglehole suggests refer to the short days of winter and the long days of summer respectively. Tahiti has corresponding terms—*rua poto* and *rua maoro*. Maori has the one term, *mārua roa* ‘long pit’ for both solstices, and applies the term also to the month or season during which the sun is at its furthestmost points (Makemson 1941:85). The only Micronesian terms I have located have been recorded in a Gilbertese myth by Arthur Grimble, in which a tree, *Kai-n-tiku-aba*, whose right side is *te-au-mean* ‘northern solstice’ and left side is *te-au-maiaki* ‘southern solstice’, springs from the spine of *Na Atibu* (Grimble 1972:43). In his Gilbertese dictionary, Sabatier defines *au* as ‘used to indicate sun’s position north or south of the equator’; *mean* is the directional ‘north’ and *maiaki* ‘south’.

At its highest point each day the sun is also an accurate indicator of due north (unless you happen to be at the particular latitude for which the sun is then directly overhead). As Lewis points out, the north–south axis can be accurately ascertained at noon by the shadow of a vessel’s mast, which points either due north or south depending on the latitude and the season (1994:384).⁸

⁶ Archaeological evidence comes from identification of probable solar observation sites on, for instance, Mangareva and Easter Island (Åkerblom 1968:17).

⁷ Kane and Kanaloa were important gods in the Hawaiian pantheon, Kane being associated with light, Kanaloa with darkness (Makemson 1941:21).

⁸ Through measurement of the angle by which the position of the sun at midday differs from the vertical, the sun can also be a precise indicator of latitude. This latter property, although depended upon by Western navigational technology for a daily position fix, would have been of less use to canoe navigators whose main need was regular bearing indicators.

Reconstruction of a POC term for the sun itself is not clearcut. Blust has reconstructed PMP **qajaw* or **qalejaw* as ‘day’, continued as POC **qajo* ‘day’. In this he has revised both the form and meaning of Dempwolff’s (1938) reconstruction PMP **ha(η)gav* ‘day, sun’. Here we have opted for ‘sun’ as the primary meaning of POC **qaco*, and, by extension, ‘daytime’. There is evidence both within and without the Oceanic region that the senses of ‘day/daylight/daytime’ and ‘sun’ were commonly interchanged.

PMP **qajaw* or **qalejaw* ‘sun, daylight’ (ACD)⁹

WMP: Itbayat	<i>araw</i>	‘sun’
WMP: Cham	<i>atdaw</i>	‘sun’
WMP: Saban	<i>sieu</i>	‘day’
WMP: Makasarese	<i>allo</i>	‘day; sun (in some expressions)’
WMP: Muna	<i>gholeo</i>	‘day’
CMP: Bima	<i>lirō</i>	‘sun’
CMP: Ngadha	<i>leza</i>	‘sun; day; daylight; daytime; heat of the sun’
CMP: Roti	<i>ledo</i>	‘sun’
CMP: Leti	<i>lera</i>	‘sun; day;
CMP: Yamdena	<i>lere</i>	‘sun; day’

POC **qaco* ‘sun, daytime’

Adm: Ponam	<i>al</i>	‘sun’
Adm: Seimat	<i>al</i>	‘sun’
NNG: Bariai	<i>ado</i>	‘day, sun’
NNG: Takia	<i>ad</i>	‘sun’
	<i>ad-ad</i>	‘daytime’
NNG: Kaiwa	<i>as</i>	‘daytime’
PT: Molima	<i>ʔasu</i>	‘sun’
MM: Nakanai	<i>haro</i>	‘sun; day’
MM: Tigak	<i>ias</i>	‘sun’
	<i>(gan)ias</i>	‘daytime’
MM: Nalik	<i>ias</i>	‘sun’
SES: Bugotu	<i>aho</i>	‘sun’
SES: Gela	<i>aho</i>	‘sun; good weather; put in the sun; experience good weather’
SES: Lau	<i>sato</i>	‘sun’
SES: ’Are’are	<i>rato</i>	‘sun, sunshine, no rain, good weather’
SES: Sa’a	<i>sato</i>	‘sun, sunshine, fine weather’
NCV: Mota	<i>loa</i>	‘sun’
NCV: Lonwolwol	<i>jal</i>	‘sun’
NCV: Paamese	<i>ealo</i>	‘sunshine’
NCV: Namakura	<i>ʔal</i>	‘sun’
Mic: Marshallese	<i>al^{uu}</i>	‘sun’
Mic: Woleaian	<i>yaro</i>	‘sun’

⁹ Blust (ACD) glosses this ‘day’, but the gloss given here appears more consonant with the data.

PPn *qaso ‘day, as period of time’

Pn:	Tongan	<i>ʔaho</i>	(N) ‘day’; (V) ‘be day or daylight’
Pn:	Rennellese	<i>ʔaso</i>	‘time, day, season’
Pn:	Samoan	<i>aso</i>	‘day’
Pn:	Tokelauan	<i>aso</i>	‘day’
Pn:	Tuvalu	<i>aho</i>	‘day (as time span)’
Pn:	Tikopia	<i>aso</i>	‘day (as time span)’

Proto Nuclear Polynesian shows a split between *qaso ‘day, as a period of time’ and *qaho ‘daytime, daylight’.

PNPn *qaho ‘daytime, daylight’

Pn:	Samoan	<i>ao</i>	‘day (contrasted with night); daylight’
Pn:	Rennellese	<i>ʔao</i>	(N) ‘day, daylight’; (V) ‘be daylight’
Pn:	Rarotongan	<i>ao</i>	‘day, daylight, dawn; world’
Pn:	Tikopia	<i>ao</i>	‘daylight’
Pn:	Maori	<i>ao</i>	(N) ‘daytime as opposed to night’; (VI) ‘dawn, become day’

PAn *daqani ‘day’ (ACD)

POc *raqani ‘daytime, daylight’

Adm:	Ponam	<i>ran</i>	‘day’
Adm:	Drehet	<i>laŋ</i>	‘daytime’
NNG:	Yabem	<i>-leŋ</i>	‘be daytime’
PT:	Kiriwina	<i>yam</i>	‘daytime’
PT:	Sinaugoro	<i>layani</i>	‘daytime’
PT:	Motu	<i>rani</i>	‘daytime’
MM:	Nalik	<i>ran</i>	‘daytime’
MM:	Petats	<i>len</i>	‘daytime’
MM:	Haku	<i>lan</i>	‘daytime’
MM:	Uruava	<i>rani</i>	‘daytime’
MM:	Roviana	<i>rane</i>	‘day’
MM:	Maringe	<i>na-rane</i>	‘day’
SES:	Bugotu	<i>dani</i>	‘morning, daylight’
SES:	Gela	<i>dani</i>	‘day, daylight’
SES:	Lau	<i>dani</i>	‘day, daylight’
SES:	Sa’a	<i>dani, dani</i>	‘daylight’ (<i>ŋ</i> for <i>n</i> unexplained)
SES:	Kwaio	<i>dani, dani</i>	‘day’ (<i>ŋ</i> for <i>n</i> unexplained)
SES:	’Are’are	<i>tani</i>	‘daylight’
SES:	Arosi	<i>dani</i>	‘daylight, day’ (<i>ŋ</i> for <i>n</i> unexplained)
NCV:	Mota	<i>(ma)ran</i>	‘light, daylight, morning, day; be light; tomorrow’s light; the morrow’
NCV:	Raga	<i>rani</i> <i>(ma)rani</i>	‘day, light, become day; morning’ ‘morning light’
NCV:	Tamambo	<i>rani</i>	‘daylight’
NCV:	Big Nambas	<i>na-ran</i>	‘daytime’

NCV:	Lonwolwol	<i>ren</i>	‘be light (of sky, weather etc.); weather, light, daylight’
NCV:	Paamese	<i>lani</i>	‘daybreak’
SV:	Lenakel	<i>n-ian</i>	‘day’
SV:	Kwamera	<i>(ia)ran</i>	‘day’
Mic:	Marshallese	<i>r^uān</i>	‘day, date’
Mic:	Ponapean	<i>rān</i>	‘day’
Mic:	Puluwatese	<i>rān</i>	‘day’
Mic:	Woleaian	<i>zan</i>	‘day, date’
Pn:	Maori	<i>raŋi</i>	‘day, as period of time’ (<i>ŋ</i> for <i>n</i> unexplained)

The Southeast Solomonian forms above are irregular, initial *d*- reflecting **drani*.

The preceding cognate set may ultimately be connected with the following one. However, it is clear that reflexes of POc **raqani* ‘daytime, daylight’ are synchronically distinct from reflexes of POc **[dr,r]aqā* ‘sun’s heat, sunlight’; ‘(sun) shine; **[dr,r]aqā-ŋi* ‘shine on, be hot, be bright’, in contemporary Oceanic languages which reflect both etyma.

POc **[dr,r]aqā* (N) ‘sun’s heat, sunlight’; (VI) ‘(sun) shine, be hot, be bright’; **[dr,r]aqā-ŋi* (VT) ‘shine on’

NNG:	Mapos Buang	<i>rŋ(ah)</i>	‘daytime’ ¹⁰
PT:	Motu	<i>rarai(a)</i>	(VT) ‘shine, of sun and moon’
MM:	Tigak	<i>gan(ias)</i>	‘daytime’
SES:	Bugotu	<i>raŋi</i>	(VI) ‘shine, of sun’
SES:	Lau	<i>rā</i>	‘sunlight’
		<i>rara</i>	(VI) ‘shine, be hot, warm’
		<i>raraŋi</i>	(VT) ‘shine upon’
SES:	‘Are’are	<i>rārā</i>	‘scorch, singe, of sun and fire’
SES:	Sa’a	<i>rā, rārā</i>	(V) ‘shine brightly’; (N) ‘the sun’s light, radiance’
SES:	Arosi	<i>rā</i>	(V) ‘be hot, bright; shine’
		<i>rārā(na)</i>	(N) ‘sunshine, heat of sun or fire’; (VI) ‘shine, be hot’
		<i>rāŋi</i>	(VT) ‘shine on’
Fij:	Wayan	<i>drā</i>	(VI) ‘(sun, moon, star) shine’

PPn **laqā* ‘sun’

Pn:	Tongan	<i>laʔā</i>	(N) ‘sun’; (VI) ‘be sunny’
Pn:	Niuean	<i>laā</i>	‘sun’
Pn:	Samoa	<i>lā</i>	‘sun’
Pn:	Rennellese	<i>gaʔā</i>	(N) ‘sun’; (V) ‘sun, sunbathe, dry in the sun’
Pn:	Maori	<i>rā</i>	‘sun’
Pn:	Tahitian	<i>rā</i>	‘sun’
Pn:	Rapanui	<i>ra</i>	‘sun’

¹⁰ The Mapos Buang and Tigak etyma are possibly from **raqaŋi qaco* ‘shine on + sun’.

Evidence for the transitive form **raqa-ŋi* above comes from the Bugotu, Lau and Arosi forms as well as the Motu, where **ŋ* is regularly reflected by *Ø*.

The following set focuses on effects of the sun's heat as opposed to its light, and extends to heat from fire.

POc **raraŋ* (VI) 'be warm, hot, of sun; be warmed or heated by fire or sun', **[ra]raŋ-i* (VT) 'warm, dry s.o., s.t. by sun or fire'

PT:	Molima	<i>lala</i>	'wilt leaves over a fire'
MM:	Tolai	<i>raŋ, raraŋ</i>	(VT) 'scorch, dry, warm, by sun or fire'
SES:	Bugotu	<i>raraŋi</i>	(VT) 'heat'
SES:	Tolo	<i>raŋi-</i>	'warm or dry s.t. on the fire'
SES:	'Are'are	<i>rara</i>	(VI) 'be warm, hot, of sun'
		<i>rarani-</i>	'warm oneself by fire or sun'
NCV:	Mota	<i>rara</i>	'dry before a fire'
Mic:	Marshallese	<i>ɾʷaŋ-ɾʷaŋ</i>	'warm oneself by the fire'
Mic:	Woleaian	<i>çaŋ</i>	'get warmed up near fire'
Fij:	Rotuman	<i>rara</i>	'warm (self or child) by the fire'
Fij:	Wayan	<i>rara</i>	(VI) '(patient subject) heated, warmed'; '(pot) fired, baked'; '(fish) smoked'
		<i>rarani</i>	(VT) 'warm s.t.' (<i>n</i> for exp. <i>ŋ</i>)
Fij:	Bauan	<i>rara</i>	(VI) 'warm oneself at a fire'
		<i>raraŋ-</i>	(VT) 'reheat food by a fire, sear banana leaves'
Pn:	Tongan	<i>ā</i>	'heat (sticks or leaves) over a fire'
Pn:	E Futunan	<i>lala</i>	'smoke fish'
Pn:	Rennellese	<i>gaga</i>	'smoke, as fish on a fire; warm, as hands over a fire'
Pn:	Rarotongan	<i>rara</i>	'dry (leaves) in sun, dry over a fire; smoke fish over a fire'

Yet another contender for the POc term for sun is **sinaR*, which Blust (1998) glosses as 'shine'. While some reflexes from across Oceania support 'shine', others lean towards the meaning 'sun'. This may, however, be the result of independent parallel development.

PMP **sinaR* 'ray of light' (Dempwolff 1938)

POc **sinaR* (V) 'shine'; (N) (?) 'sun'

Adm:	Mussau	<i>sinaka</i> ¹¹	'sun'
Adm:	Tench	<i>sinaka</i>	'sun'
Adm:	Lou	<i>sinsin</i>	'sun'
PT:	Motu	<i>dina</i>	'sun; day'
MM:	Lavongai	<i>sinaŋ</i>	(N) 'sun'; (V) '(sun) shine'
MM:	Tigak	<i>siŋan</i>	(V) '(sun) shine' (metathesis)
SES:	Lau	<i>sina</i>	'shine, give light'
SES:	Kwaio	<i>sina</i>	'sun'
SES:	'Are'are	<i>sina</i>	(V) 'shine, brighten'; (N) 'light, brightness'
SES:	Sa'a	<i>sineli</i>	'shine'

¹¹ Mussau/Tench *-k-* as a reflex of POc final **-R* is irregular.

SES:	Arosi	<i>sina</i>	‘sun’
NCV:	Mota	<i>siŋa</i>	‘shine’
Mic:	Chuukese	<i>ttira</i>	(V) ‘shine’; (N) ‘ray, brightness, beam’
Mic:	Puluwatese	<i>tin</i>	‘shine, as the sun’
Mic:	Mortlockese	<i>tin, tina-</i>	‘shine: used for fire, moon, lantern’
Mic:	Satawalese	<i>ttin</i>	(V) ‘shine’; (N) ‘ray, brightness, beam’
Fij:	Rotuman	<i>sina</i>	‘light, lamp, star’
Fij:	Wayan	<i>siŋa</i>	‘day, daylight, sun’
Fij:	Bauan	<i>đina</i>	‘lamp, torch’

Building on its ‘shine’ meaning, POc **sinaR* has given rise to a number of Polynesian terms which, with the addition of *mā-*, a stativising prefix, refer to the moon:

PPn **mā -sina* ‘moon, month’

Pn:	Rennellese	<i>māsina</i>	‘moon, month’
Pn:	Tongan	<i>māhina</i>	‘moon, month’
Pn:	Samoa	<i>māsina</i>	‘moon, month’
Pn:	E Futunan	<i>māsina</i>	‘moon, month’
Pn:	E Uvean	<i>māhina</i>	‘moon, month’
Pn:	Maori	<i>māhina</i>	‘moon, month’

4 Moon

The moon is of little value as a navigational aid. Its typical role is as a marker of periods of time. Reflexes of POc **pulan* ‘moon’ are widespread throughout the Admiralties, the Western Oceanic region, Southeast Solomons, Vanuatu and Fiji.

PAn **bulaN* ‘moon, month, menstruation’ (ACD)

PMP **bulan* ‘moon, month; menstruation’ (Dempwolff 1938)

POc **pulan* ‘moon, month’ (ACD)

Adm:	Lou	<i>pulan</i>	‘moon’
Adm:	Mussau	<i>ulana</i>	‘moon’
NNG:	Kove	<i>pula</i>	‘rise, shine, of sun, moon, stars’ (Chowning)
PT:	Motu	<i>hua</i>	‘moon, month’
MM:	Tigak	<i>ulan</i>	‘moon’
SES:	Bugotu	<i>vula</i>	‘moon, month’
SES:	Gela	<i>vula</i>	‘moon, month’
SES:	Lau	<i>fula</i>	‘the moon (but only in naming a month)’
SES:	Kwaio	<i>fula</i>	‘moon (mainly in compounds)’
		<i>fula(bala)</i>	‘full moon, night when it is light from moonrise to dawn’
		<i>fula(?alo)</i>	‘rainbow’
SES:	Sa’a	<i>hule</i>	‘phases of the moon; full moon’
		<i>hule i lade</i>	‘name of a month, July’
SES:	Ulawa	<i>hula(ahola)</i>	‘six nights of the moon’s course, including the full moon and two nights each way’

SES:	'Are'are	<i>hura</i>	'moon, lunar month'
		<i>hura(?aro)</i>	'rainbow'
SES:	Arosi	<i>hura</i>	'moon, month. It is said there were twelve native months beginning July (the planting) and ending in the following June'
NCV:	Mota	<i>vula</i>	'moon, month, season marked by moon'
Fij:	Bauan	<i>vula</i>	'moon, month'

In Polynesia **pulan* is reflected as a verb, PPn **pula* 'to glow' (with PPn **p* instead of expected **f*), and the moon is referred to by reflexes of PEOc **ma[d]rama*.

PEOc **ma[d]rama* 'moon'

SES:	Lau	<i>madama</i>	'moon'
Mic:	Mokilese	<i>maram</i>	'moon'
Mic:	Chuukese	<i>maram</i>	'moon'
Mic:	Ponapean	<i>maram</i>	'moon, moonlight'
Mic:	Puluwatese	<i>maram</i>	'moon'
Pn:	Rarotongan	<i>marama</i>	'moon'
Pn:	Tikopia	<i>marama</i>	'moon'
Pn:	Tahitian	<i>marama</i>	'moon'

5 Stars

Although the sun serves as a direction marker, particularly at sunrise, noon and sunset, the stars are the critical signposts in guiding navigators across open sea. The age-old method of star navigation consists in laying a course direct to a given destination by keeping the bow of the vessel pointed towards a star near the horizon whose bearing corresponds to the direction of the destination. As one star rises higher or sets, another of similar declination will be selected to take its place. For this purpose, the stars have obvious advantages over the sun. In the first place, the apparent movement of the stars is more stable than that of the sun. Although they rise each night four minutes earlier than on the previous night, they do so always at the same point on the horizon relative to a stationary observer. Second, the number and position of significant stars or star groups is on a scale that permits virtually an unlimited number of sequential stars or 'star paths' to be identified and memorised. Third, familiarity with the night sky as a whole can mean that even if the night is cloudy, the appearance of only a few stars can orient a skilled navigator.

It has already been pointed out that the northern hemisphere sky differs from that of the southern hemisphere. Polaris, for instance, that significant pointer of the northern sky, drops out of sight as one reaches the Equator. However, there are many stars common to a band of sky visible between, say, 15°N and 15°S, an area which includes New Guinea and its islands; almost all of Micronesia; the Solomons; northern Vanuatu; and part of Polynesia including the northern Cook Islands, Tuvalu and Tokelau but not Fiji or Tonga. Some star groups including the Southern Cross and its Pointers, the Pleiades, Orion's Belt and the triangle which Westerners refer to as Taurus are also recognized and named as units by Oceanic people. Many other patterns in the sky have been identified and named by them according to familiar shapes or to illustrate legends. One non-western constellation

has been identified at POc level, and several others at the level of Proto Micronesian. I have reconstructed the following terms for stars and star groups. All known cognate sets are included, as well as other terms that carry information about the significance of particular stars to the naming community.

5.1 Star (generic)

PAn **bituqen* ‘star’ (ACD)

POc **pituqun* ‘star’

Adm:	Titan	<i>pítuy</i>	‘star’
NNG:	Lukep (Pono)	<i>pitiki</i>	‘star’
NNG:	Takia	<i>patui</i>	‘star’
PT:	Misima	<i>pútum</i>	‘star’
PT:	Muyuw	<i>utun</i>	‘star’
PT:	Motu	<i>hisiu</i>	‘star’
MM:	Nehan	<i>pitopit</i>	‘star’
SES:	Arosi	<i>hiʔu</i>	‘star’
NCV:	Mota	<i>vitu</i>	‘star’
NCV:	SE Ambrym	<i>hitu</i>	‘star’
Mic:	Kiribati	<i>itoi</i>	‘star, constellation’
Mic:	Woleaian	<i>fis̩i</i>	‘star’
Mic:	Puluwatese	<i>fū</i>	‘star; point of the compass; canoe course plotted by the stars’
Mic:	Marshallese	<i>icu</i>	‘star, comet, planet’
Mic:	Mokilese	<i>ucu</i>	‘star’
Mic:	Ponapean	<i>usu</i>	‘star’
Fij:	Rotuman	<i>hefu</i>	‘star’
Pn:	Rennellese	<i>hetuʔu</i>	‘star, constellation’
Pn:	Tongan	<i>fetuʔu</i>	‘star; daisy’
Pn:	Hawaiian	<i>hōkū</i>	‘star’
Pn:	Tikopia	<i>fetū</i>	‘star, constellation’
Pn:	Anutan	<i>petū</i>	‘star’

5.2 Individual stars and star groups¹²

5.2.1 Venus (*Morning Star, Evening Star*)

The planets ‘wander’ in their movements and are of little use as guiding stars. The only one to feature regularly in wordlists is Venus. The POc name for Venus continues a PMP etymon.

¹² In addition to regular dictionary sources, the following sources for star names were used: Feinberg (1988) for Anutan, Christian (1899) for Ponape, Lamotrek and Mortlockese, Thomas (1987) for Satawalese and Capell (1969) for Sonsorolese. Makemson (1941) was an invaluable source for many Polynesian terms.

PMP **mantalaq* ‘the morning (evening) star: Venus’ (ACD)

PMP *(t)*ala(q)* ‘star’ (Dempwolff 1938)

POc **ma-dala* ‘the morning star’ (Blust 1972)

Adm:	Lou	(ko) <i>mtal</i>	‘Morning Star/Evening star:Venus’
Adm:	Titan	(ápa) <i>tal</i>	‘Morning Star which appears about 5 a.m.’
Adm:	Loni	(kopo) <i>matan</i>	‘the Morning Star’
NNG:	Kove	<i>motala</i>	‘star, generic’
		<i>motala waro aia</i>	‘Morning Star’ (lit. ‘star sun-for’) (Chowning)
NNG:	Labu	<i>metana</i>	‘the morning star’
SES:	’Are’are	<i>matara ni tani</i>	‘Morning Star’ (<i>tani</i> ‘daylight’)
SES:	Sa’a	<i>madala</i>	‘the morning star’
SES:	Arosi	<i>madara</i>	‘the morning star’
Mic:	Mokilese	<i>mālāl</i>	‘the morning star’

As in English, Venus often appears to have separate identities as Morning and Evening Star. The following illustrate:

Morning Star:

(i) compounds from ‘star’ + ‘daytime’

PPn **fetuqu qaho* ‘Morning Star’ (> POc **qaco* ‘sun, daytime’)

Pn:	Tongan	<i>fetuʔu ʔaho</i>	‘Morning Star’
Pn:	Marquesan	<i>hetu ao</i>	‘star of dawn’ (Makemson 1941:207)
Pn:	Samoa	<i>fetū ao</i>	‘Morning Star’
Pn:	Tikopia	<i>fetū ao</i>	‘Morning Star’
Pn:	Anutan	<i>petū ao</i>	‘Morning Star: Venus’
Pn:	Hawaiian	<i>hōkū-ao</i>	‘Venus when seen in the morning’

PMic **fitū rāni* ‘Morning Star’ (> POc **raqani* ‘daytime, daylight’)

Mic:	Marshallese	<i>icu ɾʷan</i>	‘Morning Star’
Mic:	Ponapean	<i>usūn rān</i>	‘Morning Star’ (<i>rān</i> ‘day’)
Mic:	Kiribati	<i>itoi ni ʔaina</i>	‘Morning Star’ (<i>ʔaina</i> ‘day, daylight’)
Mic:	Chuukese	<i>fū rār</i>	‘Venus as Morning Star’

(ii) other compounds

NNG:	Gedaged	<i>boi tinan</i>	‘Morning Star’ (<i>boi</i> ‘star’, <i>tinan</i> ‘mother’ or ‘big’; cf. p.195) ¹³
NNG:	Manam	<i>goai zama</i>	‘Morning Star’ (<i>goai</i> ‘star’, <i>zama</i> ‘tomorrow’)
PT:	Motu	<i>hisiu bada</i>	‘Morning Star’ (<i>hisiu</i> ‘star’, <i>bada</i> ‘large’)

Evening Star (various compounds):

MM:	Roviana	<i>govete pisi</i>	‘Evening Star, Venus’ (<i>govete</i> ‘to flee, run away’, <i>pisi</i> ‘to sting or bite, as insects’)
SES:	To’aba’ita	<i>bubufaja</i>	‘Evening Star’ (<i>bubu</i> ‘look at’, <i>faja</i> ‘eat; food’)

¹³ POc **tina*, literally ‘mother’, sometimes carries the interpretation ‘big’ in contrast to ‘child/small’.

SES:	Lau	<i>būbūfaŋa</i>	‘Evening Star’ (<i>būbū</i> ‘look at, gaze’, <i>faŋa</i> ‘to have a meal, food’)
SES:	Arosi	<i>maŋai ŋau</i>	‘Evening Star’ (<i>maŋa</i> ‘eat’, <i>ŋau</i> ‘eat food’)
Pn:	Tikopia	<i>fetū ramaŋa</i>	Alternative name for evening star when standing in west, in monsoon nights (lit. ‘torchlight fishing star’)
Pn:	Hawaiian	<i>hōkū-kau-ʔōpae</i>	‘Evening Star’ (lit. ‘star for placing shrimp’)

5.2.2 *Big Bird (Constellation including Sirius, Canopus, Procyon, Betelgeuse, Rigel)*

One of the few constellations that I have been able to identify and trace back to POc is **manuk*, literally ‘bird’ (*manu* in Pn), referred to by Lewis, Gladwin and others as ‘Big Bird’ or ‘Giant Bird’. Most of the stars which fall within the Western constellations of Orion and Canis Major would also be included within the larger Manuk constellation. Lewis (1978:11) writes of following ‘the guiding star Betelgeuse in Orion, the northern wingtip of the Polynesian constellation Giant Bird, whose head is Sirius and whose nether wingtip Canopus.’ In his dictionary Firth describes Rigel, on Orion’s knee, as a central star of Manuk. Although Lewis and Firth refer to Betelgeuse as indicating Manuk’s northern wingtip, Feinberg (1988:104) and Thomas (1987:240) both mark it, from the point of view of Anuta and Satawal respectively, with Procyon. Both are feasible. Feinberg also notes (p.110) that on Nukumanu the Long Wing corresponds with Canopus but the Short Wing is marked by a star probably Monocerus.¹⁴

PMP **manuk* ‘bird’

POc **manuk* ‘bird, Bird constellation’

Adm:	Ninigo	<i>mān</i>	‘(constellation incl.) Canopus, Sirius, Procea’ (Lewis, 1994:406)
Mic:	Kiribati	<i>man</i>	‘Canopus’
Mic:	Mortlockese	<i>man</i>	‘Sirius’
Mic:	Satawalese	<i>mān</i>	‘(constellation incl.) Sirius’
Mic:	Puluwatese	<i>mān</i>	‘a scattered group of stars, Canopus, Sirius, Procyon’
Mic:	Woleaian	<i>mar</i>	‘Sirius-Procyon-Canopus star’
Mic:	Carolinian	<i>mān</i>	‘Sirius’
Pn:	Tikopia	<i>manu</i>	‘Rigel’ (part for whole) (Lewis, 1978:33)
Pn:	Anutan	<i>manu</i>	‘Bird constellation, consisting of Sirius (Manu’s body), Canopus (east wing), Procyon (north wing) and a few stars in between’

We also have various references to particular stars as Manuk’s head, Manuk’s body etc.

¹⁴ Gladwin (1970:148) writes that ‘on Puluwat the cardinal direction is east, under the rising of Altair, the “Big Bird”’. This is something of a puzzle because, although both Altair and Manuk rise just north of east, they rise many hours apart. Altair is definitely not a part of the Manuk constellation. It would seem that here we have an instance of a prominent star or star group being equated with a cardinal reference point.

Adm:	Ninigo	<i>mānifono</i>	‘Sirius’ (<i>fono</i> ‘head’)
		<i>mānitola</i>	‘Procyon’
		<i>mānihaiup</i>	‘Canopus’ (Lewis 1994:406)
Mic:	Kiribati	<i>p^wāp^wā-ni-man</i>	‘Sirius’ (<i>p^wāp^wā</i> ‘chest’)
		<i>man-ati</i>	‘Rigel’ (<i>ati</i> ‘heart’)
Mic:	Puluwatese	<i>yinekin-mān</i>	‘Sirius’ (<i>yinek</i> ‘body, trunk’)
Pn:	Rennellese	<i>te tino-manu</i>	‘three bright stars at the end of Taurus’ (<i>tino</i> ‘body’)
Pn:	Anutan	<i>te kaokao o manu</i>	‘Manuk’s armpit: a group of four small stars near Sirius; said to pass almost directly over Tikopia when approaching from Anuta’
		<i>te tino a manu</i>	‘Sirius’ (<i>tino</i> ‘body’)
Pn:	Tikopia	<i>te opiŋa o manu</i>	‘Manuk’s armpit’ (Feinberg 1988:101) A Tikopian name but commonly used on Anuta.

Procyon (or Betelgeuse) and Canopus are widely referred to as the north wing and south/east wing respectively in Micronesian Satawalese, where reference to Manuk is included, and in the Polynesian Outliers of Anuta, Tikopia and Pileni, where the Manuk reference has been dropped.¹⁵

Mic:	Satawalese	<i>paīne-māne-mefuŋ</i>	‘Procyon (lit. ‘northern wing of Manuk’)
		<i>paīne-māne-meir</i>	‘Canopus (lit. ‘southern wing of Manuk’)
Pn:	Anutan	<i>te kapakau paka-tokerau</i>	‘Procyon, the ‘north wing (of Manuk constellation)’ (<i>kapakau</i> ‘wing’, <i>tokerau</i> ‘north’)
		<i>te kapakau paka-toŋa</i>	‘Canopus, Manuk’s east wing’ (<i>kapakau</i> ‘wing’, <i>toŋa</i> ‘south/east’)
Pn:	Tikopia	<i>kapakau faka-tokerau</i>	‘Betelgeuse’
		<i>kapakau faka-toŋa</i>	‘probably Canopus’
Pn:	Pileni	<i>trekapekau ki taumako</i>	‘Betelgeuse’ (Taumako is an island east northeast of Pileni)
		<i>trekapekau ki ndeni</i>	‘Canopus’ (Ndeni is an island southwest of Pileni) (Lewis 1994:408)

Individual stars within a constellation are frequently named because of their significance as seasonal or navigational markers, and at times because of a mythical association. It appears, however, that communities have at times retained familiar star names but applied them to different stars, stars more appropriate markers of a season or sea route as the location varied. Reflexes of the following PPn reconstruction applied, in compound form, to a number of bright stars and planets, as well as to the months and seasons over which the stars presided (Makemson 1941:254). In Eastern Polynesia, references are typically to Sirius.

¹⁵ Carolinian and Woleaian use comparable terms, respectively *pāy efef* and *paɪ yefaf* ‘north wing’, and *pāy yēr* and *paɪ yeɪz* ‘southern wing’ but apply them to the northern and southern wings of the constellation Aquila.

PPn **takulua* ‘a bright star’

Pn: Tongan	<i>takulua-tua-ʔalofi</i>	‘name of a large star’
	<i>takulua-tua-fanua</i>	‘name of a large star’
Pn: Tahitian	<i>taʔurua-faupapa</i>	‘Sirius’
Pn: Tuamotuan	<i>takurūa</i>	‘star name: may be Venus, Jupiter or Saturn’
Pn: Maori	<i>takurua</i>	‘Sirius; winter’ (Åkerblom 1968:19)
Pn: Marquesan	<i>takuʔua</i>	‘Sirius; July’
Pn: Hawaiian	<i>kaulua</i>	‘Sirius; June-July or February-March’

In Hawaii, Sirius is also known as *hōkū-hoʔokele-waʔa*, literally ‘canoe-guiding star’.

We have another PPn reconstruction whose reference is apparently to a star or stars within the constellation of Orion.

PPn **tākelo* ‘name of a star or stars, possibly in Orion constellation’

Pn: Tongan	<i>takelo</i>	‘two stars in the northern sky’ (Makemson 1941:253)
Pn: Tahitian	<i>taʔero</i>	‘Mercury’
Pn: Maori	<i>tākerō</i>	‘an unidentified star; Mercury’
Pn: Tuamotuan	<i>takero</i>	‘Orion’s Belt’ (Makemson 1941:253)
Pn: Marquesan	<i>takeo</i>	‘a star; June-July’
Pn: Hawaiian	<i>kāʔelo</i>	‘a star, perhaps Betelgeuse; name of a wet month’

A Kiribati name for Betelgeuse is *kāma-n-nuka*. *Kāma* is the name of a mythical being, *nuka* ‘middle’ (Grimble 1931:241). Rigel is known there as *te taubuki* literally ‘ridge of house roof’.

5.2.3 Orion’s Belt

It is hardly surprising that names for the group of three bright stars in a row should typically focus on the number. Terms in the southeast Solomons, Polynesia and Micronesia all contain reflexes of POc **tolu* ‘three’. In ‘Are’are, Sa’a and Arosi in the southeast Solomons they are named by the term for a three-man canoe *taʔe-oru*. Makemson (1941:198) gives the Tongan name as *alo-tolu*, identified in Churchward’s dictionary as *ʔalo-tolu* ‘three persons paddling together’. Tikopia and Anutan have *ara-toru*, ‘path of three’, a reference to an origin legend in which the three brothers of the demigod Motikitiki died and ascended to the sky when their outrigger was severed from their canoe following an argument (Feinberg 1988:11). In Maori they are referred to as *tau-toru* ‘three men’ (Åkerblom 1968:82), while in Tokelauan according to Macgregor (1937:90), and also in East Futunan, the group is called simply *tolu* ‘three’. Pukapukans call them *toluʔa maui* ‘Maui’s three’, and the Rennellese *toʔuʔa māui*, the reference being to Maui, a legendary Polynesian hero, and his two brothers. The Carolinian name *eliʔwel* is the term for three (*eli*) plus the classifier for general objects. Woleaian has *yeri-ʔyer* (*yeri* ‘three’). The North New Guinea language of Gedaged is an exception. Their term is *nitul*, which is also the term for a fish holder—the hooked string or branch used to string up fish. Fred Damon (pers. comm.) reports that in Muyuw the term for Orion’s Belt is *kiyad*, the term for the pole that stretches from one side of a canoe to the outrigger, attached in three places.

5.2.4 Pleiades

The Pleiades, or Seven Sisters, are a group of stars of moderate brightness which, because of their number and closeness to each other, form a small bright patch in the sky. Makemson believes that the Polynesians carried the Pleiades year with them into the Pacific from the ancient homeland of Asia, although she offers no specific evidence for this (1941:76). However it is the case that until recent times the Pleiades served as significant calendar stars throughout the Oceanic world, their reappearance each year marking the beginning of the annual seasonal cycle. In a number of languages of the north coast of New Guinea (Gedaged *baḷas*, Biliau *barahas*, Takia *baras*) the stars are thought of as young unmarried women, associated with health and fertility rituals. When the constellation reappears in mid-June, it is time to prepare the fields for planting yams. Speakers of Muyuw, a Papuan Tip language, are supposed to plant their yams by *Gumeaw*, the Pleiades (Damon 1990:36). Åkerblom reports that the Polynesian year begins in Tahiti when the Pleiades rise on the eastern horizon in the evening (late November). But in Pukapuka, Mangareva, Marquesas and parts of New Zealand the seasonal cycle begins when the Pleiades appear on the eastern horizon shortly before sunrise (about the end of May) (Åkerblom 1968:97). Teuira Henry in 1928 described the Tahitian year as consisting of two seasons, *matarī-i-nia* ‘Pleiades above’, the forerunners of the season of plenty, and *matarī-i-raro*, ‘Pleiades below’, the season of scarcity (quoted in Makemson 1941:92). A Maori term for the constellation is *ao kai* ‘season of food’ (Makemson 1941:200). Kiribati also recognizes two seasons, one marked by the appearance of the Pleiades, the other by Antares (Grimble 1972:223).

Blust has reconstructed PMP **buluq*, POc **puluq* ‘a constellation, the Pleiades’ with a single WMP reflex (from Sundanese) in addition to the Oceanic reflexes below. Many Polynesian languages use reflexes of PPn **mataliki*.

PMP **buluq* ‘a constellation, the Pleiades’ (ACD)

POc **bulu(q)* ‘a constellation, the Pleiades’ (ACD has **puluq*)

MM:	Nakanai	<i>vulu</i>	‘Pleiades’ (v for exp. b) ¹⁶
MM:	Roviana	<i>bibolo</i>	‘Pleiades’ (o for expected u)
SES:	Kwaio	<i>bulu-bulu</i>	‘star; firefly’
SES:	Lau	<i>(bu)bulu</i>	‘star’
SES:	’Are’are	<i>puru-puru</i>	‘star, firefly’
SES:	Arosi	<i>buru</i>	‘Pleiades’ (<i>buru-buru</i> ‘firefly’)

cf. also:

SES:	Gela	<i>buru-buru</i>	‘Pleiades’ (r for exp. l)

Ann Chowning (pers. comm.) has pointed out that, in common with the Southeast Solomonian terms above, an alternative Nakanai name for the Pleiades, *matatabu*, and their Sengseng name (*li-m(e)lek*), although unrelated, also denote fireflies.

In Polynesia and Micronesia a different term, translatable literally as ‘small face’ or ‘small eyes’ is widespread (POc **mata* ‘eye’, **liki* ‘small’). The Micronesian reflexes, however, refer not to the Pleiades but probably to Sagittarius.

¹⁶ Alternatively, Ann Chowning considers that *vulu*, may be derived from POc **pulu* ‘feather’, *vulu* also being the term for their yellow feathered headdress.

PEOc **mataliki* ‘name given to a significant star cluster’

Mic: Marshallese	<i>mæcət-rikrik</i>	‘a constellation, stars in Sagittarius’ (lit. ‘small face/eyes’)
Mic: Mortlockese	<i>meisik</i>	‘stars in Hercules’
Mic: Lamotrek	<i>mairik</i>	‘name for the fourth month’

PPn **mataliki* ‘Pleiades’

Pn: Tongan	<i>mataliki</i>	‘Pleiades’
Pn: E Futunan	<i>mataliki</i>	‘Pleiades; third month; June’
Pn: Pukapukan	<i>mataliki</i>	‘Pleiades’
Pn: Samoan	<i>mataliʔi</i>	‘Pleiades’
Pn: Tuvalu	<i>mataliki</i>	‘Pleiades’
Pn: Anutan	<i>matariki</i>	‘Pleiades’
Pn: Tikopia	<i>matariki</i>	‘Pleiades (sign of advent of trade wind season when appears on eastern horizon before dawn, also sign for turmeric extraction)’
Pn: Tahitian	<i>matariʔi</i>	‘Pleiades’
Pn: Maori	<i>matariki</i>	‘Pleiades, the first appearance of which before sunrise indicated the beginning of the Maori year (about the middle of June)’
Pn: Marquesan	<i>mataʔiʔi</i>	‘Pleiades; June’
Pn: Hawaiian	<i>makaliʔi</i>	‘Pleiades; month name; the six summer months collectively’

A number of similar terms for the Pleiades in Micronesian languages (Mortlockese *mariker*, Puluwatese *m^wariker*, Woleaian *m^wexazixez*, Carolinian *m^wærixær*) are not reflexes of the above, reflecting instead PChk **m^wakariker*.

5.2.5 *Southern Cross*

Blust, in his *Austronesian Comparative Dictionary*, lists a number of Western Malayo-Polynesian languages (Iban, Malay, Achenese, Simalur) in which the Southern Cross is called by the term for a stingray, in each case a reflex of PMP **paRih*. Makemson (1941:269) lists a Maori name, *te whai o titipa*, literally ‘the stingray of Titipa’ as referring to the Southern Cross or to a nearby feature, the Coalsack. Whether the reference to the star group is inherited with the term for a stingray, or is simply independent recognition of a familiar appearance we can only guess. Three Central Malayo-Polynesian languages which are either closely related or geographically contiguous (Fordata, Kei, Yamdena) contain reflexes of **paRih* which indicate Scorpio rather than the Southern Cross as the constellation in question. In several of the languages in the Solomons and Micronesia, the same term denotes both the Southern Cross and a triggerfish, also seen as similar to the constellation in shape. The Samoan term for the Southern Cross, *sumu*, although not cognate, is also the term for a triggerfish.

Although the Southern Cross is typically associated with the southern hemisphere, it is visible in the lower latitudes of the northern hemisphere, and is a significant navigational constellation for Micronesia. Specific terms indicate whether it is seen as upright, on either diagonal or lying horizontally on either side (Lewis 1994:103–106). A

PEOc reconstruction is proposed. The Hawaiian term, *newe*, may be a borrowing from the upright position Carolinian form (see below).

PEOc **bubu* ‘Southern Cross; triggerfish’

SES: Sa’a	<i>hoi pupu</i>	‘Southern Cross; triggerfish’
SES: Arosi	<i>hua i bubu</i>	‘Southern Cross; triggerfish’
Mic: Mokilese	<i>(lō)p^wu</i>	‘Southern Cross; triggerfish’
Mic: Woleaian	<i>p^wū</i>	‘Crux’
Mic: Marshallese	<i>p^{uu}ub^win ep̄n</i>	‘Crux, Southern Cross’ (<i>p^{uu}up^{uu}</i> ‘black triggerfish’)
Mic: Puluwatese	<i>p^wup^w</i>	‘Southern Cross; k.o. fish, perhaps triggerfish’
Mic: Lamotrek	<i>pup</i>	‘Southern Cross. Also called the leatherjacket fish’
Mic: Carolinian	<i>b^wūb^w</i>	‘Southern Cross; triggerfish’
	<i>wenewenūb^w</i>	‘Southern Cross in upright position’

Other terms are descriptive, with the net metaphor and the cross shape or crucifix recurring.

SES: Sa’a	<i>ʔape</i>	‘Southern Cross’ (lit. ‘large square fishing net fixed on four upright poles’)
Fij: Bauan	<i>kalokalo-ni-ðeva</i>	‘Southern Cross’ (<i>kalokalo</i> ‘star’, <i>ðeva</i> ‘the south or southeast wind’)
Pn: Anutan	<i>te kupeʔa</i>	‘The Net: Southern Cross’
Pn: Tikopia	<i>te kau kupeʔa</i>	‘pole-net handle’ (<i>kau</i> ‘handle’ probably refers to the Pointers rather than the Cross, which is the net.)
Pn: Rennellese	<i>kau-kupeʔa</i>	‘Southern Cross; net handle, net frame’
Pn: K’marangi	<i>tina ti raʔi</i>	‘Southern Cross’ (lit. ‘sky mother’)
Pn: Tikopia	<i>te uru a taʔata</i>	‘Southern Cross’ (lit. ‘man’s head’)
	<i>rakau tapu</i>	‘Southern Cross’ (lit. ‘sacred timber’) (Lewis 1994:407)
Pn: Hawaiian	<i>hōkū-keʔa</i>	‘Southern Cross’ (<i>keʔa</i> ‘cross, crucifix’)

5.2.6 The Pointers

The Pointers, Alpha and Beta Centauri, are widely referred to by compounds translatable as the ‘two men’. The Sa’a form is derived from POc **m^waqane* ‘man, male’, while the Polynesian examples are reflexes of POc **tam^wataq* ‘living person’.

SES: Sa’a	<i>ro m^wane</i>	‘Pointers (to Southern Cross)’ (lit. ‘two men’)
Pn: Samoan	<i>lua taʔata</i>	‘Pointers: Alpha and Beta Centauri’ (Åkerblom 1968:27)
Pn: Tikopia	<i>rua taʔata</i>	‘Southern Cross’ (Lewis 1994:407)
Pn: Tokelauan	<i>na taʔata</i>	‘these two stars are guides for voyages from Tokelau to Samoa’ (MacGregor 1937:89)

Pn:	Anutan	<i>rua taŋata</i>	Lit. ‘double man’: ‘constellation consisting of two bright stars near the Southern Cross. Centaurus, also known as <i>te kau o te kupeŋa</i> ‘handle of fishing net’

5.2.7 *Taurus (the Triangle, the Tongs), including Aldebaran*

No cognates are evident for the constellation, but there are semantically parallel forms in Sa’a, Lau and two Polynesian languages which all name the constellation with the local word for tongs. This may simply reflect independent recognition of a common household utensil shape.

SES:	Sa’a	<i>ireki</i>	‘the Southern Triangle’ (lit. ‘tongs’)
SES:	Lau	<i>sā kai</i>	‘bamboo tongs: name of constellation of six stars’
Pn:	Tikopia	<i>te ūkopi</i>	‘the Tongs (Taurus’s forehead), particularly Aldebaran’ (Feinberg 1988:101). (Firth has <i>ūkofi</i>)
Pn:	Anutan	<i>te aŋa-aŋa</i>	‘the Tongs: a constellation consisting of seven stars from Taurus arranged in a V pattern’

In Fiji the constellation is known as *laḏa*, literally ‘a sail’.

There is a possible PEOc reconstruction for Aldebaran, the single brightest star of the group. The long vowel indicates a possible **u(C)u* sequence.

PEOc **u(C)unu* ‘Aldebaran’

Mic:	Kiribati	<i>un</i>	‘the name of a star’
Mic:	Mortlockese	<i>un(allual)</i>	‘Aldebaran and Orion’
Mic:	Puluwatese	<i>wūn</i>	‘Aldebaran; month about late July’
Mic:	Woleaian	<i>ūru</i>	‘Aldebaran. Also the name for a kind of dorfin’ (dorsal fin also triangular [MO])
Mic:	Lamotrek	<i>ul</i>	‘Aldebaran’
Mic:	Satawalese	<i>ul</i>	‘Aldebaran’
Mic:	Carolinian	<i>wūn</i>	‘the star Aldebaran; synodic month, approx. July–August’
Pn:	K’marangi	<i>ūnu te</i>	‘star name’ (Pukui & Elbert 1973)

Other names located for Aldebaran include:

Mic:	Kiribati	<i>te boto-n-aiai</i>	‘Aldebaran (in Taurus)’ (lit. ‘base of ribs (<i>aiai</i>) of canoe’, because it stands in the V-shaped portion of Taurus) (Grimble 1931:241)
Mic:	Marshallese	<i>l^{uu}ɔc-l^{uu}apl^{uu} ap</i>	‘Aldebaran in Taurus’ (lit. ‘big bonito’)
Pn:	Tahitian	<i>ana muri</i>	‘Aldebaran’ (Lewis 1994:403) (‘rear pillar supporting the sky’; cf. <i>ana mua</i> ‘front pillar, Antares’)
Pn:	Maori	<i>wero-i-te-kokota</i>	‘Aldebaran’ (‘herald of the digging season’)

5.2.8 *Polaris*

Polaris marks the centre of the North Celestial Pole. From the viewpoint of a stationary observer it never moves. It is also a good indicator of how far north of the Equator you happen to be. In Western terminology, if Polaris is 15° above the horizon, then your location will be at 15°N latitude. It disappears below the horizon as you move south across the Equator. It is valued by Micronesian sailors because it is always there unless obscured by cloud, and, being close to the horizon, it provides a good bearing (Gladwin 1970:148). The following compounds have been collected. Again we find semantic parallels even when the forms are not cognate.

PChk **fitū m^wakut* ‘Polaris’ (lit. ‘star not moving’)

Mic:	Puluwatese	<i>fūhæ m^wakət</i>	‘Polaris’
Mic:	Satawalese	<i>fuese magut</i>	‘Polaris’
Mic:	Carolinian	<i>fīse m^waxut</i>	‘Polaris’
Mic:	Woleaian	<i>werewereri iyefaji</i>	‘Polaris’ (<i>werewere</i> ‘straight, steady, still’, <i>iyefaji</i> ‘north’)
Pn:	Tahitian	<i>ana-niʔa</i>	‘Polaris’ (Lewis 1994:403)
Pn:	Hawaiian	<i>hōkū-paʔa</i>	‘Polaris or North Star’ (<i>paʔa</i> ‘firm, steadfast’)

5.2.9 *Altair*

The only cognate set located is from Micronesia. References may be at times to the constellation of Aquila rather than its most prominent star, Altair. The five Chuukic languages reflect ‘PEOc/PMic **maRi*/**mai* ‘breadfruit’ while the Marshallese term, although formally similar, reflects POC **mata* ‘eye’.

PChk **mai-lapa* ‘Altair’ (lit. ‘big/old breadfruit’)

Mic:	Puluwatese	<i>māy ləp</i>	‘Altair; a month, about March: from <i>māy</i> ‘breadfruit’, <i>ləp</i> ‘big, old’ (Appearance of Altair marks the season of old breadfruit, northeast winds and much sailing. <i>māyləpænəfæŋ</i> is the name given to the season) (Elbert 1972)
Mic:	Mortlockese	<i>meilap</i>	‘the constellation Aquila’
Mic:	Woleaian	<i>māirapa</i>	‘Altair, the most prominent star in Carolinian navigation, a winter month’
Mic:	Carolinian	<i>māilap</i>	‘the star Altair’
Mic:	Satawalese	<i>mailap</i>	‘Altair’ (McCoy 1976)
cf. also:			
Mic:	Marshallese	<i>mæcləp</i>	‘constellation Aquila, Altair’ (lit. ‘big eye’)

The Maori name for Altair is *poutu-te-raʔi* ‘pillar of heaven’, a reference to a creation myth in which the sky is supported on pillars (Makemson 1941:64).

5.2.10 Antares

Antares, in the western constellation of Scorpio, ranks with the Pleiades as the most important of the calendar stars throughout the whole Pacific area (Makemson 1941:98). I have located cognate sets from both Micronesia and Polynesia, terms from the latter referring at times to Venus.

PMic **(d,z)umuri* ‘Antares’

Mic:	Kiribati	<i>rim^{wi}(mata)</i>	‘Antares’
Mic:	Marshallese	<i>tum^{uu}ur^{uu}</i>	‘Antares’
Mic:	Ponapean	<i>tumur</i>	‘Antares’
Mic:	Chuukese	<i>tum^wur</i>	‘Antares’
Mic:	Mortlockese	<i>tumur</i>	‘Scorpio’ (includes Antares)
Mic:	Puluwatese	<i>tīmīr</i>	‘Antares; a month about January’
Mic:	Carolinian	<i>tum^wur</i>	‘Antares’
Mic:	Satawalese	<i>tum^wur</i>	‘Antares; a month about January’
Mic:	Woleaian	<i>tum^{wi}zi</i>	‘Antares’
Mic:	Lamotrek	<i>tumur</i>	‘Antares’
Mic:	Sonsorolese	<i>tumuri</i>	‘Antares’

PCEPn **refua* ‘a star name, Antares?’ (Biggs & Clark 1993)

Pn:	Tahitian	<i>rehu</i>	‘a month name, between Dec. and January’
Pn:	Tuamotuan	<i>rehua</i>	‘a star, Antares?’
Pn:	Maori	<i>rerehu</i> or <i>rehua</i>	‘Antares’ (Makemson 1941:98)
Pn:	Hawaiian	<i>we-lehu</i>	‘Antares’ (Makemson 1941:98)
Pn:	Marquesan	<i>ehua</i>	‘Antares’ (Makemson 1941:207)

PNPn **mele-mele* ‘Venus or Antares’

Pn:	Pukapukan	<i>mele-mele</i>	‘Antares’ (Lewis 1994:406)
Pn:	K’marangi	<i>mere-mere</i>	‘Antares’
Pn:	Maori	<i>mere-mere</i>	‘Venus as evening star’
Pn:	Hawaiian	<i>mele-mele</i>	‘name of a star (Venus?)’

The Tahitians called Antares *ana mua*. For them it represented the front pillar, the parent pillar of the sky (Makemson 1941:36). The Rennellese term for the constellation Scorpio is *tugā-gupe*, literally ‘flock of pigeons’.

5.2.11 Pegasus

The star names listed from this point onward are reconstructable only for Proto Micronesian or for the lower-order Micronesian interstage of Proto-Chuukic.

PMic **lakV* ‘stars in Pegasus’

Mic:	Marshallese	<i>l^{uu}ak</i>	‘stars in Pegasus’
Mic:	Mortlockese	<i>la</i>	‘Pegasus’
Mic:	Puluwatese	<i>la</i>	‘star in Pegasus; month at beginning of breadfruit season, about May’

Mic: Satawalese	<i>na</i>	‘Alpheratz; about May’
Mic: Woleaian	<i>rax</i>	‘Pegasus’ (Alkire 1970:39)

5.2.12 Dolphin constellation (including Cassiopeia)

PMic **kua* ‘Dolphin constellation incl. Cassiopeia’ (approximately equivalent to Aries)

Mic: Kiribati	<i>kua</i>	‘constellation incl. Andromeda, Perseus and Cassiopeia’ (<i>kua</i> ‘whale, porpoise’)
Mic: Mortlockese	<i>ku</i>	‘Aries’
Mic: Puluwatese	<i>kūw</i>	‘Cassiopeia, plus some other stars; porpoise’
Mic: Woleaian	<i>xu</i>	‘huge constellation including Cassiopeia and Cetus; porpoise’
Mic: Carolinian	<i>xūw</i>	‘constellation Aries’
Mic: Satawalese	<i>xu</i>	‘Dolphin constellation, whose tail is marked by Cassiopeia’

PChk **ukulik* ‘Cassiopeia’ (lit. ‘tail of fish’) (POc **ikuR* ‘tail’, **ikan* ‘fish’)

Mic: Puluwatese	<i>wikinlik</i>	‘Cassiopeia’ (lit. ‘fish tail’)
Mic: Woleaian	<i>ixirix</i>	‘Cassiopeia’
Mic: Carolinian	<i>ikkirix</i>	‘star or stars in constellation of Cassiopeia’
Mic: Satawalese	<i>exulix</i>	‘Cassiopeia’

cf. also:

Mic: Marshallese	<i>l^uɔk^wan l^uakeke</i>	‘Cassiopeia’ (lit. ‘tail of porpoise’. <i>Lakeke</i> is a constellation shaped like a porpoise)

5.2.13 Delphinus

PMic **tapia* ‘Bowl constellation, approximately Delphinus’ (POc **tabiRa* ‘wooden bowl’)

Mic: Marshallese	<i>cæpe</i>	‘constellation: stars in Delphinus; bowl’
Mic: Puluwatese	<i>hæpiy</i>	‘bowl, calabash’
Mic: Carolinian	<i>sæpi</i>	‘constellation approximately Delphinus’
Mic: Satawalese	<i>sepie</i>	‘Delphinus: represents a carved wooden bowl’
Mic: Woleaian	<i>tapiy</i>	‘Delphinus star; bowl’

5.2.14 Arcturus

PMic **aremoi* ‘Arcturus’ (brightest star of Bootes constellation)

Mic: Marshallese	<i>ar</i>	‘Arcturus’
Mic: Mortlockese	<i>aramoi</i>	‘Arcturus’
Mic: Puluwatese	<i>yoromōy</i>	‘a star and a month, about November’
Mic: Carolinian	<i>arem^woy</i>	‘Arcturus’
Mic: Satawalese	<i>aremoi</i>	‘Arcturus’
Mic: Woleaian	<i>yazemōi</i>	‘Arcturus’
Mic: Lamotrek	<i>aramoi</i>	‘Arcturus’

In Tuamotuan and Hawaiian, Arcturus and possibly the whole constellation of Bootes, is known by the term for a frigate bird, *kiva* and *?iwa* respectively (Makemson 1941:221).

5.2.15 *Corvus, Leo, Vega, Corona Borealis, Ursa Major, Equeleus*

The following star reconstructions are limited to Proto Chuukic, a subgroup of Micronesian.

PChk **tarop^{wolu}* ‘constellation Corvus’

Mic: Mortlockese	<i>soropuel</i>	‘Corvus’
Mic: Puluwatese	<i>hærepwəl</i>	‘Corvi’
Mic: Carolinian	<i>sarob^{wəl}</i>	‘star Corvus’
Mic: Satawalese	<i>sarapul</i>	‘Corvus’
Mic: Woleaian	<i>sazeφer</i>	‘Corvus; a summer month’
Mic: Lamotrek	<i>sorabol</i>	‘Corvus’ (lit. ‘viewer of the taro patches’)
Mic: Sonsorolese	<i>taleb^{wər^{uu}}</i>	‘name of a star’

PChk **ici* ‘constellation Leo’

Mic: Mortlockese	<i>yis</i>	‘constellation Leo’
Mic: Puluwatese	<i>yiçç</i>	‘name for three unidentified stars’
Mic: Woleaian	<i>iç</i>	‘star in Leo (Hydra or Regulus)’

PChk **mul* ‘Vega, brightest star in constellation Lyra’

Mic: Puluwatese	<i>māl</i>	‘Vega; a month about February’
Mic: Carolinian	<i>māl</i>	‘star Vega’
Mic: Satawalese	<i>mun</i>	‘Vega’
Mic: Woleaian	<i>mer</i>	‘Vega’

PChk **caw* ‘Dip net constellation, approximately Corona Borealis’

Mic: Puluwatese	<i>ṛōw</i>	‘star and a month at the end of the breadfruit season, about December; hand net’
Mic: Carolinian	<i>ṣōw</i>	‘constellation approximately equivalent to Corona Borealis; dipping net’
Mic: Satawalese	<i>roe</i>	‘Corona Borealis, shaped like a dip net’ (<i>roe</i> lit. ‘dip net’)
Mic: Woleaian	<i>ṣōū</i>	‘a Corona Borealis star’

PChk **wuleko* ‘stars in Ursa Major’

Mic: Puluwatese	<i>wələ</i>	‘stars in big Dipper, Ursa Major’
Mic: Satawalese	<i>wulego</i>	‘four stars of Ursa Major (Dubhe, Megrez, Phaeda, Merak) which constitute the cup of the Big Dipper’s ladle’
Mic: Woleaian	<i>werexe</i>	‘star in Ursa Major’

PChk **tā(d,z)a* ‘constellation Equeleus’ (tiny constellation between Pegasus and Aquila)

Mic: Mortlockese	<i>sota</i>	‘Equeleus’
Mic: Puluwatese	<i>hāta</i>	‘Equeleus; month about April’

Mic: Carolinian	<i>sēta</i>	‘month in the traditional siderial calendar, about April’
Mic: Satawalese	<i>ceuta</i>	‘stars in Equeleus; month about April’ (Thomas 1987:239, 270)
Mic: Woleaian	<i>sita</i>	‘Aquarius, a winter month’

5.2.16 Magellanic Clouds

I have located terms only within Polynesia and Fiji for the Magellanic Clouds. The reference to *rua* ‘two’ in Pileni and Manihiki is presumably to the Greater and Lesser Magellanic Clouds, which appear as two distinct nebulae, sometimes distinguished as ‘flying’ or ‘stationary’ respectively.

PPn **maqafu* ‘Magellanic Clouds’

Pn: Tongan	<i>maʔafu</i>	‘Magellanic Clouds, a primary reference point for Tongan orientation. <i>maʔafu lele</i> ‘flying fire’ and <i>maʔafu toka</i> ‘stationary fire’
Pn: Pileni	<i>lua mafu</i>	‘Magellanic Clouds’ (Lewis 1994:406)
Pn: Manihiki	<i>rua mafu</i>	‘Magellanic Clouds’ (Lewis 1994:407)

In Samoa, and also Anuta, they could simply be referred to as ‘flying cloud’ and ‘stationary cloud’ (Makemson 1941:187).

Pn: Samoan	<i>ao lele, ao toʔa</i>
Pn: Anutan	<i>ao rere, ao toka</i>

In Bauan they were *matādravu ni sautū*, literally ‘hearth of peace and plenty’.

5.2.17 Milky Way

Makemson (1941:183) wrote that Polynesians could tell the time of night by the changing position of the Milky Way. She quotes a Hawaiian expression *huli ke ʔau*, literally ‘[the handle of] the Milky Way has turned’ as equivalent to ‘it is now past midnight’. The following cognate set is from Polynesia.

PPn **kaniwa* ‘the Milky Way’

Pn: Tongan	<i>kaniva</i>	
Pn: Samoan	<i>ʔaniva</i>	
Pn: Sikaiana	<i>kaniva</i>	‘rainbow’
Pn: Tikopia	<i>te kau tu keniva</i>	‘the Milky Way’ (lit. ‘handle of <i>keniva</i> ’)
Pn: Tokelauan	<i>kaniva</i>	
Pn: W Futunan	<i>kaniva</i>	

In Gedaged (NNG) the Milky Way is *wat-daden* (*wat* ‘driftwood, flotsam’, *daden* ‘trade, barter’). The association is not explained. In Lau (SES), it is simply *tala* ‘the path’, while in Carolinian the galaxy is *mesal fúú*, literally ‘the face of stars’.

Makemson (1941:183–186) lists a range of picturesque terms used by the Polynesians for the Milky Way which include Mangaian *moko-roa-i-ata*, literally ‘long lizard of morning’ Hawaiian *kuamoʔo* ‘backbone of lizard’, Tuamotuan *vaero-o-te-moko* ‘tail of the

lizard’ and a group of Maori terms, *ika-nui* ‘great fish’, *ika-roa* ‘long fish’ and *maŋo-roa* ‘long shark’. Still another Maori term for the Milky Way is *pae-roa-o-whanui*, literally ‘the long threshold of wide space’.

5.3 Star path

Firth (1957:91) writes:

The major navigational guide [in Tikopia] is the Star-path, the ‘Carrier’ (Kavenga). This is a succession of stars towards which the bow of the canoe is pointed. Each is used as a guide when it is low in the heaven; as it rises up overhead it is discarded and the course is reset by the next one in the series. One after another these stars rise till dawn, and at some times of the year a few still remain to rise when dawn breaks.

Lewis records identical advice given to him by a Tongan navigator in 1965, who refers to ‘*kaveinga*, the star path’ (1978:18). This term has a well-supported PPn antecedent and etymology.

PPn **kaveiŋa* ‘that which is steered for (usually a star)’ (From PPn **kawe* ‘to carry’+ *-i* ‘verbal suffix from POc transitive marker *i’ + *-ŋa* ‘nominaliser’)

Pn: Tongan	<i>kaveiŋa</i>	‘star or other object for which one steers’
Pn: Pukapukan	<i>kaveiŋa</i>	‘a group of stars on the same declination, thought of as a constellation’
Pn: Tikopia	<i>kaveŋa</i>	‘carrier; esp. navigational aid by sequence of stars, star path’
Pn: Tahitian	<i>aveiʔa</i>	‘star path’
Pn: Tuamotuan	<i>kave(e)iŋa</i>	‘guiding star’
Pn: Rarotongan	<i>kaveiŋa</i>	‘that which is steered for’
Pn: Anutan	<i>kāveŋa</i>	‘the major guiding stars or constellations’

Feinberg (1988:100) adds a qualifier to the last-mentioned Anutan gloss. He writes: ‘The name *kāveŋa* ‘carrier’ refers to the particular star or constellation being followed at a given moment. A star path or sequence of stars that is followed from one island to the next, including those stars not yet risen or already set, is a *kau panoŋa porau*.’ (lit. ‘company or group for voyaging’). Feinberg describes this as the Anutans’ single most important navigational tool.

For Tikopia, Firth offers a purely literal term of *ara fetū* ‘star path’, and compares it with *ara a vaka* ‘canoe path’, the latter presumably referring to the actual sea route. According to Grimble (1972:296), the Maori term for star path is also *ara fetū*.

The Micronesians followed successive rising or falling stars in the same way. The name given to star courses learnt by navigators on Woleai was *wōfarīw* (Alkire 1970:45), and on Satawal, *wofanu*, literally ‘gaze at the island’ (Thomas 1988:261).

Beatrice Blackwood documents a voyage in the northwest Solomons from Buka to Nissan made by Hanahan speakers which agrees in every respect with Firth’s description of navigating by using a star path. She gives a sequence of ten stars, but no term for the system (1935:381–382).

5.4 Star rise and star set

Stars provide the most accurate bearings when they are low in the sky. Thus navigators describing star paths refer not to star X but to ‘rising X’ or ‘setting X’. In Micronesia such compound forms have become lexicalised.

5.4.1 Rising

POc **sake* had as its primary sense ‘rise, go up’. But it also had the sense of ‘ride on something, e.g. a canoe, catch a ride’. Both senses go back to PMP **sa(ŋ)kay*. POc reflexes can also carry the directional ‘east’.

PMP **sa(ŋ)kay* ‘catch a ride, ride on something’ (ACD)

POc **sake* ‘rise, go up; upwards’ (see also p.273)

Adm:	Mussau	(<i>sae</i>) <i>sae(na)</i>	‘upwards’
NNG:	Kove	<i>rae</i>	‘rise’ (Chowning)
		<i>sae</i>	‘up, eastwards along the coast’ (Chowning)
PT:	Motu	<i>dae</i>	‘ascend’
MM:	Bali-Vitu	<i>ḍaye</i>	‘(sun) rise’
MM:	Nakanai	<i>sae</i>	‘rise’
MM:	Meramera	<i>saʔe</i>	‘climb’
SES:	Sa’a	<i>taʔe</i>	‘up, inland’
SES:	Arosi	<i>taʔe</i>	‘go up, ascend’
SES:	Lau	<i>tae</i>	‘rise, ascend, get up, climb’
SES:	Longgu	<i>taʔe</i>	‘ascend, go up’
Mic:	Kiribati	<i>rake</i>	‘up, upwards, eastwards’
Mic:	Marshallese	<i>tak</i>	‘eastward, upward’
Mic:	Ponapean	<i>tak</i>	‘rise, of the sun and moon’
Mic:	Mokilese	<i>tak</i>	‘rise (of sun); to shine’
Mic:	Kosraean	<i>tak</i>	‘rise’
Mic:	Woleaian	<i>tax</i>	‘upward, eastward, up’ (<i>xetaxe-fis</i> (N), ‘rising stars’ eg <i>taxari-p^wu</i> ‘Crux rising’, <i>taxrli-metaziwa</i> ‘Scorpio rising’. Also <i>taxari-yaro</i> ‘sunrise’)
Mic:	Puluwatese	<i>tān</i>	‘(star) rise in the east’ e.g. <i>tānup^w</i> ‘rising Southern Cross’, <i>tāni māl</i> ‘rising Vega’. Lewis refers to (uncorrected spelling) <i>daane</i> <i>elüüel</i> ‘rising Orion’s Belt, 90°’, <i>daane</i> <i>mailöb</i> ‘rising Altair, 83°’, and <i>daan uun</i> ‘rising Aldebaran, 75°’ (Lewis 1994:404)
Mic:	Carolinian	<i>tān</i>	‘rising (esp. heavenly bodies)’
Fij:	Bauan	<i>ḍake</i>	‘east; upwards’
Pn:	Tongan	<i>hake</i>	‘go up, esp. from the sea to the land’
		<i>ha-hake</i>	‘east’

5.4.2 Setting

The POc term usually contrasted with **sake* ‘to go up, upwards’ is **sipo* ‘go down, downwards’. Reflexes sometimes refer as well to the directional ‘west’ just as **sake* reflexes refer to ‘east’.

POc **sipo* ‘go down, downwards’ (see also p.271)

Adm:	Lou	<i>si</i>	‘down; descend’
NNG:	Kove	<i>rio</i>	‘descend, lie down, be swallowed’
		<i>sio</i>	‘down, westward along the coast’
PT:	Motu	<i>diho</i>	‘go down, descend’
MM:	Bali-Vitu	<i>(va)ðiyo(ni)</i>	‘downwards’
MM:	Nakanai	<i>sivo</i>	‘go down’
MM:	Tomoip	<i>tio</i>	‘(sun) set’
SES:	Lau	<i>sifo</i>	‘late afternoon rain’
SES:	’Are’are	<i>siho</i>	‘(sun) set’
Mic	Chuukese	<i>tup^wu</i>	‘setting (western) position of a heavenly body’
Mic:	Puluwatese	<i>tup^wu</i>	‘(sun) set’
Mic:	Carolinian	<i>tub^wu</i>	‘sink, go down, set (of sun, moon, stars)’.
		<i>tub^wul</i>	(N) ‘setting, setting position of stars etc.’
Mic:	Woleaian	<i>tuφu</i>	‘set, of heavenly bodies’ (e.g. <i>tuφuri-werexe</i> ‘Ursa Major setting’, <i>tuφuri-yaro</i> ‘setting sun’)
Fij:	Bauan	<i>ðivo-ðivo</i>	‘wind sweeping down from hills’
Pn:	Samoan	<i>ifo</i>	‘downwards’
Pn:	Tongan	<i>hifo</i>	‘downwards’
Pn:	Tikopia	<i>ifo</i>	‘down, come down, descend’
Pn:	Maori	<i>iho</i>	‘downwards’
Pn:	Hawaiian	<i>iho</i>	‘downwards’

In Chapter 3 (p.85) we reconstructed POc **solo* ‘sink down, subside’, with reflexes from the Solomons and Polynesia referring to landslides. In Puluwatese (Mic), a reflex of **solo* rather than **sipo* is used in combination with star names to refer to stars setting. Elbert’s dictionary lists *tolol* (N) ‘setting of stars’ and *tololɔ* (V) ‘disappear, set, as a star’, and offers, as an example of usage, *tolonup^w* ‘Southern Cross in setting position’. Lewis lists (his spelling) *doloni mariger* ‘Pleiades setting’ and *dolon uun* ‘Aldebaran setting’ (Finney 1976:24, Lewis 1978:166).

5.5 Zenith star

A zenith star is a star whose path is seen as lying directly overhead a particular island. It is thus a rough indicator of the latitude of that island. (It tells nothing of longitude, so is useful mainly in north–south voyages, such as from Hawaii to Tahiti.) For instance, Arcturus is the zenith star for Hawaii; Sirius marks Tahiti, Fiji and Vava’u in Tonga; while Rigel is the zenith star for Tikopia, Anuta and Vanikoro.

Lewis writes that ‘the determination by zenith stars of what amounts, in our terms, to latitude, has long been postulated as a Polynesian navigational method, but on largely

circumstantial evidence' (1978:33). He records his subsequent emotion when a Tikopian navigator, Ramfe, referred to 'stars on top' as opposed to guiding stars. Ramfe knew that there were different 'on top' stars for other islands, and that his grandfather had known them but that he himself had forgotten them. Lewis writes that this information was later repeated independently by other Tikopian navigators (p.33). The only other direct reference Lewis makes comes from Tonga, where a member of the hereditary navigator clan, the Tuitas, told Lewis that a *fanakeŋa* star, in secret Tuita usage, is 'a star that points down to an island, its overhead star' (1978:77).

Blust has reconstructed WMP **uRtuh* 'zenith; noon, mid-day' (ACD), i.e. with specific reference to the sun, but, although references to zenith stars are frequent in the literature on Oceanic navigation, I am unable to reconstruct any term for the concept as it applies to stars. There is less need for zenith stars in the northern hemisphere, because Polaris is always a convenient indicator of latitude. The Micronesian navigators whose methods were described by Lewis, Gladwin and others, evidently made no use of zenith stars.¹⁷

Kiribati has a term *taubuki ni karawa* for 'zenith', literally 'the ridgeline of heaven'. Note that *taubuki* is also the name for the zenith star Rigel. Other terms for zenith, Samoan *tumu-tumu* 'top; peak, height, zenith' and Maori *puanā* 'zenith (also refers to Rigel,¹⁸ in Orion's Belt)' are unrelated.

The Hawaiians have a term for zenith, *hoʻokuʻi*, which is literally 'point of juncture'. Pukui and Elbert's dictionary records an expression *mai ka hoʻokuʻi a ka hālāwai* 'from zenith to horizon', *halawai* meaning 'meeting' as well as 'horizon'. Both terms appear to relate to the concept of sky zones, a kind of grid reference of lines drawn across the sky.

5.6 Star compass

The fact that stars always rise and set at the same point on the horizon has in some places led to the use of star names as cardinal compass points. A surviving example of a sidereal compass comes from the Carolines, where Goodenough in 1953 recorded a compass with thirty two named star positions (Lewis 1994:102). The terms cannot be equated precisely with the cardinal points of a European compass; they are not placed at regular intervals but are bunched together at their eastern and western margins. The primary compass point and basis of the Carolinian navigational system is the position where Altair rises in the east, in our terms at 8°30' N. Many of the stars identified in this paper—Altair, Aldebaran, Pleiades, Orion's Belt, Corvus and Antares—are represented on the Carolinian compass by both their rising and setting positions. Polaris represents due north. No fewer than five southerly directions are indicated by the various positions of the

¹⁷ However, Tom Davis, Cook Islander and experienced western-style ocean yachtsman, has provided a plausible solution to a question which has long puzzled Lewis and others concerned to understand the skills of the early Pacific navigators. This relates to a report made in 1866 by a Spanish Captain Sanchez after interviewing an Elato (Carolines) navigator, which refers to the observation of star zenith by filling a cane with water, and similar references to a Polynesian sextant or sacred calabash (Lewis 1978:78). Davis proposes that an instrument of this kind, i.e. a coconut with holes drilled appropriately, can identify when the angle of a particular star above the horizon is of a predetermined size, not the 90° of a zenith star, but rather one of about 45°, this being known in advance as the declination of this star when over a particular destination. In other words, it signifies that one is on the same latitude as one's destination. Davis gives a fuller description of the instrument and its use in his autobiography (1992:70–73).

¹⁸ Rigel is not an overhead or zenith star for New Zealand, so one must assume that its dual meaning has been brought from a place where it was, i.e. about 12°S latitude, far north of New Zealand

Southern Cross, depending upon whether its axis is upright, lying at either diagonal or horizontally on either side (Lewis 1994:103–106). Alkire describes the siderial compass used by navigators on Woleai Atoll in the Carolines in almost identical terms. He gives the name *pāfīs* to the thirty two star points as they constitute the star path compass (1970:41).¹⁹ The Puluwatese term *pāfī* ‘the navigational stars in thirty two star positions’ is cognate.

6 Other navigational clues

6.1 Winds

Navigators, steering primarily by sun and star, also need to take into account variable factors such as winds and currents for which a steersman must compensate if he is to maintain his course. Pacific wind systems and associated terminology are described in detail in Chapter 5, where terms for seasonal winds and wind directions are reconstructed.

6.2 Wind compass

Terms for seasonal winds also come to be applied to that section of the compass from which the winds blow. Frequent reference is made in the literature to ‘wind compasses’. Parsonson writes (1962:41) that ‘like the Arabs, the Polynesians divided the horizon into a greater or lesser number of points, the Tahitians into 16 parts, the Cook Islanders 32, to each of which corresponded a wind’. Lewis has recorded wind compasses in both the Southern Cooks and Pukapuka, the Tokelaus and Tahiti, and refers to rather more nebulous reports from the Carolines. He also reports a six-point wind compass from the Lau group of Fiji (1994:112ff.). Feinberg writes (1988:92) that ‘Anutans have what might be described as a rudimentary wind compass in that they know the prevailing winds at various seasons and use the same term for the wind coming from a particular direction and the name of the geographical bearing itself. However, the number of points is not great.’ Feinberg in fact lists six: *tokerau* (NW) *ruatū* (NE), *toŋa* (E), *tuauru* (SE), *raki* (SW) and *pakatiu* (W). He reports that Firth gave a similar description for Tikopia wind points, although the latter are rotated roughly 40° clockwise from the Anutan ones. Wayan Fijian distinguishes six wind directions/compass points: *ḍeva* (S), *tokalau* (E), *tokalau ḍeva ḍeva* (SE), *vualiku* (N), *vua i ata* (also E), *vua i rā* (NW), and *vua i roro* (SW) (Andrew Pawley pers. comm.). Lewis mentions a rare Western Oceanic example, from the Vitiaz Strait between New Guinea and New Britain, where a five-point wind compass from Siassi has been recorded (Lewis 1994:118–119, quoting from Chappell).

There is general agreement that winds can equate with cardinal directions only in a very loose sense. Both Lewis and Gladwin reiterate that directions for the navigator need not be precise in the cartographer’s sense; they only must be good enough to enable him to get where he wants to go with some margin for error. Winds indicate approximate directions; star bearings are absolute.

¹⁹ *pāfīs* in the orthography used here.

6.3 The seascape

In the area of sea signs, my hunt for terms has been much less successful than with heavenly bodies. There are a number of terms—for the sea itself, and for current, drift, wave and reef—which are not restricted to navigation, and which have been reconstructed in Chapter 4. A small group of terms may be considered as particularly significant to navigation. These are discussed below.

6.3.1 Swell

Ocean swells are unbreaking waves which have their origin in regions of strong and persistent winds such as the tradewinds or the monsoons. They travel beyond the wind systems that generate them, and remain after the wind has died away (Lewis 1994:124). Although they vary with the seasons, and to some extent with local weather conditions, their behaviour tends to be long-term, and thus reasonably predictable for any particular journey. Typically, two, three or more swells will move across or through each other simultaneously, requiring a high degree of skill on the part of the navigator first to distinguish and then to compensate for when maintaining course. Any known sea route can be expected to have its own probable swell pattern, with individual swells likely to be given local names. Gladwin (1970:170) describes Puluwat as having three main swells, Big Wave, North Wave and South Wave. Lewis writes that in the Santa Cruz Group, (presumably Pileni), three swells are considered to be present all year round. They are *hoa-hua-loa*, the long swell from the southeast, *hoa-hua-dela-tai*, the sea swell from east northeast and *hoa-hua-dela-hu* from the northwest. Lewis suspects that these originate from the southeast trades, the northeast trades and the northwest monsoon respectively, and considers that this is a fairly general pattern in this segment of the Pacific. ‘Further eastward, but still south of the equator, we might expect the effects of the monsoon to be lost, and, once clear of the big Melanesian islands, for the Southern Ocean swell to sweep unhindered up from the south. This indeed is the pattern in the Gilberts and Tonga, with their “great swells” from the east and south.’ (Lewis 1994:128).

We have two POC reconstructions, **bayau*, which probably refers specifically to swells, and a second, **yalu(n)*, where there is some doubt as to whether the reference is to swells or to ocean waves of all kinds. (For cognate sets see Ch.4, §2.4.)

Heyen (1962:67) lists a further two Kiribati terms, *ao-meay* ‘the sea swell from the north’ and *ao-maiaki* ‘the sea swell from the south’. Feinberg (1988:114) lists terms from Tikopia—*ɲaru fenua*, and Anutan—*ɲaru penua*, which refer to swells which have been reflected back from a land mass, and thus serve as indicators that land is close.

6.3.2 Deep phosphorescence

This phenomenon is distinct from surface phosphorescence. It comprises streaks and flashes of light a metre or so below the surface, and is in constant motion.

Its flashes dart out from the directions in which islands lie, or else flicker to and fro in line with these bearings. It is best seen ‘in the middle sea, 80–100 miles out’, but it invariably indicates the direction of land. As you approach land, it becomes scanty and finally disappears by the time the island (if an atoll) is well in sight. (Lewis 1994:253)

It is particularly marked on dark rainy nights, when it becomes the main direction finder. Lewis has recorded names for it in Pileni in the Reef Islands, in Tonga, and also in Micronesia, although the names are unrelated. In Pileni the term is *lapa*, a reflex of **lap(w)a(r,R)* ‘lightning, phosphorescence’ (Ch.5, §5.4). In Tonga it is *ulo ?a e tahi*, literally ‘flame of the sea’. In Kiribati it is called *te mata*, here in its sense of light or something used to give light. The only other reference to it is a Marshallese term given by Lewis (1978:119) as *drojet*, which I cannot locate in the Marshallese dictionary although the second element *-jet* (*-cet*) is from **tasik* ‘sea water’ (Ch.4, §2.1).

6.3.3 *Reference islands*

Lewis’s books make frequent reference to *etak* islands, used as ‘moving’ reference points by Puluwat navigators. A voyage is conceived of as being divided into stages or segments with reference to a sequence of islands lying away to one side of the course. Each island is in turn conceptualised as moving while the canoe’s position is held to be fixed relative to that of a given star with which each island is aligned. *Etak* refers both to the concept of dividing up the voyage in this way, and to the stages themselves.

An *etak* is a variable distance ... [but] the *etak* island is generally so chosen as to make an *etak* segment somewhere around 20 miles. The first and last two *etaks* of a voyage are exceptions. These are the ‘*etak* of sighting’ and the ‘*etak* of birds’, and both are absolute distances of 10 miles. (Lewis 1978:147)

See also Gladwin (1970:181–186).

The only reference to *etak* as a concept is from the Carolines (*etak* in Puluwatese and Satawalese, *hatag* in Woleaian²⁰). However, Lewis believes that the navigator Tevake, from the Polynesian outlier Pileni, must have used a similar system. He writes:

His [Tevake’s] ability to point out the direction of invisible islands whenever he wished is presumptive evidence that he was thinking in terms of some form of home-centre reference system.

and again,

One cannot say whether or not Tevake’s orientation concepts resemble the Carolinian one of *etak*. One can, however, be certain to this extent about the picture that his mind composed of the changing relationships of islands 50 and 100 miles from his course. This was of a similar order of accuracy and enabled him to point out the direction of invisible islands, in the same manner as the *etak* system. (Lewis 1994:171)

I have not been able to trace the term elsewhere.

6.3.4 *Sea marks*

Lewis (1994:291) writes that:

The term ‘sea mark’ (*betia*) is a Gilbertese one, but the conception is not unique to that archipelago or to Micronesia. Carolinian navigators, for instance, learn sequences of what they call ‘sea-life’. These, much more frequently than their Gilbertese counterparts, are transitory phenomena such as sightings of certain fish, and the like. Some, however, like a whirlpool on Uranie Bank, have real and permanent existence.

²⁰ These forms are in Lewis’s (1978) orthography.

Lewis then includes a quote from Grimble:

There were certain traditional signs by which navigators judged their distance westward of the land. The safety limit to leeward (i.e. westward in the trade season) was called the Fish Wall of Kabaki. It consisted of a line of leaves and rubbish scattered over the sea from Makin to Samoa far to the westward of the land. This is probably quite true, the rubbish being carried by some current.

Betia is a reflex of a Proto Micronesian term **peti* (N,V) ‘float’. I have no record of any term for sea marks outside the Gilberts.

6.3.5 *Expansion of target*

Pacific navigators reduced their risk of missing a target island through various strategies designed to expand the target. As a general rule, low islands with trees are visible for a distance of about 10 miles. Bird sightings can at least double this range. Terns, noddies and boobies are all species that spend their days flying over off-shore fishing grounds. As night approaches they will drop low over the water and make a beeline for their land roosts. The reverse occurs at dawn. Terns and noddies will range up to 20–25 miles offshore, while the range of boobies is 30–35 miles (Lewis 1978:30). Other indicators of nearby land include the presence of off-shore reefs, a change in the patterning of swells as one nears land caused by their refraction at a different angle, change in water colour, and particular effects in the clustering and colour of clouds that gather over land. Although these indicators are put to practical use in various parts of the Pacific, we have insufficient linguistic data to draw any conclusions about origins of these concepts.

7 Navigation in Western Oceania and the Admiralties

7.1 Navigation in Western Oceania

There is little information on navigation among the people of the Western Oceanic region. One might expect such skills to have been most developed on small islands distant from a large landmass, where trade was essential to the community’s livelihood. Such islands would have included the western outliers of the Admiralties, and Nissan Island between New Ireland and Buka. However, navigational skills were not necessarily limited to such islands. Malinowski wrote in 1922 about the navigational skills of the Trobriand Islanders and the people of the Amphlett group, who were involved in the ‘Kula ring’, the ceremonial trading cycle which flourished until a few decades ago among the islands of the region off the tip of Papua:

Taking the bearing by sight, and helped by the uniformity of winds, the natives have no need of even the most elementary knowledge of navigation. Barring accidents they never have to direct their course by the stars. Of these, they know certain outstanding constellations, sufficient to indicate for them the direction, should they need it. They have names for the Pleiades, for Orion, for the Southern Cross, and they also recognize a few constellations of their own construction. (Malinowski 1922:225–226)

Malinowski also mentions a particular Trobriand village, Wawela, as the traditional centre of astronomical knowledge, but its function seems to be restricted to regulation of a calendar and the fixing of significant dates (p.68).

Lauer (1976:86) has provided some information on the Amphlett Islanders, whose home is a small group of high islands situated south of the Trobriands.

The Amphlett Islanders do not appear to have developed sophisticated techniques for orientation and navigation. For example, although Amphlett men commonly know many stars by name they do not attempt to use their knowledge of the stars to guide them when sailing at night. The relative lack of sophistication in the navigation techniques of the Amphlett Islands, as well as those of their neighbours in the northern Massim, can probably be explained by the character of the voyages made in the area. The voyages are all short [no more than 75 km]. Land, except during bad weather, is always visible. ... And the island targets are all large.

Lewis (1994:126, 134) interviewed two men in 1966 who had participated in the *hiri* trading voyages of the Motu people across the Gulf of Papua and reported using the deep ocean swells and star paths to guide their vessel. No terms were recorded.

Blackwood (1935:380–382) has given a description of voyaging undertaken by Buka people in the northwest Solomons.

The people of the North Bougainville coast are not great sailors, and seldom venture on trips more than a few miles from the shore. Those of Buka ... are more venturesome, and go, on occasion, as far as the island of Nissan, a trip involving little short of a hundred miles, mostly of open and sometimes stormy sea, to buy the pigs for which Nissan is famous.

These voyages are made in paddling, not sailing canoes. Voyages are made at night, and a star path is followed. Although Blackwood does not give this method of navigation by star path a particular name, it is obviously the same technique as that developed on such a broad scale in Polynesia and Micronesia.

7.2 Navigation in the Admiralties and St Matthias

I have not been able to locate any record of navigation techniques in this area apart from the brief description given by David Lewis on Ninigo, which lies 120 miles west of Manus and the same distance north of New Guinea. Although he sailed with the Islanders in their 50 foot canoes and referred to them as ‘true deep-sea navigators’, his description of their technique is brief, and he does not give local terms. He summarises:

It soon became apparent that it [Ninigo navigation] followed the general oceanic pattern. Steering was by stars rising or setting a little above the horizon; currents were known to vary with the monsoon and trade wind seasons and particular wave forms were regarded as being characteristic of different currents. There was also an unfamiliar high star technique, reminiscent of one sketchily reported from Samoa and the Tokelau Islands, which I was never able to fathom out. (Lewis 1978:93)

8 Conclusions

Reconstructions of navigation terms for Proto Oceanic, Proto Micronesian and Proto Polynesian are listed in Table 4.

From the table, it can be seen that **manuk* ‘bird’ and **tolu* ‘three’ for Orion’s Belt, are the only star reconstructions with reflexes in both Polynesian and Micronesian languages. Success in reconstructing non-western constellation names has been almost entirely limited

to Micronesia, with its descriptive names like PMic **kua* ‘Dolphin constellation’, PMic **tapia* ‘Bowl constellation’ and PChk **caw* ‘Dip net constellation’. This may simply reflect the adequacy of our sources, with more star terms being included in Micronesian dictionaries than Polynesian, perhaps because the terms have been retained more recently in Micronesian memory. Makemson, my most consistently useful source for Polynesian star names, lists a number of Polynesian constellation names by their English translation and with western equivalents where they exist. They are The Seven (Big Dipper), the Darts (Orion’s Belt), the Wild Duck (Crux), the White Sea-swallow (Cygnus), the Pigeon-roost, the Birdsnare (Orion) and the Canoe of Tamarereti (Tail of the Scorpion) (1941:197–198). However, I have been unable to reconstruct any of these as PPn constellation names on linguistic evidence, and there is no evidence that the same images are used in Micronesian terms.

Lewis (1994:353–354), more concerned with the practices of navigation and less so with its labels, has written:

Particular ideas or techniques were favored in different archipelagos in accordance with local geographical and social factors. However, so far as can be determined by haphazardly recorded items of information, and by what is still remembered, the methods used were surprisingly homogeneous. So much so that it would overstep the evidence if one were to speak of separate or typical Polynesian and Micronesian systems. Navigation seems to have been equally efficient in both areas, and the techniques were very often identical.

Table 4: Reconstructions of heavenly body and other navigation terms

Term	POc	PMic	PPn
sun	<i>*qaco</i> ‘sun, daytime’	<i>*alo</i> ‘sun’	<i>*qaso</i> ‘day as time span’ PNPn <i>*qaho</i> ‘daytime’
	<i>*raqani</i> ‘daytime’	<i>*rāni</i> ‘day’	...
	<i>*[dr,r]aqaa</i> ‘sun’s heat, light’		<i>*laqā</i> ‘sun’
	<i>*rarar</i> ‘be warm’	<i>*rar</i>	<i>*rara</i> ‘heat over fire’
	<i>*sinaR</i> ‘to shine, sun’	<i>*sina</i> ‘light, shine’	<i>*mā-sina</i> ‘moon’
moon	<i>*pulan</i>	...	<i>*pula</i> ‘to glow’
	<i>*(d)rama(R)</i> ‘light’	<i>*marama</i>	<i>*marama</i> ‘moon’ <i>*mā-rama</i> ‘light, bright’
star (generic)	<i>*pituqun</i>	<i>*fitū</i>	<i>*fetuqu</i>
Venus	<i>*ma-dala</i>	<i>*matal</i>	...
	...	<i>*fituu rāni</i>	<i>*fetuqu qaho</i> ‘day star’
Bird constellation	<i>*manuk</i>	<i>*ma(a)nu</i>	<i>*manu</i>
Sirius?	...	...	<i>*takulua</i>
star in Orion	...	...	<i>*tākelo</i>
Orion’s Belt	<i>*tolu-</i>	<i>*telu-</i>	<i>*tolu-</i>
Pleiades	<i>*bulu(q)</i>	...	...
	...	...	<i>*mataliki</i>
Southern Cross	? <i>*paRi</i>	...	...
	...	<i>*p^wup^wu</i>	...
Pointers	...	...	PNPn <i>*rua tajata</i>
Aldebaran	...	<i>*u(C)unu</i>	...
Polaris	...	PChk <i>*fitū m^wakut</i>	...
Altair	...	PChk <i>*mai-lapa</i>	...

continued over ...

Term	POc	PMic	PPn
Antares	...	*(d,z)umuri	...
	...	...	PNPn *mele-mele PCEPn *refua
Pegasus	...	*lakV	...
Dolphin constellation	...	*kua	...
Cassiopeia	...	PChk *ukulīk	...
Bowl constellation (Delphinus)	...	*tapia	...
Arcturus	...	*aremoi	...
Corvus constellation	...	PChk *tarop ^w olu	...
Leo constellation	...	PChk *ici	...
Vega	...	PChk *mul	...
Dip net constellation (Corona Borealis)	...	PChk *caw	...
stars in Ursa Major	...	PChk *wuleko	...
Equeleus constellation	...	PChk *tā(d,z)a	...
Magellanic Clouds	...	...	*maqafu
Milky Way	...	...	*kaniwa
sky	*lajit	*laji	*laji
	...	*kadawa ‘heavens’	...
horizon	...	PChk *pai-laji	*tafa-qaki-laji
star path (that which is steered for)	...	...	*kaweiija
star rise	*sake ‘to rise, upwards’	*sake	*hake ‘upwards’
star set	*sipo ‘to go down, downwards’	*tip ^w o	*hifo ‘downwards’
	...	*zolo ‘to descend, disappear (below horizon)’	...
ocean swell	*ŋalu(n) ‘wave, swell’	*ŋalu ‘wave, swell’	*ŋalu ‘wave’
wave, swell	*bayau ‘ocean swell, whether breaking or not’	*peau	...
lightning	*lap ^(w) a(r,R)	...	*lapa ‘flash of light’
open sea	*masawa(n,ŋ)	*masawa	*moana
sea, salt water	*tasik	*tasi	*tahi ‘shallow sea’
deep blue sea	*laman	...	...
current	*qaRus	*aus	*qau
reef	*sakaRu	*sakau ‘reef, shoal, reef island’	*hakau ‘coral reef’

In spite of our inability to reconstruct many terms at a level higher than PMic or PPn, there remains a fair degree of conformity among the Austronesian speakers of the Pacific in the way they describe their physical world of sea and sky. Among the stars and star groups, for instance, Venus is typically labelled as the ‘day star’ or in association with events of dawn or dusk; Alpha and Beta Centauri are ‘the two men’; Taurus is ‘tongs’; Polaris is ‘the star that does not move’. The horizon, predictably, is ‘base of sky’ or ‘edge of sea’. What is particularly striking about the data collected is the degree of apparent reinvention of terms for similar concepts. Many are transparent compounds, as if the concept is being described for the first time.

My guess as to why this should be so, is to relate it to the fact that these are island communities scattered over a vast area. Each has its own regularly trafficked sea routes, marked by star paths or star clusters possibly relevant only to that community. Each is its own physical world, with its own particular collection of weather patterns and physical features. The stars, for instance, are not only navigational aids. Together with the sun and moon they are a community's clock and calendar. But places separated by 30° latitude will have different seasonal cycles marked by the appearance of different stars. Significant events for a local community will be such things as the time for harvesting breadfruit, the time for particular fish to be plentiful, the time for fair-weather sailing and the time of storms. Local events motivate local names.

The terms which show fewest cognates are the most specialized navigational terms. The body of navigational knowledge held by a community was a precious commodity. In extreme cases, as in Tonga, such knowledge was closely guarded. There it was held by senior members of particular clans, and passed only to their descendants. Although all members of a community would be aware in a general way that star paths, swells and so on were aids to navigation, the actual terms used would in some places belong to secret usage. But even in less stratified communities, there would have been few skilled navigators at any one time. Arthur Grimble wrote that of the thirty thousand inhabitants of the Gilbert Islands in his time there (around the 1920s), fewer than twenty could speak with authority about the stars; and 'those who have the knowledge are often most unwilling to impart it, for of all the secrets treasured by the native, those connected with navigation are still perhaps the most jealously prized and guarded' (Grimble 1931:197). And, as has been well exemplified by Stephen Thomas (1987) in his book *The Last Navigator*, this knowledge could be lost within a generation or two.

So although we can recognize the same navigational techniques such as the use of star paths and swells in places as far apart as the Papuan Gulf, the Admiralties, the Solomons, Micronesia and Polynesia, and techniques involving a wind compass and deep luminescence in Micronesia and Polynesia, comparative linguistics provides no proof that these shared techniques evolved from a common knowledge base at the POc stage.

However, it seems that gains have been made in another, unexpected, direction. At least in the subgroups for which we have most data, that is, in the Southeast Solomonic, Polynesian and Micronesian, the data are unusual in that the terms for what we might describe as cosmic features—heavenly bodies, the horizon, the solstices and the like—are not arbitrary names. They are overwhelmingly descriptive terms, transparent compounds that (a) reflect some specific function or aspect of the feature, whether they be calendar or navigation stars, or (b) that underpin their role in creation mythology. The Oceanic Lexicon Project is organized on semantic principles partly in the belief that this will provide a basis for cultural reconstruction. In this sense, I believe that star names have offered us some rare clues as to the values and world view of Proto Oceanic speakers.

7 *Properties of inanimate objects*

MALCOLM ROSS

1 Introduction

The terms reconstructed in this chapter denoted properties of inanimate objects in POc. It is impossible to draw a clear line between the properties of inanimate objects and the properties of living beings as there are some properties, for example, ‘big’ and ‘small’, which were almost certainly used of both inanimate objects and animate beings. However, there are also many property expressions which were evidently used only of animate beings, and these are not considered here.¹

Oceanic languages make some distinctions between properties of inanimates and properties of animates that are not made in European languages, and vice versa. In most Oceanic languages there are distinct words for ‘old’ as applied to inanimate objects and ‘old’ as applied to human beings, and different temperature terms for the physical environment and for the human body. This appears to have been true in POc as well, where *[ma]tuqa ‘ripe, mature, adult, old’ was used of animates and POc *tuqaRi ‘long ago, old’ and *rapu-ka ‘old’ of inanimates.

Property words in European languages are typically adjectives. It is fairly certain, however, that POc did not have a separate adjective word class. Instead, it had a small subclass of nouns and a large subclass of verbs that were used to express properties (see vol. 1, pp.34–35). For convenience, I have named these adjectival nouns and adjectival verbs. The test of whether a noun or verb is adjectival is that it can occur without any additional morphology as the modifier of a noun. However, these subclasses have undergone various redistributions in different Oceanic languages, and this can sometimes make it difficult to determine whether a given reconstruction was a noun or a verb. Ross (1998a) gives a detailed study of the syntax of POc adjectival categories and of subsequent developments, and a second study (Ross 1998b) focuses on the fate of adjectival verbs and nouns in certain Western Oceanic languages.

¹ I am indebted to John Lynch for reading two drafts of a paper of which this chapter is a revised extract and for commenting in detail on South Vanuatu reflexes and for providing corrections and additional data. I am also grateful for comments by John Bowden, Bethwyn Evans, Françoise Ozanne-Rivierre and Andrew Pawley.

Languages in which there is no adjective class or in which there is a small class of adjectives or adjective-like words are fairly common among the world's languages, as Dixon (1977, 1982) has shown, and, if we count the small class of adjectival nouns as more adjective-like than adjectival verbs, then Dixon's generalisation extends to POc. Dixon divides properties into seven semantic categories: dimension, age, value, colour, physical property, human/animal propensity, and speed. In Oceanic languages, speed belongs with strength and toughness, a subcategory of physical property, and so I treat it thus (§5.3). Of Dixon's categories, I will here not discuss value ('good', 'bad'), human/animal propensity (e.g. 'kind', 'clever', 'happy', 'jealous', 'tame') or speed ('quick', 'slow'), as these are applied either entirely or generally to animate rather than to inanimate entities. The category of physical properties is a large one, and some of its subcategories will also be ignored here, for similar reasons.² This leaves the following semantic categories which include properties of inanimate objects:

1. dimension and distance: e.g. 'big', 'small', 'long', 'short', 'wide', 'narrow', 'near', 'far'
2. age: e.g. 'new', 'old'
3. colour: e.g. 'red', 'black', 'white', 'yellow'
4. physical property:
 - a. form: e.g. 'straight', 'flat', 'rough', 'smooth'
 - b. weight: 'heavy', 'light'
 - c. strength, toughness and speed: 'strong', 'weak', 'hard', 'soft'
 - d. content: 'full', 'empty'
 - e. temperature: e.g. 'hot', 'cold'
 - f. wetness and dryness: e.g. 'wet', 'dry'

This categorisation is somewhat *ad hoc*, but, other than colours, its terms situate the object they describe relative to 'a contextually determined standard of evaluation' (Croft 1990:260). These standards of evaluation are the basic human standards of dimension, age and so on. I add distance to Dixon's dimension category, as terms for 'near' and 'far' overlap with dimension terms in Oceanic languages.

Dixon assigns languages to one of three broad types with regard to the grammatical behaviour of their property terms. There are:

- A. languages like English, where there is a large open class of adjectives;
- B. languages like Samoan, where there is no distinct class of adjectives, but an open class of property terms which is a subclass of verbs;
- C. languages like Hausa, which have a closed, usually rather small, class of 'adjectives' and one or more open classes of property terms which are subclasses of nouns and/or verbs.

I have placed 'adjectives' in inverted commas in Type C because Dixon defines this class in terms of its meanings rather than in terms of its grammatical behaviour. In languages of Type A, there is an adjective class, i.e. a class of property terms whose grammatical behaviour is distinct from nouns or verbs. In languages of Type B, there is no such class. In languages of Type C, there is a closed class of property terms. Dixon does not discuss

² These include natural states, e.g. 'raw'/'unripe' (vol. 1, p.155), 'ripe' (vol. 1, p.157), 'rotten', and physical conditions of animate beings: (e.g. 'alive', 'dead', 'healthy', 'sick', 'hungry', 'thirsty').

their grammatical behaviour in depth, and one can envisage several subtypes of Type C, depending on (i) whether the members of the closed class are adjectives (i.e. behave differently from nouns and verbs) or form a subclass of nouns or verbs, and (ii) whether the one or more open classes are subclasses of nouns and/or verbs. He indicates, however, that the closed class is more likely to grammatically resemble nouns than verbs (1982:56). As I indicated above, POc was evidently a Type C language where the closed class was indeed a subclass of noun, the open class a subclass of verb.

One of Dixon's central findings is that in a Type C language, the members of the closed class usually belong to the semantic domains of dimension, age, colour and value. However, the converse is usually not true: not all property terms in these domains are adjectives. Instead, there are semantic oppositions where one pole is denoted by an adjective, the other by a verbal form. Often, the verbal form denotes the outcome of an event (e.g. *cooked*) whereas the adjective denotes the state prior to such an event (e.g. *raw*).

Basically, POc property terms conformed to these generalisations (Ross 1998a). The members of the adjectival noun class did indeed belong to the semantic domains of dimension, age, colour and value. However, they offer a small variation on Dixon's typology in that there were no underived adjectival nouns denoting colours. Instead, colour adjectival nouns were derived from other nouns (§4), a complication which apparently does not occur in any of the languages in Dixon's sample.

I have found twenty Oceanic languages which have a small property-term class for which a probably exhaustive list of underived members is available. The meanings represented in these small classes are listed below, together with the number of languages in whose small class each meaning is represented:

dimension		age		value		strength/toughness	
'big'	17	'new'	9	'good'	5	'hard, strong'	1
'small'	16	'old'	6	'bad'	4	'soft'	1
'long, tall'	6	'ripe'	1	'true, real'	2		
'short'	4			'beautiful'	1		
'thin'	1						
'far'	1						

Except for one language (Sye) in which terms denoting strength/toughness belong to the small class, these meanings all fall into the domains of dimension, age and value.

The small-class terms in the twenty languages for the three most frequent meanings, 'big', 'small' and 'new', are listed below:

	'big'	'small'	'new'
Maleu	<i>amviŋe</i>	<i>kapori-</i>	—
Mangap-Mbula	<i>biibi</i>	<i>musaana</i>	—
Gumawana	—	—	<i>vau</i>
Tawala	<i>banei-</i>	<i>habulu-</i>	<i>wou-</i>
Saliba (Suau)	<i>woiyawaudoi</i>	<i>gagili</i>	—
Bali-Vitu	<i>kapou</i>	<i>kakauku</i>	<i>vahoru</i>
Nakanai	<i>uru</i>	<i>bisi</i>	<i>halaba</i>
Tigak	<i>lavu</i>	—	—
Halia	<i>pani</i>	—	—
Teop	—	<i>rutaa</i>	—

Zabana	<i>leyaha</i>	<i>rekaha</i>	<i>foforu</i>
Longgu	<i>b^weina, vae</i>	<i>kiki</i>	—
Tamambo	<i>tawera</i>	<i>vorivori</i>	—
Paamese	<i>haitamene</i>	<i>havivii</i>	<i>haiitee-haau</i>
Lewo	—	—	<i>viu</i>
Sye	<i>oroŋ, nmah</i>	<i>viroy</i>	—
Tinrin	<i>ḍoro</i>	<i>huwuu[-ṇã]</i>	<i>hãṃã[-ṇã]</i>
Xârâcùù	<i>m^wĩĩ</i>	—	—
Mokilese	<i>soapoan, leklekin</i>	—	—
Bauan	<i>levu</i>	<i>lailai</i>	<i>vou</i>

Although the same meanings occur in the small class across a number of languages, only for one of these, ‘new’, reflecting POc **paqoRu* (p.209), are the majority of the items cognate with each other. This means that the other meanings listed above, including ‘big’ and ‘small’, have remained in the small class in most of these languages, but that lexical replacement has occurred.

The practical consequence of these observations is that, among underived property terms, only POc **paqoRu* ‘new’ can be assigned to the class of adjectival nouns on the basis of this list. However, there is morphological evidence, noted below, that POc **lapuat* ‘big’ (p.197), **qitik/*qitek* ‘small’ and POc **riki(t,q)/*ri-riki(t,q)* ‘small’ (p.200) were also adjectival nouns.

With other underived items, we encounter the problem noted in volume 1, p.35: it is often impossible to assign a POc reconstruction to the appropriate word class. But the situation is not all gloom in this regard. One indicator of the class of a property term is derivational morphology.

Two morphemes occurred with some frequency in the derivation of these words, and others more rarely. The suffix **-ka* derived adjectival nouns, whilst the prefix **ma-* occurred in adjectival verbs. There is an important difference in the statuses of these affixes in POc, however. POc **-ka* was apparently a productive suffix (Ross 2000; see below, for example **[tubu]tubu[-ka]* ‘thick’ (p.208); **rapu-ka* ‘old’ (p.211); **keja-ka* ‘green’ (p.217)). PMP **ma-* was a prefix that derived stative verbs, often from abstract nouns, and occurred as a fossil in a number of POc adjectival verb forms (Evans & Ross 2001),³ for example, POc **mataq* ‘raw’ (vol. 1, p.155), **maosak* ‘ready to be eaten’ (vol. 1, p.157), **maqasin* ‘be salty’ (vol. 1, p.159, this volume Ch. 3, §7.8, and several below). In a good many cases, forms with and without **ma-* are reconstructable in POc, with no obvious difference in meaning (e.g. **[ma]lago* ‘long, tall’ (p.204); **[ma]lawā* ‘long, tall, far away’ (p.204); **[ma]tuqa* ‘ripe, mature, adult, old’ (p.211)).⁴

More rarely occurring derivational morphemes are POc **ka-*, a fossilised alternant of **ma-*,⁵ (Huang 2000, Zeitoun & Huang 2000); **pa-* and **paka-*, the productive POc

³ The story of **ma-* in Evans and Ross (2001) is better founded than that in vol. 1, p.25.

⁴ This circumstance is discussed at length by Evans and Ross (2001).

⁵ At a very early period (PAN/PMP), **ka-* was a morpheme that derived statives, whilst **ma-* was the corresponding finite form (from **<um>* + **ka-*; with regard to **<um>* see vol. 1, p.29). Thus Huang (2000:378) shows that in Mayrinax Atayal (Formosan) statives that take *ma-* in their declarative affirmative form take **ka-* in their negative form. Zeitoun and Huang (2000) show that in Pazeh, *ma-*statives have *ka-* in the irrealis (p.402), the imperative (p.406), and in non-‘actor’ focus forms of statives, e.g. *ka-kelem-an* ‘be oversalted (of cooked food)’ vs *ma-kelem* ‘be salty’ (p.407).

causative prefixes (vol. 1, pp.26–27), which were also used to form adverbs; and POc **ta-*, which was productive and derived agentless statives from dynamic transitive verbs.

The remainder of this chapter is concerned with reconstructed forms for POc property terms. In all domains except colour, property terms tend to fall into antonym pairs, and are presented here in these pairs wherever appropriate.

2 Dimension and distance

2.1 ‘big’/‘small’

It was noted above that lexical replacement of terms for ‘big’ and ‘small’ is common, whilst ‘new’ has tended to remain constant since POc times. A moment’s reflection shows that this is also true in English, apparently because people tend to exaggerate size and to play word games with the terms for it. As well as *big* we find *large*, *great*, *huge*, *gigantic*, *enormous*, *immense*, *colossal*, *mammoth*, *massive*, *prodigious* and more recently *ginormous* and *humungous*. However, what seem to have been the basic POc terms are reconstructable. They are **lapuat* ‘big, large, important’, **qitik*, **qitek* ‘small’ and **riki(t,q)* ‘small’, and the circumstantial evidence presented above suggests that they were adjectival nouns. This inference is moderately supported in the case of **lapuat* by the presence of two reflexes of the reduplicated intensified form **lap(u)-lapuat* (Tigak *lap-lavu*, Marshallese *l^{uu}ap-l^{uu}ap*) and one of a reduplicated plural form **la-lapuat* (Marshallese *l^{uu}-l^{uu}ap*). Both reduplication strategies characterised adjectival nouns in POc (Ross 1998a).

Elsewhere I have reconstructed the term for ‘big’ as **lab^wat* (Ross 1998a:109), as the medial consonant in many of the forms below seems to reflect either **b* or **b^w*. The Loniū and SV forms offer apparent disambiguation in favour of **b^w*. Whilst **lab^wat* must have occurred in the history of many of the forms below, it is not reflected by the Roviana, Hoava, SES, Mota or Raga forms, where the medial consonant appears to reflect **p*. The form **lapuat* accounts for apparent reflexes of both **-b^w-* and **-p-*. The forms which appear to reflect **-p-* do just that. Moreover, Tigak *lavu*, West Kara *labu*, Raga *lavoa* and Bauan *levu* directly reflect medial **-pu-*.⁶ The forms which appear to reflect **-b^w-* also do just that, but this **-b^w-* reflects a later interstage: POc medial **-pua-* became first **-p^wa-*, then **-b^wa-*.

The sound changes in the paragraph above remain tentative, as there are few cases to compare this cognate set with. However, the least obvious step proposed above is that **-b^wa-* developed from **-p^wa-*, and there is reasonably good evidence for the step from **p^w* to **b^w* (vol. 1, p.16).

The Mapos Buang and Mumeng Patep forms may be non-cognate, as their final *-k* reflects POc **-R*, **-k* or **-q*.

POc **lapuat* ‘big, important’ (Lichtenberk 1986:350: **la(m)pat* ‘(be) big, great’)

Adm: Seimat	<i>la-lap</i>	‘big, important’
Adm: Loniū	<i>lap^wa(na-n)</i>	‘big, important’
Adm: Koro	<i>laba-n</i>	‘chieftain’
Adm: Mussau	<i>(kula)laba</i>	‘big, important’

⁶ For Tigak and W. Kara the interstages **-p^wu-*, then **-bu-* must be posited. For Bauan, where we find *levu* for expected ***lavua*, we must infer irregular raising of **-a-* to *-e-* and loss of later final **-a*.

NNG:	Manam	<i>laba</i>	‘big, wide’
		<i>labata-</i>	‘width’
NNG:	Terebu	<i>labi</i>	‘big, important’
NNG:	Kairiru	<i>(wo)lab</i>	‘big, important’
NNG:	Ulau-Suain	<i>laba</i>	‘big, important’
MM:	Lavongai	<i>lava</i>	‘big, important’
MM:	Tigak	<i>lavu</i>	‘big, important’
		<i>lap-lavu</i>	‘very big’
MM:	Kara (West)	<i>labu</i>	‘big, important’
MM:	Nalik	<i>laba</i>	‘big, important’
MM:	Roviana	<i>lavata</i>	‘great’
MM:	Hoava	<i>lavati</i>	‘be big’
SES:	Talise	<i>lava</i>	‘big, important’
SES:	Lau	<i>(a)lafa</i>	‘chieftain’
SES:	Arosi	<i>(a)laha</i>	‘chieftain’
SES:	Sa’a	<i>raha</i>	‘big, important’
NCV:	Mota	<i>lava</i>	‘big, important’
NCV:	Raga	<i>lavoa</i>	‘big, important’
NCV:	Lewo	<i>lapa</i>	‘fat’
NCV:	Nguna	<i>lapa</i>	‘big, important’
SV:	Lenakel	<i>ip^wər⁷</i>	‘big, important’
SV:	N Tanna	<i>emp^wət</i>	‘big, important’
SV:	Whitesands	<i>ep^wət</i>	‘big, important’
SV:	Anejom	<i>(a)lp^was</i>	‘big, important’
Mic:	Marshallese	<i>l^wap</i>	‘great, large’
		<i>l^w-l^wap</i>	‘great, large (PL)’
		<i>l^wap-l^wap</i>	‘very great, very large’
Mic:	Woleaian	<i>rap</i>	‘big, important’
Fij:	Bauan	<i>levu</i>	‘big, important’
cf. also:			
NNG:	Mapos Buang	<i>levk</i>	‘big, important’
NNG:	Patep	<i>levak</i>	‘big, important’

Inherited POc terms for ‘small’ were **qitik*, with a variant **qitek*, and **riki(t,q)*/**ri-riki(t,q)*. There is reasonable evidence in the cognate set below that POc **ri-riki(t,q)* was a plural form. Since reduplication of the kind reflected in POc **ri-riki(t,q)* was one of the ways in which POc plural adjectival nouns were marked (Ross 1998a), we can infer that POc **riki(t,q)* was singular. In a number of languages which reflect **ri-riki(t,q)*, however, there is a suppletive singular form (another indicator that this was an adjectival noun, not an adjectival verb; Ross 1998a).

In Proto Polynesian, **riki* (reflecting POc **riki(t,q)*) had become plural, contrasting with PPn **qiti* ‘small (SG)’ (from POc **qitik*), but there is no evidence that this had

⁷ John Lynch (pers. comm.) points out that the initial *i-* of Lenakel *ip^wər* is the regular reflex of POc **l-*, whilst the initial *e-* of N. Tanna *emp^wət* and Whitesands *ep^wət* reflects a sequence of accreted **a-* (cf. Anejom *a-* in *(a)lp^was*) and **-i-* reflecting POc **l-*.

occurred at an earlier interstage. This contrast is reflected in the following compounds, which reflect PPn **tama* ‘child’ (from POc **tama-* ‘father’):

PPn	<i>*tama-qiti</i> ‘child’	<i>*tama-riki</i> ‘chidren’
Tongan	(<i>tama-siʔi</i>) ⁸	<i>tama-iki</i>
E Uvean	(<i>tama-siʔi</i>)	<i>tama-liki</i>
Rennellese	<i>tama-ʔiti-ʔiti</i>	<i>tama-giki</i>
Hawaiian	<i>kama-iki</i> (rare)	<i>kama-liʔi</i>
Tahitian	<i>tama-iti</i>	<i>tama-riʔi</i>
Rarorongan	<i>tama-iti</i>	<i>tama-riki</i>
Maori	<i>tama-iti</i>	<i>tama-riki</i>

The reconstruction of PPn **riki* is complicated by the fact that Tongan has two forms: *iki*, reflecting **riki*, and *liki*, which occurs only in compounds. The latter may be a borrowing. On the other hand, it may reflect the separately reconstructable form POc **liki* (see below). If it does, then we are left with the possibility that some of the Polynesian forms here attributed to POc **riki(t,q)* instead reflect POc **liki*, as POc **r* and **l* have merged in all Polynesian languages other than Tongan and Niuean.

Also apparently reconstructable are **drik(i)*, **liki*, **siki* and **kiki*. Despite their similarity, there is no point in trying to derive these from each other. Rather, the human affection for small creatures, and prototypically for babies, has resulted in the same kind of word play among Oceanic speakers as we hear in English *tiny*, *teeny*, *teeny-weeny* and *wee*. If we ignore the criteria for reconstructing POc items and look for further candidates for word-play, we find for example *siʔi* ‘small, younger’ in Tongan, *sisi* in Futuna-Aniwa (Polynesian), and a long list in Puluwatese: *kitikit*, *iyekkit*, *kikkit*, *lekit*, *rik*, *rirrik*, *mettik*, *rarikrik*. It may well be, for example, that the items listed under **kiki* are not due to shared inheritance but to independent parallel word play. It also seems, despite the doubts that have been expressed about this kind of sound symbolism (Hinton, Nichols & Ohala 1994:4), that Oceanic speakers have a preference for the high front vowel in terms for ‘little’, a phenomenon which is common in other areas of the world too (Ultan 1978).

PMP **qitik* ‘small, little; few’ (Blust 1986; ACD)

POc **qitik*, **qitek* ‘small’

Yap:	Yapese	<i>ʔacīg</i>
NNG:	Gitua	<i>keteka</i>
NNG:	Gedaged	<i>kitik</i>
NNG:	Bukawa	<i>atiʔ</i>
NNG:	Zenag	<i>ktək</i>
MM:	Roviana	<i>ʔiteke</i>
MM:	Zabana	<i>te</i>
SES:	Kwara’ae	<i>tiʔ-tiʔ</i>
Mic:	Carolinian	<i>xit</i>
Pn:	Rapanui	<i>ʔiti-ʔiti</i>
Pn:	Samoan	<i>iti-iti</i>

⁸ Tongan and E. Uvean *-siʔi* would reflect apparent PPn **tiqi*, and are therefore perhaps metathesised reflexes of PPn **qiti*.

Pn:	Rennellese	<i>?iti-?iti</i>	‘be small, not much, nor many’
Pn:	Hawaiian	<i>iki</i>	
Pn:	Tahitian	<i>iti</i>	
Pn:	Tuamotuan	<i>iti</i>	
Pn:	Rarotongan	<i>iti</i>	
Pn:	Maori	<i>iti</i>	

PAn **diki[t,q]* ‘little, few, small in amount’ (ACD)

POc **riki(t,q)* ‘small’, **ri-riki(t,q)* ‘small (PL)’

MM:	Bali	<i>(ma)ri-(ma)riki</i>	‘small (PL)’ (cf. <i>kakauku</i> SG)
NCV:	Mota	<i>-rig</i>	‘small’
NCV:	Tamambo	<i>(wa)ri-riyi</i>	‘small (PL)’ (cf. <i>vorivori</i> SG)
NCV:	Raga	<i>-rigi</i>	‘small’
Fij:	Rotuman	<i>ri-ri?i</i>	‘small, young (PL)’ (cf. <i>me?a-me?a</i> SG)
Pn:	Tongan	<i>iki</i>	‘small’
		<i>i-iki</i>	‘small (non-singular)’
Pn:	Niuean	<i>iki-iki</i>	‘small’
Pn:	Tokelauan	<i>liki</i>	‘small-sized’
Pn:	Tuvalu	<i>liki</i>	‘small (of person or chicken)’
Pn:	Rennellese	<i>giki</i>	‘small’
Pn:	Tikopia	<i>riki</i>	‘small’
Pn:	Sikaiana	<i>liki-liki</i>	‘small’
		<i>li-liki</i>	‘small (PL)’
Pn:	Hawaiian	<i>li?i</i>	‘small’
Pn:	Tahitian	<i>ri?i</i>	‘small (PL)’ (cf. <i>iti</i> SG)
Pn:	Rarotongan	<i>riki</i>	‘small’
Pn:	Maori	<i>riki</i>	‘small’
		<i>ri-riki</i>	‘small (PL)’
Pn:	Tuamotuan	<i>riki</i>	‘small’
Pn:	Futuna-Aniwa	<i>rik-riki</i>	‘small (PL)’ (cf. <i>sisi</i> SG)

POc **drik(i(t,q))* ‘small’

NNG:	Amara	<i>di-dik</i>	‘small’
Mic:	Kosraean	<i>ʃik</i>	‘small’
Mic:	Carolinian	<i>-six</i>	‘small, little, weak (in compounds only)’
Mic:	Marshallese	<i>rik</i>	‘lowly, small’
		<i>r-rik</i>	‘lowly, small (PL)’
		<i>rik-rik</i>	‘very lowly, very small’
Mic:	Puluwatese	<i>rik</i>	‘be small (usually as a qualifier)’
		<i>rirrik</i>	‘small’

POc **liki* ‘small’ (perhaps only in compounds)

NNG:	Arove	<i>(tu)lik-lik</i>	‘small’
MM:	Lavongai	<i>lik</i>	‘small’
MM:	Tigak	<i>(lak)lik</i>	‘small’
MM:	Lihir	<i>(ia)lik</i>	‘small’

MM:	Madak	(kaka)lik	‘small’
MM:	Tolai	(iki)lik	‘small’
MM:	Minigir	(siki)liki	‘small’
MM:	Label	(si-sik)lik	‘small’
		(kak)lik	‘boy’
Pn:	Tongan	-liki	‘small (in compounds only)’
Pn:	Samoan	liʔi	‘scattered in small fragments’
Pn:	Ifira-Mele	-riki	‘small’
Pn:	Takuu	-riki	diminutive

POc *kiki ‘small’

MM:	Torau	kiki-(na)
SES:	Gela	kiki
SES:	Talise	ki-kiki
SES:	Longgu	kiki
NCV:	Axamb	kiki
NCV:	Port Sandwich	kekei

PWOC *siki ‘small’

NNG:	Adzera	(i)siʔ
NNG:	Manam	siʔi-siʔi
MM:	Minigir	siki(liki)
MM:	Label	si-sik(lik)
MM:	Babatana	(va)siki

There is good evidence that POc had at least two lexicalised possessee-like attribute constructions, whereby ‘mother of an X’ meant ‘big X’, and ‘child of an X’ meant ‘small X’. A number of Oceanic languages in all three primary subgroups use reflexes of ‘mother of’ and ‘child of’ as the usual adjectives meaning ‘big’ and ‘small’, or perhaps ‘biggest’ and ‘smallest’, respectively.

POc *tina-ña ‘her/his mother; big, biggest’

Adm:	Bipi	tinan	‘big’
Adm:	Nyindrou	tinan	‘large, big’
NNG:	Tami	tina-tin	‘very big, monstrous’
NNG:	Malai	tina	‘big’
NNG:	Takia	tinan	‘huge’
MM:	Label	tna	‘big’
NCV:	Fortsenal	tina-na	‘mother, huge, large’

POc *natu-ña ‘her/his child; small, smallest’

Adm:	Drehet	neči	‘child; small, little’
NNG:	Dami	nālu	‘small, little’
MM:	Patpatar	nat	‘small’
MM:	Tolai	nat	‘small’
NCV:	Lewo	nari-	‘child, smallest’

These attributes turn up in odd lexicalised expressions, for example, Motu (PT) *sina-vai* ‘river’ (literally ‘mother of waters’ (Ch. 3, §6.1)); Gedaged *boi tinan* ‘Morning Star’ (literally ‘mother of stars’ (Ch. 6, §5.2.1)).

The reconstructable POc possessive construction was probably as follows:⁹

**a tina-ña Rumaq*
 ART mother-P:3S house
 ‘a/the big house’ (more literally: ‘a/the mother of house(s)’)

This seems to have remained a live metaphor for a long time (and is perhaps still alive in some Oceanic languages). Evidence for this is that where the reflex of **tina-* or **natu-* has been replaced in a language, this construction often shares in the lexical replacement. Thus in Lewo (Early 1994a), the term for ‘little’/‘child’ still reflects **natu-ña*, but the term for ‘very big’/‘mother’ has undergone lexical replacement:

Lewo (NCV):

- a. *nari-n sisi*
 offspring-*n* child
 ‘a little kid’ (more literally ‘the offspring of children’)
- b. *ane-n laji*
 mother-*n* wind
 ‘an immensely powerful hurricane’ (more literally ‘the mother of winds’)

Similarly in Tinrin (New Caledonia) *huwuu[ñã]* is both ‘small’ and ‘child of, sprout of’.

Matisoff (1992) has examined ‘mother of’ and ‘child of’ constructions which serve as augmentatives and diminutives in a range of Asian languages. Interestingly, whilst he reports a number of cases where ‘mother of’ and ‘child of’ are lexicalised in collocations where they mean something like ‘the most important’ and ‘a component/member of’, in none of these cases do ‘mother of’ and ‘child of’ seem to have been lexicalised as independent lexemes meaning ‘large’ and ‘small’.

2.2 Other dimensions

English (and other European languages) have several antonym pairs denoting dimensions. *Tall* refers to the longitudinal dimension of a vertically oriented object, *long* to the longitudinal dimension of a horizontally oriented object. *Short* is the antonym of both *tall* and *long*. *Wide* and *narrow* refer to the transverse dimension of a flat object, *thick* and *thin* to the transverse dimension of an object which is not flat. *Far* and *near(by)* refer to distances, not to objects.

POc evidently made no horizontal/vertical distinction, so that **b^(w)arapu*, **[ma]lago* and **[ma]lawa* were used for ‘tall’ and ‘long’, and the two latter items evidently also for ‘far’ (§2.2.1). There are fewer reflexes of **tuku* and **botoŋ* ‘short’, so it is harder to know just how they were used (§2.2.2).

On the surface there appear to have been no POc etyma with the basic meanings ‘wide’ and ‘narrow’. However, it is just possible that **[ma]lawa* simply denoted a large dimension, regardless of whether it was longitudinal (‘long’) or transverse (‘wide’). The

⁹ This differs from the possessive-like attribute constructions reconstructed by Ross (1998b). There, the possessor is non-specific; here the possessor is apparently specific.

evidence for this is indirect. POc **[ma]lawa* ‘long, tall’ continues PMP **lawa*, glossed ‘wide’, but a number of non-Oceanic reflexes also mean long: Malagasy *lava*, Manggarai *lewe*, Ngadha *leva*, and Palue *lawa* all mean ‘long’. Fordata *lawa* is glossed ‘length’ (ACD). It therefore seems likely that PMP **lawa* also meant ‘long’, and possible that POc **[ma]lawa* meant both ‘wide’ and ‘long’.

In a number of daughter languages reflexes of POc **ta-pola(s)* ‘spread out (as of a mat)’ (derivationally related to **polas-i-* ‘spread (s.t.) out (VT)’; see p.208) are by extension used to mean ‘wide’ (§2.2.4). In some Western Oceanic languages a reflex of **baban* ‘flat; board, plank, canoe strake; flat shelf of rock’ is used for ‘wide’, but this is by extension from ‘flat’. Fijian *raba* ‘wide, broad’ reflects POc **raba(r)*, the basic meaning of which was also ‘flat, level’. Terms for ‘flat’ are covered in §5.1. No POc term for ‘narrow’ is reconstructable. Most modern languages use the terms for ‘big’ and ‘small’ with reference to the width of a path or a beach, and I infer that the same was true of POc.

POc terms for ‘thick’ were POc **ma-tolu*, **kuba* and **[tubu-]tubu(-ka)*, for ‘thin’ **manipis* and **ma-tipi(s)* (§2.2.5).

2.2.1 ‘tall’, ‘long’

Of the three terms for ‘tall’ and ‘long’, **b^(w)arapu* is underived and its Tamambo, Cèmuhî, and Bauan reflexes belong to the small closed adjectival class in their respective languages, so it is possible that **b^(w)arapu* belonged to the small class of adjectival nouns.

The other two terms, **[ma]lago* and **[ma]lawa*, clearly are derived. The final **-a* of **[ma]lawa* is reconstructed on the basis of the non-Oceanic evidence. A number of Western Oceanic languages (Lou, Titan, Nyindrou, Bing, Takia, Kayupulau, Gumawana, Torau) appear to reflect a final **-e*. We can posit two possible sources of this, although neither reflects a regular process. The first is that in many Western Oceanic languages, an adjective takes a reflex of the third person possessor suffix **-ña* either by default or when it agrees with a singular head noun. The palatal nasal **-ñ-* may have caused the **-a-* of **[ma]lawa-ña* to be raised to **-e-* in **[ma]lawe-ña*. This is a reasonable interpretation of the Lou, Titan, Takia, Gumawana and Torau reflexes. Alternatively, in many Western Oceanic languages of the NNG and PT linkages, there is a locative postposition *-i* or *-ai* (relecting the POc locative proform **iai*), and forms like Sio *malawa-e* and Bing *malwe-i* suggest that some instances of *-e* may reflect final **-a-i* resulting from its capture.

POc **b^(w)arapu* ‘long, tall’

PT:	Kiriwina	<i>-vanau</i>	‘long’
MM:	Kara (East)	<i>vaiaf</i>	‘long’
MM:	Nalik	<i>baraf</i>	‘long’
MM:	Siar	<i>ba-baraf</i>	‘long’
MM:	Nehan	<i>barah</i>	‘long’
MM:	Maringe	<i>brahu</i>	‘long’
SES:	Bauro	<i>borahu</i>	‘long’
NCV:	NE Ambae	<i>g^waravu</i>	‘long’
NCV:	Tamambo	<i>baravu</i>	‘long’
SV:	Anejom	<i>(o)pra</i>	‘long’
NCal:	Cèmuhî	<i>pîlêhê-</i>	‘tall, big, enormous; size’
Fij:	Bauan	<i>balavu</i>	‘long, tall’ (<i>l</i> for expected <i>*r</i>)

PMP *[*ma*]lɔŋkaw ‘high, tall’¹⁰ (ACD: *lɔŋkaw)

POc *[*ma*]lago ‘long, tall’

NNG:	Amara	<i>melak</i>	‘far away’
NNG:	Arove	<i>malak</i>	‘long, far away’
NNG:	Kaulong	(<i>no</i>) <i>malak</i>	‘long’
MM:	Meramera	<i>lago</i>	‘long’

PMP *lawa ‘wide’ (ACD)

POc *[*ma*]lawa ‘(?) long, tall, far away; wide’

Adm:	Lou	<i>ɛlɛwɛ-n</i>	‘long, tall’
Adm:	Titan	<i>aláwe-n</i>	‘long, tall’
Adm:	Nyindrou	<i>lawe</i>	‘long, tall’
NNG:	Gitua	<i>malawa</i>	‘long; far away’
NNG:	Malai	<i>malau</i>	‘long; far away’
NNG:	Mangap	<i>molo</i>	‘long, tall’
NNG:	Sio	<i>malawa</i>	‘a long time’
		<i>malawa(e)</i>	‘a long way’
NNG:	Bebeli	<i>lo-loi</i>	‘long’
NNG:	Bing	<i>malwe(i)</i>	‘long’
NNG:	Takia	<i>milae-n</i>	‘long’
NNG:	Kairiru	<i>milawo-ŋ</i>	‘long’
SJ:	Kayupulau	<i>marawe</i>	‘long’
PT:	Gumawana	<i>manawe-</i>	‘long’
PT:	Mekeo	<i>maeva</i>	‘long’
MM:	Nakanai	<i>malau</i>	‘long’
MM:	Nalik	<i>laua-lau</i>	‘far away’
MM:	Tolai	<i>lo-lovi</i>	‘long’
MM:	Petats	<i>ra-ro-n</i>	‘long’
MM:	Torau	<i>marae-la</i>	‘long’
SES:	Kwaio	<i>la-lau</i>	‘far’
SV:	Ura	<i>lau(pe)</i>	‘long, tall’
SV:	Anejom	<i>lau, laulau</i>	‘long (of time)’
Pn:	Niuean	<i>loa</i>	‘long, tall’
Pn:	Samoaan	<i>loa</i>	‘be old, ancient; be a long time’
Pn:	Maori	<i>loa</i>	‘long, tall’

2.2.2 ‘short’

Two terms for ‘short’ are reconstructed. All the supporting data for **tuku* are from Western Oceanic languages except for Mussau *tuku*. In the unlikely event that the latter were a borrowing, **tuku* would then be of Proto Western Oceanic, rather than of POc, vintage.

¹⁰ A PMP form with **ma-* is reflected by Palawan *mɔlɔŋkɔw*, Molbog *mɔlɔŋkow*, and Uma *mɔlɔŋko*, all ‘tall’ (data from Tryon, ed. 1995).

POc **tuku* 'short'

Adm:	Mussau	<i>tuku</i>	'short'
NNG:	Mutu	<i>tuku</i>	'short'
NNG:	Bilibil	<i>tu-tuk</i>	'short'
NNG:	Manam	<i>-tuku(ra)</i>	'short'
MM:	Label	<i>tuk</i>	'short'
MM:	Babatana	<i>tuko</i>	'short'

POc **botoŋ* 'short'

MM:	Bali	<i>botoŋo</i>	'short'
MM:	Meramera	<i>boto</i>	'short'
MM:	Tigak	<i>poto</i>	'short'
SES:	Arosi	<i>p^wa-p^watu</i>	'short'
Fij:	Wayan	<i>boto</i>	(postposed particle) 'restrictive, only, just'
Fij:	Rotuman	<i>pofo</i>	'tiny; lump, small projection'
Pn:	Mele-Fila	<i>pō-poto</i>	'short'
Pn:	Rapanui	<i>poto-poto</i>	'short'
Pn:	Maori	<i>poto</i>	'short'

2.2.3 'far'/'near'

There is a tendency to replace terms denoting 'far' and 'near' with something more specific, so that instead of generic 'far' we get 'beyond the horizon' or 'a long path'. Indeed, from the vantage point of a smaller island, 'far away' inevitably entails 'beyond the horizon'. The hypothesis that 'far away' was sometimes replaced by 'a long path' receives some support from the fact that reflexes of POc **[ma]lago* 'long, tall' and POc **[ma]lawā* 'long, tall' (p.204) are sometimes used in the sense of 'far away'.

A POc verbal root **sauq* (V) 'be far away' is reconstructable.

PMP **Zauq* 'far away' (Dempwolff 1938)POc **sauq* (V) 'be far away', **sau-sauq* (ADV) 'far away'

PT:	Tawala	<i>dau</i>	(V) 'be far'
		<i>dau-dau-na</i>	(ADJ) 'far, long'
PT:	Motu	<i>dau-dau</i>	(ADV) 'far away'
MM:	Bali	<i>zauku</i>	'far away'
MM:	Vitu	<i>ḏau</i>	'far away'
MM:	Roviana	<i>seu</i>	'far'
MM:	Hoava	<i>seo</i>	'far'
SES:	Gela	<i>hau</i>	'far'
SES:	Bugotu	<i>hau</i>	'far'
SES:	Talise	<i>sau-na</i>	'far'
SES:	Birao	<i>sau</i>	'far'
SES:	Longgu	<i>tau</i>	(V) 'be far'

SES:	Kwaio	<i>tau</i>	‘far’
SES:	Sa’a	<i>tau</i>	‘far off, distant’
NCV:	Raga	<i>hau(tu)</i>	(ADV) ‘far’
NCV:	Paamese	<i>sau(tin)</i>	(ADV) ‘far’
SV:	N Tanna	<i>(i)sou</i>	(ADV) ‘far’
Mic:	Kiribati	<i>rā-roa</i>	(ADV) ‘far’
Mic:	Ponapean	<i>tō</i>	(ADJ) ‘distant, far off’
Mic:	Mokilese	<i>tō</i>	‘far’
Mic:	Chuukese	<i>tōw</i>	‘far’
Mic:	Carolinian	<i>tāw</i>	‘far’
Mic:	Woleaian	<i>ttāw</i>	(ADV) ‘far’
Fij:	Rotuman	<i>sou-sou</i>	(ADV) ‘far’

PMP **ma-Zauq* ‘far away’ (Blust 1981)

POc **ma-sauq* (V) ‘be far away’

Adm:	Mussau	<i>masau</i>	‘far away’

PWOC **ka-sauq* (V) ‘be far away’

NNG:	Takia	<i>asau</i>	(ADV, ADJ) ‘far away’
NNG:	Manam	<i>kasau</i>	(ADJ) ‘far away’
		<i>kasau(ba)</i>	(ADV) ‘far away’
MM:	Babatana	<i>kōu</i>	‘far’
MM:	Sisiqa	<i>kəu</i>	‘far’
MM:	Nduke	<i>(ɣa)sau</i>	‘far’

In Ysabel (MM) languages, POc **sauq* is reflected with the reciprocal prefix **paRi-*, as in Kia (*vari*)*hau* ‘far’ and Laghu (*vari*)*hau* ‘far’. I take it that the sense was formerly ‘far from each other’. In Southeast Solomonian languages it occurs with reflexes of the POc causative **pa-* or **paka-*, also used to form adverbs, and I assume this is the function of the prefix here:

SES:	W Guad.	<i>(va)sau</i>	‘far’
SES:	Sa’a	<i>(haʔa)tau</i>	‘far’
SES:	Arosi	<i>(haʔa)tau</i>	‘far’
SES:	Bauro	<i>(haya)tau</i>	‘far’

The POc antonym of **sauq* ‘be far away’ was the root **raŋi* ‘be near’. However, **raŋi* is not reflected without verb-deriving prefixes and is thus not reconstructable alone in POc. Most commonly it is reflected with **ga-*, a prefix that I do not recognise: it may be a variant of **ka-*, which also occurs with **raŋi*.

POc **raŋi* appears to be descended from PMP **dani*. The replacement of **-n-* by **-ŋ-* evidently occurred earlier than POc, as we find Buru (Central Malayo-Polynesian) *b-raŋi-n* (ADV) ‘near’.

PMP **dani*, **Sa-dani*, **ma-dani* ‘be near’¹¹

PCEMP **daŋi* ‘be near’

POc **garaŋi* ‘be near’

NNG:	Takia	<i>giriŋe-n</i>	‘close, near by’
NNG:	Dami	<i>garan</i>	‘to, near’
SES:	Lau	<i>garaŋi</i>	(ADV) ‘near’
SES:	Kwaio	<i>galani, galaŋi</i>	(ADV) ‘near’
		<i>galani-a, galaŋi-a</i>	(V) ‘be near’
SES:	Arosi	<i>garaŋi</i>	‘near’
SES:	Fagani	<i>karaŋi</i>	‘near’

POc **karaŋi* ‘be near’

Adm:	Mussau	<i>kala-kalangi-na</i>	(ADV) ‘near’
NNG:	Mangap	<i>kolouŋa-na</i>	(ADV) ‘near’
NNG:	Poeng	<i>ko-koroŋo</i>	(ADV) ‘near’
SES:	Gela	<i>ɣaraŋi</i>	‘near’
SES:	Bugotu	<i>ɣarani</i>	‘near’
SES:	Talise	<i>ɣaraŋi</i>	‘near’

POc **pa-raŋi*, **paka-raŋi* ‘be near’

SES:	W Guad.	<i>va-raŋi</i>	‘near’
SES:	Bauro	<i>haya-raŋi</i>	‘near’
SES:	Kahua	<i>haya-raŋi</i>	‘near’

There was also a POc term **tata* ‘near’, perhaps an adverb:

POc **tata* (ADV) ‘near’

MM:	Lungga	<i>tata</i>	‘near’
MM:	Nduke	<i>tata</i>	‘near’
MM:	Roviana	<i>tata</i>	(ADV) ‘near’
MM:	Hoava	<i>tata</i>	‘near’
Pn:	Tongan	<i>tata</i>	‘be near’
Pn:	Tahitian	<i>fa-tata</i>	(ADV) ‘near’
Pn:	Maori	<i>tata</i>	‘be near, close’

2.2.4 ‘wide, spread out’

PMP **belaj* ‘spread out to dry’ (ACD)

POc (?) **ta-pola(s)* ‘spread out (as of a mat); wide’

NNG:	Poeng	<i>(sasa)pola</i>	‘wide’
SES:	Bugotu	<i>tavođa</i>	‘wide’

¹¹ Supporting evidence for PMP **dani* is Kagayanan Manobo *dani* (ADV) ‘near’, Dobel *ren* (ADV) ‘near’. Evidence for **Sa-dani* is Isneg (N. Cordilleran) *adanni* (ADV) ‘near’, Limos Kalinga (C. Cordilleran) *adani* (ADV) ‘near’, N. Samareño, Samar-Leyte, Waray (Bisayan) *ha-ráni*, Masbateño, Sorsogon, Gubat (Danaw) *ha-rani*. Evidence for **ma-dani* is Maranao, Iranun (Danaw) *ma-rani*, Ata, Dibabwon, Tigwa (Manobo) *ma-dani*, Ilianen *mī-rani*.

SES:	Lau	<i>afola</i>	‘wide’
SES:	Arosi	<i>ahora</i>	‘wide’
NCV:	Raga	<i>tavola</i>	‘flat, wide, smooth’
Pn:	Tongan	<i>tafola</i>	(VI) ‘be spread out, scattered about’

This term is related derivationally to POc **polas*, **polas-i-* ‘spread (s.t.) out’, reflected in (NCV) Tamambo *vuolasi* ‘spread (mat)’, Paamese *hoosi* ‘lay out (mat)’ and in (Pn) Tongan and Samoan *folā* ‘spread’ and Tongarevan *ho-hora* ‘spread out; wide open’. It is probable that *-pola* in Poeng *sasapola* is derived independently from a reflex of POc **polas*. If so, then **ta-pola(s)* is reconstructable only in PEOc.

2.2.5 ‘thick’/‘thin’

Three forms can be reconstructed for ‘thick’. The third, **[tubu]tubu[-ka]*, is derived from **tubuq* ‘grow’.

PCEMP **telu* ‘thick’

POc **ma-tolu* ‘thick’ (Clark 1996)

NNG:	Manam	<i>matoli</i>
NNG:	Sio	<i>mata-tola</i>
MM:	Nakanai	<i>bitolu</i>
SES:	W Guad.	<i>matolu</i>
NCV:	Mota	<i>matol-tol</i>
NCV:	Paamese	<i>mate-tel</i>
NCV:	Nguna	<i>matolu</i>
SV:	Anejom	<i>(a)mesej</i>
Mic:	Marshallese	<i>micel</i>
Mic:	Ponapean	<i>mosul</i>
Fij:	Rotuman	<i>mafolu</i>
Pn:	Tongan	<i>matolu</i>

PMP **[ma-]kumba* ‘thick (in dimension)’¹²

POc **kuba* ‘thick (in dimension)’

Fij:	Nadrogaa	<i>kuba</i>
SV:	Kwamera	<i>-kum-kum</i>

POc **[tubu]tubu[-ka]* ‘thick (in dimension)’

MM:	Tolai	<i>tubu</i>
SES:	Lau	<i>ūbu-ūbu-a</i>
SES:	Kwaio	<i>ubu-ubu</i>
SES:	Arosi	<i>ub-ubu-ʔa</i>

¹² The reconstruction of PMP **[ma-]kumba* ‘thick’ is supported by the Oceanic data listed here and by Da’a *na-kumba*, Uma *mo-kumpa*, Buginese *ma-umpəʔ*.

Two formally related terms are reconstructable for ‘thin’: **ma-tipi(s)* and **manipis*. Although at first sight they look like forms derived with PMP **ma-* and **maN-* respectively, **manipis* has cognates in Taiwan, reflecting PAN **maLipis*. The prefix **maN-* in any case dates only from PMP, and so cannot be reflected in **manipis*. Instead, the two forms evidently reflect the same PAN monosyllabic root **-pis* ‘thin, tenuous, fine’ (Blust 1988; see vol. 1, pp.27–28) and presumably differed in meaning by some subtlety which is not clear from their reflexes.

PMP **tipis* ‘thin’¹³

POc **ma-tipi(s)* ‘thin’

SES:	Talise	<i>matipi</i>	‘thin’
SES:	Birao	<i>matipi</i>	‘thin’

PAN **[ma]Lipis* ‘thin’¹⁴

POc **manipis* ‘thin’

NNG:	Malai	<i>manipi</i>	‘thin’
NNG:	Manam	<i>manipi</i>	‘thin’
MM:	Roviana	<i>manivisi</i>	‘thin’
MM:	Maringe	<i>manivi</i>	‘thin’
SES:	Bugotu	<i>manivi</i>	‘thin’
SES:	Arosi	<i>manihi</i>	‘thin’
NCV:	NE Ambae	<i>manivi-nivi</i>	‘be/become shallow, low tide, thin’
NCV:	Raga	<i>manev-nevi</i>	‘thin’
NCV:	Paamese	<i>mahini-hin</i>	‘thin’ (metathesis)
Mic:	Kiribati	<i>mmani</i>	‘thin’
Mic:	Ponapean	<i>menipi-nip</i>	‘thin’
Fij:	Rotuman	<i>mahini</i>	‘thin’ (metathesis)
Pn:	Tongan	<i>manifi</i>	‘thin’
		<i>manifi-nifi</i>	‘comparatively thin’
Pn:	Samoa	<i>manifi</i>	‘thin’
		<i>mānifi-nifi</i>	‘thin’

3 Age

Two POc terms for ‘new’ can be reconstructed: the adjectival noun **paqoRu*, which was also applied to animate beings in the sense of ‘young’ (Pawley 1982), and **ka(l,r)ab^wa*, which has fewer reflexes, but as these occur in both MM and NCV languages, it must be reconstructed as POc. Meso-Melanesian reflexes of the latter reflect **-l-*, North and Central Vanuatu reflexes reflect **-r-*.

¹³ The reconstruction of PMP **tipis* ‘thin’ is supported by the Oceanic data listed here and by Indonesian, Javanese and Balinese *tipis* ‘thin’.

¹⁴ Tsuchida (1976:139) reconstructs PAN **Nix₁epis*, in the orthography of Ross (1992) **Lihepis*. However, the only reflex of **-h-* occurs in Saisiat (Taiwan) *lih-lihpih-an*, which may be the result of modifying **-li-* to rhyme with **-pih*. Accordingly I reconstruct PAN **Lipis*, PMP **nipis*.

PAn **baqeRuh* ‘new’ (ACD)POc **paqoRu* ‘new; young, recent’PNGOc **paqu*, **paqoRu* ‘new, young’

Adm:	Mussau	<i>ou</i>	‘new’
Adm:	Lou	<i>pa-pa-peu-n</i>	‘new’
Adm:	Nyindrou	<i>haʔun</i>	‘new’
NNG:	Bariai	<i>pau</i>	‘new’
NNG:	Mutu	<i>pagu</i>	‘new’
NNG:	Gitua	<i>pagu</i>	‘new’
NNG:	Lukep	<i>pau-nu</i>	‘new’
NNG:	Mangap	<i>po-po-ʔana</i>	‘new’
NNG:	Kilenge	<i>pau-a</i>	‘new’
NNG:	Poeng	<i>pau</i>	‘new’
NNG:	Takia	<i>fau-n</i>	‘new’
NNG:	Numbami	<i>wou</i>	‘new’
NNG:	Yabem	<i>wakuʔ</i>	‘new’
NNG:	Manam	<i>wau-wau</i>	‘new’
SJ:	Sobei	<i>fe-fou</i>	‘new’
PT:	Tawala	<i>wou-na</i>	‘new’
PT:	Misima	<i>va-valu-na</i>	‘new’
PT:	Kiriwina	<i>-vau</i> ¹⁵	‘new’
MM:	Bali	<i>vayoru</i>	‘new’
MM:	Nalik	<i>fakur</i>	‘new’
MM:	Tabar	<i>vouru</i>	‘new’
MM:	Teop	<i>von</i>	‘new’
MM:	Mono	<i>haolu-na</i>	‘new’
MM:	Zabana	<i>fo-foru</i>	‘new’
SES:	Gela	<i>vaolu</i>	‘new; young, fresh, beautiful, in one’s prime; renew’
SES:	Arosi	<i>haoru</i>	‘new, recent, youthful, vigorous’
NCV:	Paamese	<i>hāu</i>	‘new’
NCV:	Nguna	<i>vau</i>	‘new’
SV:	Sye	<i>(it)vau</i>	‘new, clean’
SV:	Ura	<i>vau</i>	‘new’
SV:	Lenakel	<i>vi</i>	‘new’
Mic:	Woleaian	<i>fe</i>	‘new, cleaned’
Fij:	Bauan	<i>vou</i>	‘new; newly, recently’
Pn:	Tongan	<i>foʔou</i>	‘new, fresh; strange, unfamiliar’
Pn:	Samoa	<i>fou</i>	‘new; fresh’

¹⁵ This form is always suffixed to a classifier.

POc **ka(l,r)ab^wa* ‘new’

MM:	Bulu	<i>kalaba(ka)</i>	‘new’
MM:	Nakanai	<i>halaba</i> ¹⁶	‘new’
MM:	Tolai	<i>kalama</i>	‘new’
NCV:	Tamambo	<i>haramba</i>	‘new’
NCV:	Mota	<i>garag^wa</i>	‘new’
NCV:	Raga	<i>gara</i>	‘new’ (unexpected loss of final syllable)
NCV:	Tolomako	<i>garavu</i>	‘new’
NCV:	Nduindui	<i>kara^gg^wa</i>	‘new’

The antonym of **paqoRu* ‘new, young’ was evidently **[ma]tuqa* ‘ripe, mature, adult, old’. A difficulty in reconstructing this term is its formal and semantic similarity to POc **matuqu* ‘coconut growth stage: ripe, brown but has not fallen yet’ (Ross 1996c). It is sometimes quite difficult to determine which of the two reconstructions a reflex like, for example, Sursurunga *matuk* ‘ripe, well-developed, ready to harvest’ should be assigned to, and I suspect that reflexes of the two items have been conflated in some languages.

It is hard to avoid the conclusion that **tuqaRi* ‘(be) long ago, take a long time, old (of inanimates)’ is historically related to **[ma]tuqa*. If, as seems likely, Proto Buang **tk^wi* ‘old’ (Patep *tk^we*, Kapin *tak^wi*) reflects **tuqaRi*, then it provides evidence for the putative **-q-*. However, I do not know where final **-Ri* comes from. There are signs that **[ma]tuqa* and **tuqaRi* may occasionally have been conflated: a putative **ma-tuqaRi* seems to be reflected in Gapapaiwa *maturi* and Tubetube *matuli* where **[ma]tuqa* is expected, and in Tabar *ma-cari* where **tuqaRi* is expected.

Whereas **[ma]tuqa* probably referred mainly to animates and to the vegetable world, **rapu-ka* (with adjectival-noun suffix **-ka* added to an unidentified root **rapu*) apparently modified nouns referring to lifeless objects.

PAn **CuqaS* ‘mature, elder’ (ACD)POc **[ma]tuqa* ‘ripe, mature, adult, old’

Adm:	Lou	<i>matak</i>	‘old person’
NNG:	Poeng	<i>matua</i>	‘ripe’
PT:	Dobu	<i>matua</i>	‘ripe’
PT:	Gapapaiwa	<i>maturi</i>	‘half-ripe’
PT:	Tubetube	<i>matuli</i>	‘ripe’
PT:	Misima	<i>matua</i>	‘ripe’
MM:	Patpatar	<i>matuko</i>	‘ripe’
SES:	Arosi	<i>maua</i>	‘ripe’
NCV:	Mota	<i>matua</i>	‘full-grown, ripe’
NCV:	Raga	<i>metua</i>	‘full-grown, mature’
NCV:	Paamese	<i>matū</i>	‘(s.o.) old’
NCV:	Nguna	<i>matua</i>	‘old, ancient, mature, ripe, big’
SV:	Lenakel	<i>matak</i>	‘ready to be eaten: ripe, cooked’
SV:	Anejom	<i>metou</i>	‘(fruit) ripe, mature, ready to pick’
Fij:	Wayan	<i>mātua</i>	‘mature, full-grown, adult, ripe’
Fij:	Rotuman	<i>mafua</i>	‘old’

¹⁶ Nakanai *h* reflects POc **q*, not **k*.

Pn:	Tongan	<i>motuʔa</i>	‘old’
Pn:	Samoan	<i>matua</i>	‘old (person)’

POc **tuqaRi* ‘(be) long ago, take a long time, old (of inanimates)’

NNG:	Ali	<i>care-ŋ</i>	‘old’
MM:	Tabar	<i>(ma)cari</i>	‘old’
MM:	Sursurunga	<i>torai-n</i>	‘old’ (metathesised)
MM:	Patpatar	<i>tuare</i>	‘old’
MM:	Ramoaina	<i>turāi</i>	‘old’ (metathesised)
MM:	Siar	<i>turai</i>	‘old’ (metathesised)
MM:	Uruava	<i>tuari</i>	‘old’
MM:	Mono	<i>tuali-na</i>	‘old’
MM:	Ririo	<i>cuer</i>	‘old (thing)’
SES:	Bugotu	<i>tuali</i>	‘(thing) old’
SES:	Lau	<i>kwali</i>	‘be old, worn out (house, net, etc.); descendant’ ¹⁷
SES:	Arosi	<i>wari</i>	‘old, chiefly of living things; old man’
NCV:	Mota	<i>tuai</i>	‘of long duration, old’
NCV:	Tamambo	<i>tuai</i>	‘of old’
NCV:	Neve’ei	<i>tuyoi</i>	‘a long time ago’
		<i>duyoi</i>	‘old (inanimates)’
NCV:	Naman	<i>toye</i>	‘a long time ago’
NCV:	Nguna	<i>tuai</i>	‘long ago, (thing) old’
SV:	Sye	<i>(e)twai</i>	‘recently’
		<i>(it-e)twai</i>	‘long time ago’
SV:	Kwamera	<i>tui</i>	‘old, previous, of the past, long ago’
SV:	Anejom	<i>(i)tuwu</i>	‘long ago’
Fij:	Wayan	<i>tuei</i>	‘take a long time, be slow, tardy, late’
Pn:	Tongan	<i>tuai</i>	‘be late, be late, take a long time’
Pn:	Samoan	<i>tuai</i>	‘be late, be delayed, take a long time’

POc **rapu-ka* ‘old (of inanimates)’

MM:	Bulu	<i>rapu-rapu-ka</i>
SES:	’Are’Are	<i>rahu-ʔa</i>
SES:	Sa’a	<i>lahu-ʔa</i>

4 Colour

Most reconstructable POc colour terms fall into two formal groups, adjectival verbs reflecting earlier **ma-* + ROOT and adjectival nouns with either a reduplicated root, ROOT + **-ka*, or both (see p.196).

PMP terms were of the form **ma-* + ROOT. Blust (ACD) concludes that PMP had a classic three-term colour system, i.e. terms for black, white and red. Other terms were derived from terms for natural objects or, in the case of ‘green’, unripeness (see vol. 1,

¹⁷ Blust (ACD) attributes these reflexes to **waRi* ‘past (of time)’, but the current attribution is better supported by the set as a whole.

p.155). The same comments evidently applied to POc. The three PMP terms were **ma-qitem* ‘black, dark in colour’, **ma-iRaq* ‘red’, and **ma-putiq* ‘white, light in colour’. The first two are continued in POc **maqeto(m)* and POc **meRaq*. Until recently, I thought that **ma-putiq* had been lost in POc and replaced by a plethora of terms, but two reflexes have been found.

PMP **[ma]qitem* ‘black, deep blue’ (ACD)

PCMP **ma-qitom*, **ma-qetom* ‘black; dirty’

POc **maqeto(m)* ‘black’

MM:	Nalik	<i>makit</i>	‘black’
MM:	Tabar	<i>maketo</i>	‘black’
SES:	Gela	<i>meto</i>	‘dirty’
SES:	Arosi	<i>maeo</i>	‘full grown, ripe, black’
NCV:	Mota	<i>maeto</i>	‘black’
NCV:	NE Ambae	<i>maeto</i>	‘be black, blacken’
NCV:	Raga	<i>meto</i>	‘black’
NCV:	Paamese	<i>(na)meto</i>	‘k.o. black fish’
NCV:	Nguna	<i>maeto</i>	‘angry’

PMP **ma-iRaq* ‘red’ (Blust 1980b)

POc **meRaq* ‘red’

NNG:	Kaulong	<i>mhe</i>	‘red’
NNG:	Kairiru	<i>mera-mer</i>	‘red’
MM:	Nalik	<i>me-mek</i>	‘red’
MM:	Siar	<i>me-merek</i>	‘red’
SES:	Bugotu	<i>mela-</i>	‘red’
SES:	Longgu	<i>mela-mela(ʔa)</i>	‘red’
SES:	ʼAreʼAre	<i>me-mera(ʔa)</i>	‘red’
NCV:	Mota	<i>me-mea</i>	‘red’
NCV:	NE Ambae	<i>memea</i>	‘be red, redden’
NCal:	Xârâcùù	<i>mĩã</i>	‘red’
Pn:	Tongan	<i>mea</i>	‘reddish’
Pn:	Rapanui	<i>mea-mea</i>	‘red’
		<i>mea</i>	‘light red, pink’

PMP **ma-putiq* ‘white, light in colour’ (ACD)

POc **maputi(q)* ‘white’

SES:	Arosi	<i>mahui</i>	‘white’
NCV:	NE Ambae	<i>mavute</i>	‘to be white, whiten’

One colour term of the form **ma-* + ROOT has no known non-Oceanic cognates. In the southeast Solomons and Micronesia we find **marawa* ‘green’ competing with **[ma]karawa*, indicating that both are derived from a base **rawa* of unknown meaning.

POc **[ma]karawa* ‘green, blue’

PT:	Suau	<i>ʔala-ʔalawa</i>	‘green’
MM:	Tigak	<i>makago</i>	‘green’

MM:	Nalik	<i>marakaua</i>	‘green’ (metathesised)
MM:	Sursurunga	<i>məkrau</i>	‘green’
MM:	Maringe	<i>ka-kahra</i>	‘green, light blue’
Mic:	Woleaian	<i>xāzawe-zaw</i>	‘green’
Fij:	Rotuman	<i>čarava</i>	‘blue’
Fij:	Bauan	<i>kara-karawa</i>	‘blue; k.o. blue-green fish’
Fij:	Wayan	<i>karawa</i>	(V) ‘be blue, blue-green, green’
		<i>kara-karawa</i>	(V, ADJ) ‘blue, blue-green, green’

PEOc **marawa* ‘green, blue’

SES:	Talise	<i>marao</i>	‘green, blue’
SES:	Longgu	<i>m^warawa</i>	‘green, blue’
SES:	Kwaio	<i>malak^wa</i>	‘green’
SES:	Arosi	<i>marawā</i>	‘green, blue (if bright)’
Mic:	Kiribati	<i>māwawa</i>	‘green, blue’
Mic:	Marshallese	<i>maṛ^{uu}ṛ^{uu}ṵ</i>	‘green’

Blust (2001) observes that colour terms with a reduplicated root are common in Oceanic languages. Generally, but not always, the initial CVCV- is copied. He infers that this reduplication reflects the unmarking of an earlier use of reduplication to express intensity. Whatever its origin, however, in many Oceanic languages reduplication is a derivational process whereby a colour term is derived from a noun, and in some it appears to be a productive process.¹⁸ Blust’s examples are drawn from twenty-four languages. Among them we find the following:

Mussau (Adm):¹⁹

<i>bo-boŋi-e-na</i>	‘black’	<i>bo</i>	‘night’
<i>rae-rae-a-na</i>	‘red’	<i>rae</i>	‘blood’
<i>usou-usou-e-na</i>	‘white’		(no unreduplicated root)
<i>vero-veroŋ-a-na</i>	‘black’		(no unreduplicated root)
<i>riu-riu-e-na</i>	‘thin (of animates)’	<i>riu</i>	‘bone’

Kairiru (NNG):

<i>jir-jir</i>	‘black, dirty, old’	<i>jir</i>	‘mangrove swamp’
<i>kiet-kiet</i>	‘black’	<i>kiet</i>	‘black paint’
<i>pun-pun</i>	‘white’	<i>pun</i>	‘pigeon’
<i>mera-mer</i>	‘red’	<i>mer</i>	‘red paint’
<i>yaŋ-yaŋ</i>	‘yellow’	<i>yaŋ</i>	‘yellow paint, white or yellow skinned people’

¹⁸ Lichtenberk (1983:611) was offered the apparent nonce form *taʔe-taʔe*, from *taʔe* ‘faeces’ in Manam, when he asked an informant to identify a particular shade of brown.

¹⁹ I have corrected Blust’s Mussau data on the basis of materials provided by John Brownie of the Summer Institute of Linguistics.

Manam (NNG):

<i>ziŋ-ziŋ</i>	‘black’	<i>ziŋ</i>	‘black ashes’
<i>jim-jim</i>	‘black’	<i>jim</i>	‘rain, cloud; black, dark deep (sea)’
<i>wa-wawa</i>	‘white’	<i>wawa</i>	‘discoloured (light) patch of skin’
<i>dara-dara</i>	‘red’	<i>dara</i>	‘blood’
<i>ʔate-ʔateʔa</i>	‘brown’	<i>ʔateʔa</i>	‘ground’

Mota (NCV):

<i>me-mea</i>	‘red’	<i>mea</i>	‘red pigment’, <i>mea-mea</i> ‘k.o. red fish’
<i>sor-soroga</i>	‘dark red’	<i>soroga</i>	‘red, colour of <i>pes nai</i> when ripe’
<i>aŋo-aŋo</i>	‘yellow’	<i>aŋo</i>	‘turmeric; yellow’

From these examples we see that the colour term is often derived from a noun whose referent has that colour as a salient characteristic. We also see that in closely related Kairiru and Manam (Ross 1988:122–132) different derivations have occurred, indicating that the process remains productive, or has done so until recently. This observation leads to a reconstructive problem: we often find cognate reduplicated forms in a number of different languages, and it is sometimes hard to determine whether the reduplication had already occurred in POc or whether the reduplicated forms result from independent parallel derivations. We can arrange cases on a rough cline. At one extreme is POc *[*yaŋo*]*yaŋo* ‘yellow’, whose reflexes occur so consistently across Oceania that it seems over-cautious not to reconstruct it. The base form was POc **yaŋo* ‘turmeric, *Curcuma longa*’ (Ross 1996c:216).

POc *[*yaŋo*]*yaŋo* ‘yellow’

Adm:	Seimat	<i>aŋo-aŋ</i>	‘yellow’
Adm:	Kele	<i>aŋw-an</i>	‘yellow’
NNG:	Kove	<i>yaŋo-yaŋo</i>	‘yellow’
NNG:	Mutu	<i>yaŋo-ŋa</i>	‘yellow’
NNG:	Lukep	<i>yoŋo-no</i>	‘yellow’
NNG:	Amara	<i>aŋo-ʔaiŋo</i>	‘yellow’
NNG:	Poeng	<i>ŋ-aŋo</i>	‘yellow’
NNG:	Gedaged	<i>yaŋ-yaŋ</i>	‘yellow’
NNG:	Numbami	<i>(me)yaŋo</i>	‘yellow’
NNG:	Yabem	<i>yaŋ-yaŋ</i>	‘yellow’
NNG:	Mapos Buang	<i>saŋ-saŋ</i>	‘yellow’
NNG:	Manam	<i>zaŋ-zaŋ</i>	‘yellow’
MM:	Vitu	<i>yaŋo-yaŋo</i>	‘yellow’
MM:	Nakanai	<i>iala-lo</i>	‘yellow’
MM:	Kara (West)	<i>iaŋ</i>	‘yellow’ (East Kara <i>ioŋ</i> ‘turmeric’)
MM:	Taiof	<i>aŋo-m</i>	‘yellow’
SES:	Gela	<i>aŋo-aŋo</i>	‘yellow’
SES:	Talise	<i>aŋo</i>	‘yellow’
NCV:	Mota	<i>aŋo-aŋo</i>	‘yellow’ (<i>aŋo</i> ‘turmeric’)
NCV:	Raga	<i>aŋo-ya</i>	‘yellow, become yellow’
SV:	Sye	<i>(mel)yeŋ</i>	‘yellow’

SV:	Ura	(<i>mel</i>) <i>yeŋ</i> , (<i>un</i>) <i>iaŋ</i>	‘yellow’
SV:	Anejom	<i>yaŋ</i>	‘yellow’
Mic:	Ponapean	<i>ɔŋɔŋ</i>	‘yellow’ (<i>ɔŋ</i> ‘turmeric’)
Mic:	Woleaian	<i>yaŋo-yaŋ</i>	‘yellow’ (<i>yaŋ</i> ‘ginger’)
Fij:	Wayan	<i>aŋo-aŋo</i>	(V, ADJ) ‘(be) yellow’
Pn:	Tongan	<i>eŋa-eŋa</i>	‘yellow’ (<i>eŋa</i> ‘turmeric’)

Nearer the other extreme are reduplicated reflexes of POc **draRaq* ‘blood’ (e.g. Mussau *rae-rae-ana* ‘red’ and Manam *dara-dara* ‘red’ above). Here, reflexes have a much spottier distribution, closely related languages often have different forms for ‘red’, and other terms for ‘blood’ are also reduplicated to form terms for ‘red’. These facts suggest that the reduplicated forms reflect independent parallel development and that there is not sufficient evidence for a POc reconstruction ***draRa-draRaq* ‘red’.

In this connection, it is worth noting that a number of reflexes of POc **meRaq* ‘red’ and **karawa* ‘green, blue’, reconstructed above, also display reduplication. Since there were originally morphologically complex forms (**ma-iRaq* and **ka-rawa*), and **meRaq*, at least, was originally an adjectival verb, these reduplications can be attributed to analogy. That is, reduplication has moved in a number of languages from being a process which derives colour terms from nouns to being simply a marker of a colour term. This suggests that we should be very cautious about reconstructing POc reduplicated colour terms.

Despite the need for caution, the fact that Blust finds reduplicated colour terms scattered across Oceania suggests quite strongly that this derivational process was already present in POc. It is true, as Blust notes, that the unreduplicated root often does not occur in the data. This may be because it has been lost or simply because its meaning is such that it has not been recorded in available sources (‘black’ is far more likely to be recorded, for example, than the term ‘mangrove morass’ from which it is derived in a number of languages).

What is much less clear is the relationship of this POc reduplication to derivations with **-ka*. Forms with a reduplicated root, ROOT + **-ka*, or both, tend to cooccur in cognate sets. Note Longgu *mela-mela(ʔa)* and ‘Are’Are *me-mera(ʔa)* ‘red’ and Raga *aŋo-ya* ‘yellow’ above. Reflexes of **-ka* also crop up in Blust’s collection of reduplicated colour terms in Mussau and Vitu and in To’aba’ita (SES). Since these three languages belong to different primary subgroups of Oceanic (St Matthias, Western Oceanic and Eastern Oceanic respectively), it is possible that reduplicated colour terms with **-ka* also occurred in POc. If so, however, we still have to account for reduplicated forms without **-ka* (like those listed under **[yaŋo]yaŋo* ‘yellow’ above) and for unreduplicated forms with **-ka*. The simplest solution is to reconstruct two POc processes: (i) ROOT + **-ka* forming adjectival nouns and (ii) CVCV- reduplication forming colour terms and perhaps some other property terms.²⁰ Whether the words formed by process (ii) were verbs or nouns is uncertain. In some languages, and particularly for colour terms, the two processes combined, forming adjectival nouns.

²⁰ Blust’s 24-language survey suggests that property terms other than colour terms are only rarely reduplicated. This corroborates the research underlying Ross (1998a), where the only languages with a strong tendency to reduplicate property terms are those in Western Oceanic which have innovated a distinct adjective class.

In the light of this discussion, I reconstruct two pairs of POc colour terms, **keja-ka*, **[keja]keja* ‘green’ and **biRiŋ-(k)a*, **[biRi]biRiŋ* ‘dark hue, dirty’, but I cannot be sure that both members of each pair actually occurred in POc. The Tamambo reflex of the root **keja* refers to a kind of blue-green fish, and this may have been its POc meaning. POc **biRiŋ* perhaps meant ‘dirt’.

POc **keja-ka*, **[keja]keja* ‘green’

NNG:	Mangap	<i>kes-keeze(ŋa-)</i>	‘green’
NNG:	Sio	<i>kenza</i>	‘green’
NNG:	Apalik	<i>-kes-kes</i>	‘green’
NNG:	Bebeli	<i>ke-kese</i>	‘green’
NNG:	Mindiri	<i>kiede</i>	‘green’
NNG:	Bilibil	<i>yed-yed</i>	‘green’
MM:	Nakanai	<i>ka-kesa</i>	‘green’
NCV:	Mota	<i>gesa-gesa(ga)</i>	‘bright blue, or bright green’
NCV:	Raga	<i>geha(ga)</i>	‘blue-green’
NCV:	Tamambo	<i>ŋenja(ŋa)</i>	‘blue-green’ (<i>ŋenja</i> ‘k.o. blue-green fish’)
NCV:	Nguna	<i>kesa-kesa</i>	‘blue’
Pn:	Tikopia	<i>kesa</i>	‘green, yellow-green, with suggestion of off-colour; greyish-green’

PMP **biRiŋ* ‘dark hue, dark red (?)’ (ACD)

POc **biRiŋ-(k)a*, **[biRi]biRiŋ* ‘dark hue, dirty’

NNG:	Kove	<i>vihi-vihiŋa</i>	‘green’
NNG:	Aria	<i>-vir</i>	‘green’
MM:	Tiang	<i>biliŋə</i>	‘dirty’
MM:	Madak	<i>biliŋa</i>	‘dirty’
MM:	Patpatar	<i>biliŋe</i>	‘dirty’
SES:	Gela	<i>bili-bilia</i>	‘dirty’
SES:	Kwaio	<i>bili-bili?a</i>	‘dirty’

There is one other reduplicated colour term which may be reconstructable, POc **[pula]pula-n* ‘white’, probably derived from **pulan* ‘moon’. However, the dangers of reconstructing reduplicated colour terms in POc apply here too, and these terms may be independent innovations.

PMP **bulan* ‘white’ (Blust 1989)

POc **[pula]pula-n* ‘white’

NNG:	Sissano	<i>owul-wul</i>	‘white’
NNG:	Psohoh	<i>vul-vul</i>	‘white’
Fij:	Bauan	<i>vula-vula</i>	‘white’
NCal:	Nemi	<i>pulo</i>	‘white’

5 Physical property

5.1 Shape and surface texture

Terms denoting the shape and surface texture of an object include the meanings such as ‘flat’, ‘round’, ‘rough’, ‘smooth’, ‘straight’ and ‘crooked’. However, it seems that there were few POc lexemes with basic meanings in this domain. No word for ‘round’ is reconstructable. The main term for ‘flat’ was probably POc **baban* ‘flat; board, plank; canoe strake; flat shelf of rock’, and we can be reasonably confident that it was a noun denoting a flat surface or flat plank-like object (vol. 1, pp.58, 185).

POc **baban* ‘flat; board, plank; canoe strake; flat shelf of rock’

NNG:	Mutu	<i>babaga</i>	‘wide’
NNG:	Mangap	<i>baba(ŋa-n)</i>	‘wide, broad’
NNG:	Gedaged	<i>baba(ŋa-n)</i>	‘wide’
NNG:	Manam	<i>baba</i>	‘flat; palm of the hand’
PT:	Motu	<i>papa</i>	‘flat rock’
MM:	Teop	<i>babana(o)</i>	‘wide’
SES:	Kwaio	<i>baba</i>	‘flat’
SES:	Lau	<i>baba</i>	‘flat; long side board of canoe’
Pn:	Tongan	<i>papa</i>	‘flat hard sandstone forming a layer or bed at the coast in certain places; flat and smooth and hard, as a well-trodden track; board’
Pn:	Samoa	<i>papa</i>	‘rock; floor mat; plain, level, flat, as a rock, board, nose, etc.’

The term **raba(r)* may have denoted the property ‘flat’, but there are too few Oceanic reflexes to be certain. Indeed, if the Tongan reflex is regularly descended from a POc forebear, then the latter had initial **l-*, not **r-*. This suggests that the Polynesian terms may not reflect POc **raba(r)*.

PMP **da(m)paD* ‘flat, level’ (ACD)

POc **raba(r)* ‘flat, wide, broad’

Fij:	Bauan	<i>raba</i>	(N) ‘breadth, width’, (ADJ) ‘broad, wide’
Fij:	Nadrogaa	<i>raba</i>	‘wide, broad’

cf. also:

Pn:	Tongan	<i>lafa-lafa</i>	‘flat’
Pn:	Samoa	<i>lafa-lafa</i>	‘flat; the level top of a mountain’

No term for ‘rough’ is reconstructable, but ‘smooth’, also with the sense ‘slippery’ was POc **madralsi(s,t)*.

PAn **ma-dalis* ‘smooth, slippery’ (ACD)

PAn **[ma]dalit* ‘smooth, slippery’ (Blust 1986)

POc **madralsi(s,t)* ‘smooth, slippery’

MM:	Siar	<i>ma-madal</i>	‘smooth’
SES:	Gela	<i>madali</i>	‘slippery’
SES:	Arosi	<i>madari</i>	‘wet and slippery, as rocks’

One shape concept for which POc evidently had terms was ‘straight, level’. Reflexes of these terms often also include ‘true’ among their meanings, but I assume that the metaphorical extension was from shape to value (i.e. from visible to abstract), rather than vice versa.

The data require that we reconstruct two variants for each of the three terms. Thus we reconstruct not only **[ma]koto*, whose canonic shape suggests that it is the inherited term, but also **ta-kodos*, which is derived from **kodos* ‘go straight; straighten’ (see p.196).²¹ I suspect that the verbs **[ma]koto* and **kodos* were separately inherited into POc (although no non-Oceanic cognates have been found) and that their formal similarity is attributable to derivation at an earlier stage, as POc **-t-* and **-d-* reflect PMP **-t-* and **-nt-* respectively. The Polynesian reflexes are attributed to the set with **-t-* because of their similarity in meaning to Bauan *koto*. Formally, they could at least as well reflect POc **ta-kodos*.

POc **[ma]koto* ‘straight’

MM:	Vitu	<i>mayoto</i>	‘straight; (ground) flat’
MM:	Tolai	<i>ot</i>	‘straight’
SES:	Gela	<i>oto</i>	‘go directly, straight; set face to do, stare straight at’ (for expected <i>*yoto</i>)
SES:	W Guad.	<i>yoto</i>	‘straight, correct’
Fij:	Bauan	<i>koto</i>	(V) ‘lie down’; (ADJ) ‘extended, stretched out’
Pn:	Tongan	<i>to-koto</i>	(V) ‘lie down’
Pn:	Samoa	<i>ta-ʔoto</i>	(V) ‘lie down’
Pn:	Maori	<i>ta-koto</i>	(V) ‘lie down’

POc **kodos* ‘go straight; straighten’, **ta-kodos* ‘straight’

MM:	Lavongai	<i>koroy</i>	‘straight’
MM:	Lamasong	<i>tokodos</i>	‘straight’
MM:	Patpatar	<i>takodas</i>	‘straight’
MM:	Tolai	<i>kodo</i>	‘straighten’
		<i>takodo</i>	‘straight’
MM:	Nehan	<i>kod-kodoh</i>	‘straight’
SES:	Lau	<i>odo-odo</i>	‘go in a direct line, straight’
SES:	Kwaio	<i>odo</i>	‘straight, correct’
SES:	Sa’a	<i>odo-odo</i>	‘be straight, go straight forward; be correct and proper’
SES:	Arosi	<i>odo-odo</i>	‘straight’

POc **[t,d]onu(p)* ‘straight’²²

NNG:	Malai	<i>dunu(ŋa)</i>	‘straight’
NNG:	Numbami	<i>tonowa</i>	‘straight’
MM:	Laghu	<i>to-tonu</i>	‘straight’
NCV:	Kiai	<i>tu-tunu</i>	‘good, straight, sweet’
NCV:	Labo	<i>tən</i>	‘straighten an arrow in the fire’

²¹ The Southeast Solomonian reflexes show unexplained loss of **k*.

²² The final *-(p)* of **[t,d]onu(p)* is tentatively reconstructed to account for Numbami *tonowa*, where paragogic *-a* indicates the presence of a final consonant and *-w-* reflects **-p*.

SV:	Kwamera	(a)tuən	verbal adjunct: implies straightening
Fij:	Bauan	donu	‘(be) straight, true, correct’
Fij:	Wayan	donu	‘(be) right, correct, true’
Pn:	Tongan	tonu	‘be exact, be correct, be right’
Pn:	Samoan	tonu	‘(be) exact, correct, just’
Pn:	Mele-Fila	tō-tonu	‘right, correct’

I have no explanation for the pair **m^wane-m^wane* and **wane-wane*. Reflexes of the former occur in the Admiralties, Southeast Solomonian and New Caledonia, of the latter in the Schoutens and Micronesia. However, if the Ali reflex were non-cognate, then **wane-wane* would simply be a Nuclear Micronesian innovation.

POc **m^wane-m^wane* ‘straight, direct; flat, level’ (ACD)

Adm:	Aua	wane-wane	‘smooth, level; straight’ ²³
Adm:	Pak	m ^w ane-n	‘straight’
Adm:	Nyindrou	mone-n	‘straight’
Adm:	Loniu	m ^w enɛ-n	‘straight’
SES:	Gela	mae-mane	‘straight’
SES:	Lau	ma-mana	‘true’
NCal:	Cèmuhî	mó-m ^w ən	‘straight, right, correct’

POc **wane-wane* ‘straight, direct; flat, level’ (ACD)

NNG:	Ali	wane(ŋ)	‘straight’
Mic:	L. Mortlockese	wane-wan	‘straight, steady, direct’
Mic:	Puluwatese	wene-wen	‘be directly above; straight, direct, honest, exactly’, ‘greatly’
Mic:	Woleaian	were-were	‘straight, steady, still’

The only antonym of the terms above is PWOC **kalis* ‘crooked’, which is only weakly attested.

PWOC **kalis* ‘crooked’

NNG:	Takia	kael(a-n)	‘crooked’
MM:	Sursurunga	kalis	‘crooked’

5.2 Weight

Forms for ‘heavy’ are morphologically complex. POc **[pa]pat* reflects the base **pat*, POc **ma-pat* and **mamat* reflect prefixation with **ma-* and **maN-* respectively (the function of **maN-* in this context is unclear; cf. vol. 1, p.29). The term for ‘light’ (in weight) is **[ma]Raqa*.

POc **[pa]pat* ‘heavy’

NNG:	Gitua	pat(aŋa-n)	‘heavy’
NNG:	Maleu	-pat(aŋa)	‘heavy’
NNG:	Yabem	(ŋa)wapa?	‘heavy’

²³ Aua initial w- could reflect either **m^w-* or **w-*, but I have assumed the Aua reflex to reflect **m^wane-m^wane*, as this is reflected elsewhere in the Admiralties.

POc **mapat* ‘heavy’ (ACD)

Adm:	Nyindrou	<i>mahaʔ(an)</i>	‘heavy’
SJ:	Sobei	<i>mafo</i>	‘heavy’
MM:	Bulu	<i>mava</i>	‘heavy’
MM:	Ramoaaina	<i>məvət</i>	‘heavy’
SES:	Gela	<i>mava</i>	‘heavy, important’
NCV:	NE Ambae	<i>mava</i>	‘be/become heavy’
Fij:	Rotuman	<i>maha</i>	‘heavy’
Pn:	Tongan	<i>ma-mafa</i>	‘heavy’
		<i>mafas-ia</i>	‘(be) weighed down, burdened’
		<i>mafāt-aki</i>	‘(rain) be heavy; (work) be heavy, difficult’
Pn:	Samoaan	<i>ma-mafa</i>	‘heavy’
		<i>mafāt-ia</i>	‘exhausted, overcome’

POc **mamat* ‘heavy’

Adm:	Mussau	<i>mamāta(na)</i>	‘heavy’
MM:	Tolai	<i>mamat</i>	‘heavy’
MM:	Roviana	<i>mamata</i>	‘heavy’

PMP **[ma]Raqaan* ‘light in weight’ (ACD)POc **[ma]Raqaan* ‘light in weight’

PT:	Motu	<i>haraya</i>	‘easy, light (in weight)’
NNG:	Bariai	<i>malan</i>	‘light in weight’
NNG:	Sio	<i>malalvka</i>	‘light in weight’
NNG:	Tami	<i>malaga-lag</i>	‘light in weight’
NNG:	Aria	<i>maŕkan</i>	‘light in weight’
MM:	Vitu	<i>maraya</i>	‘light in weight’
MM:	Nakanai	<i>mara-mara</i>	‘lightened, relieved’
SES:	Gela	<i>ma-mala</i>	‘light in weight’
NCV:	NE Ambae	<i>ma-marae</i>	‘be/become light’
NCV:	Raga	<i>ma-mara</i>	‘light in weight’
NCV:	Paamese	<i>melā-la</i>	‘light in weight’
Mic:	Ponapean	<i>marā-ra</i>	‘light in weight’
Fij:	Nadrogaa	<i>mā-mā</i>	‘light in weight’
Fij:	Wayan	<i>mā-mā</i>	‘be light (in weight)’
Pn:	Tongan	<i>maʔa-maʔa</i>	‘light in weight’
Pn:	Samoaan	<i>mā-mā</i>	‘light in weight’

5.3 Strength, toughness and speed

Oceanic speakers tend to express the cluster of concepts ‘hard’ (of physical substances), ‘strong’ (of human beings), ‘quickly moving’ and ‘energetic’ with a single lexeme, and ‘soft’, ‘weak’, ‘slow’ and ‘gentle’ also with a single lexeme. Terms for the first, again due entirely to Blust (ACD), are POc **paka(s)* and **laga(s)*, neither of them particularly stable (i.e. we find few reflexes of them). Terms for its antonym are **[ma]lumu* and **ma-luas*,

both quite stable and thus widely reflected. The latter is also used of calm weather in eastern Oceanic languages (see Ch. 5, §5.1).

PMP **ba(ŋ)kas* ‘swift, strong, energetic, fast’ (ACD)

POc **paka(s)* ‘have strength, energy’ (ACD)

NCV: Mota *vaka* ‘have strength, energy’

PMP **la(ŋ)kas* ‘spirited, energetic’ (ACD)

POc **laga(s)* ‘spirited, energetic’ ACD

MM: Sursurunga *lak-lak* ‘hard, stubborn’

SES: Gela *laga* ‘strong, strength; energetic’

SES: Arosi *raga* ‘strong, strengthened, invigorated’

Two POc terms, **[ma]lumu* and **ma-luas*, express ‘soft, gentle’.

PMP **[ma]lumu* ‘soft, tender, gentle’ (ACD)

POc **[ma]lumu* ‘soft, gentle, easy’

NNG: Bariai *marum* ‘soft’

NNG: Amara *mulum* ‘soft’

MM: Nakanai *malumo* ‘be soft (bread or sweet biscuits, or taro left too long in the ground)’

MM: Lavongai *malum* ‘soft’

MM: Patpatar *ma-malum* ‘soft’

MM: Mono *maluŋ* ‘soft’

SES: Gela *malumu* ‘easy’

SES: Kwaio *malumu* ‘good-looking’

SES: Arosi *rumu* ‘oil’

marumu-rumu ‘soft’

NCV: Mota *malum-lum* ‘soft, gentle’

NCV: NE Ambae *lu-lumu* ‘be/become sweet, good tasting’

NCV: Raga *lumu-lumu* ‘soft’

NCV: Tamambo *ma-lu-lum* ‘soft’

Fij: Bauan *malumu* ‘weak, faint, sick, soft’

PPn **malū* ‘soft (of a substance), calm (of day, sea)’ (irregular loss of **-m-* in all Polynesian reflexes)

Pn: Tongan *malū* ‘soft, tender, flexible; (weather) mild, pleasantly calm; (pain) abated’

Pn: Niuean *molū* ‘soft, weak, humble’

Pn: Samoan *malū* ‘(substance) soft; (sea +) calm; (voice) bass

Pn: E Uvean *malū* ‘calm, peaceful’

Pn: E Futunan *malū* ‘soft’

Pn: Rennellese *magū* ‘be soft, be slack’

Pn: Tahitian *marū* ‘soft, gentle, easy’

POc **ma-luas* ‘soft’

NNG:	Sio	<i>malve</i>	‘limp, squishy, soft’
MM:	Notsi	<i>məlus</i>	‘soft’
MM:	Konomala	<i>ma-mlas</i>	‘soft’
MM:	Siar	<i>ma-maluas</i>	‘soft’
MM:	Ramoaaaina	<i>məl-məluə</i>	‘soft’
MM:	Nehan	<i>mal-malua-n</i>	‘soft’
SES:	Gela	<i>malua</i>	‘soft’
SES:	’Are’are	<i>mārū-rū</i>	‘soft, gentle, flexible’
Mic:	Ponapean	<i>malu-n</i>	‘calm, of the sea’
Mic:	Mokilese	<i>molu-n</i>	‘calm or fine, of weather’
Mic:	L. Mortlockese	<i>maləwa-ləw</i>	‘peaceful’
Mic:	Puluwatese	<i>malīwa-lī</i>	‘to be easy or slow, to be calm (as the sea), to be gentle’
Fij:	Bauan	<i>mālua</i>	‘gently, slowly, quietly’

5.4 Content

Three terms meaning ‘full’ are reconstructable. The first, **ponuq*, is the general term. It is not clear to me how **puŋu* and **poju* differed in meaning from this and from each other. However, **puŋu* may simply be a doublet of **ponuq*. The term **poju* seems to be a reflex of PMP **besuR* ‘satiated’. The opposite meaning, ‘empty’, seems to have been expressed by **[ma]maca* ‘dry’ (p.226), at least when ‘empty of liquid’ was intended.

PMP **ponuq* ‘full’POc **ponuq* ‘full’

NNG:	Bariai	<i>-won</i>	
NNG:	Lukep	<i>-pon</i>	
NNG:	Poeng	<i>ponu</i>	
NNG:	Wogeo	<i>-won</i>	
NNG:	Kaiep	<i>-wun</i>	
PT:	Motu	<i>honu</i>	
PT:	Mekeo	<i>poju</i>	
MM:	Bali	<i>vonuku</i>	
MM:	Meramera	<i>vonu</i>	‘full; swell’
MM:	Nakanai	<i>volu</i>	
MM:	Lihir	<i>on</i>	
MM:	Nehan	<i>won</i>	
MM:	Mono	<i>honu</i>	
SES:	Gela	<i>vonu</i>	
SES:	Talise	<i>vonu</i>	
SES:	Longgu	<i>vonu</i>	
SES:	Kwaio	<i>fonu</i>	
SES:	Arosi	<i>honu</i>	
NCal:	Nemi	<i>punuk</i>	

Mic:	Kiribati	<i>on</i>
Pn:	Tongan	<i>fonu</i>

POc **puŋu* ‘full’

NNG:	Maleu	<i>-uŋ</i>
NNG:	Silisili	<i>(ri)fu^ŋg</i>
NNG:	Sukurum	<i>fuaŋ</i>
MM:	Lamasong	<i>-uŋ</i>
MM:	Patpatar	<i>huŋ</i>
SES:	Lau	<i>fuŋu</i>
SES:	Kwai	<i>fuŋu</i>

PAN **besuR* ‘satisfied from having eaten enough, satiated’ (ACD)POc **poju* ‘full’

Adm:	Mussau	<i>pasu</i>	‘full’
MM:	Kara (East)	<i>vəs</i>	‘full’
MM:	Notsi	<i>us</i>	‘full’
MM:	Tabar	<i>vosu</i>	‘full’
MM:	Teop	<i>(ha)pus</i>	‘full’
MM:	Maringe	<i>fodu</i>	‘full’

5.5 Temperature

Two terms are reconstructable for ‘hot, warm’, **[ma]panas* and **maŋini(t)*. The first was probably the general term, to judge from its distribution, whilst **maŋini(t)* probably had some specialised sense.

PMP **[ma]panas* ‘be/become warm, hot (of fire, sun, fever, water)’ (ACD)POc **[ma]panas* ‘warm, hot’

Adm:	Mussau	<i>anasa</i>	‘(s.o.) hot’
NNG:	Kove	<i>wana-wana</i>	‘(s.o.) hot’
NNG:	Arove	<i>(ka)wanes</i>	‘(s.o.) hot’
NNG:	Takia	<i>wanana-n</i>	‘hot’
NNG:	Numbami	<i>wa-wana</i>	‘hot’
NNG:	Mapos Buang	<i>vane</i>	‘hot’
SJ:	Sobei	<i>mefna</i>	‘(s.o.) hot’
MM:	Tigak	<i>manas</i>	‘(s.o.) hot’
MM:	Maringe	<i>brana</i>	‘hot’
SES:	Longgu	<i>pa-pana</i>	‘be warm’
SES:	Bauro	<i>mahana-hana</i>	‘hot’
SV:	Kwamera	<i>-(a)p^wan-(a)p^wan</i>	‘hot’
SV:	Anejom	<i>(a)hen-hen</i>	‘warm, hot’
Fij:	Rotuman	<i>mah-mahana</i>	‘warm’
Pn:	Tongan	<i>māfana</i>	‘warm’
Pn:	Samoan	<i>māfana-fana</i>	‘warm’

PMP **maN-qinit* ‘hot, warm’ (**qinit* ‘heat, warmth’) (ACD)

POc **maṇini(t)* ‘(?) become hot, warm’

MM:	Roviana	<i>maṇini</i>	‘warm’
MM:	Hoava	<i>maṇini</i>	‘warm’

There are several POc forms for ‘cold’ which are derived from PMP **diṇin* ‘cold’. However, the expected POc reflex of PMP **diṇin* is ***riṇi(n)*, and we do not find this. Instead, we find **ridriṇ* and **ririṇ*, presumably from the reduplications **riṇ-riṇ* and **ri-riṇ*, preceded by various prefixes. POc **ma-ri(d)ri(ṇ)* needs no further explanation, whilst **madri(d)riṇ* is apparently derived from **maN-ri(d)riṇ*. POc **maka-ridri(ṇ)* is transparent enough, but I do not know the function of **maka-*. From the glosses of the reflexes, it seems that these terms probably referred to the temperature experienced by a person, i.e. ‘I feel cold’, rather than to the temperature of inanimate objects.

The other cognate set meaning ‘cold’ appears to reflect both **malaso* ‘cold (verb)’ and **malaso-ṇ* ‘cold (noun)’.

PMP **diṇin* ‘cold’

POc **ma-ri(d)ri(ṇ)* ‘(s.o.) cold’

NNG:	Mutu	<i>marir</i>	‘(s.o.) cold’
NNG:	Apalik	<i>miri-n</i>	‘(s.o.) cold’
NNG:	Bebeli	<i>merir</i>	‘(s.o.) cold’
NNG:	Kaulong	<i>ṇlik</i>	‘cold’
NNG:	Poeng	<i>ma-mariri</i>	‘(s.o.) cold’
NNG:	Kaiep	<i>marir</i>	‘(s.o.) cold’
NNG:	Kairiru	<i>-meṛĩṛĩ</i>	‘(s.o.) cold’
SJ:	Kayupulau	<i>mariri-e</i>	‘(s.o.) cold’
NCV:	Raga	<i>masisi</i>	‘cold’
NCV:	Merlav	<i>marir</i>	‘(s.o.) cold’
Mic:	Kiribati	<i>mariri</i>	‘feel cold’
Fij:	Rotuman	<i>matiti</i>	‘cold’

POc **madri(d)riṇ* ‘(s.o.) become cold’

Adm:	Aua	<i>maxixi</i>	‘cold’
Adm:	Mondropolon	<i>madri</i>	‘cold’
NNG:	Takia	<i>madid</i>	‘(s.o.) cold’
NNG:	Manam	<i>madidi</i>	‘cold’
NNG:	Ulaui-Suain	<i>madid</i>	‘(s.o.) cold’
MM:	Tolai	<i>madiriṇ</i>	‘cold (water, food)’
MM:	Haku	<i>maririṇ</i>	‘(s.o.) cold’
NCV:	Paamese	<i>madil</i>	‘cold’

POc **makaridriṇ* ‘(s.o.) cold’

MM:	Notsi	<i>makadil</i>	‘(s.o.) cold’
SES:	Bauro	<i>mayārisi</i>	‘cold’
NCV:	Tamambo	<i>mayariri</i>	‘cold’
Pn:	Niuean	<i>makalili</i>	‘cold, chilly’
Pn:	Samoan	<i>maʔalili</i>	‘(be) cold’

POc **malaso* ‘be cold’, **malaso-ŋ* (N) ‘cold’

NNG:	Roinji	<i>malasu(na)</i>	‘(s.o.) cold’
NNG:	Wab	<i>malsuŋ</i>	‘cold’
NNG:	Bing	<i>malsoŋ</i>	‘cold’
NNG:	Mindiri	<i>malas</i>	‘cold’
NNG:	Megiar	<i>malas</i>	‘(s.o.) cold’
MM:	Nehan	<i>malahoŋ</i>	‘(s.o.) cold’
NCV:	Mota	<i>malaso</i>	(N) ‘cold’
NCV:	Uripiv	<i>melas</i>	(N) ‘cold’
SV:	Lenakel	<i>mhal</i>	‘have a cold sore’
SV:	SW Tanna	<i>(ə)m̥la</i>	‘be cold’

5.6 Wet and dry

The English words ‘dry’ and ‘wet’ are polysemous. The meanings of ‘dry’ include ‘free from moisture’, ‘having lost natural moisture’ and ‘not in or under water’. POc terms with such meanings are reconstructed below. POc presumably also had words for various meanings of ‘wet’, but I have been able to reconstruct only POc **buluk*, in the meaning ‘soaked, waterlogged’.

POc **buluk* ‘be wet, soaked, waterlogged’

NNG:	Bilibil	<i>polo</i>	‘wet’
MM:	Lavongai	<i>vuluk</i>	‘wet’
MM:	Ramoaaaina	<i>polo</i>	(V) ‘wet, muddy, swampy’; (N) ‘liquid, fluid’
Fij:	Wayan	<i>bulu-bulu</i>	‘be sticky, gluey, adhesive, cloggy, e.g. of clay or cloggy soil, too wet and lumpy to dig’
Pn:	Niuean	<i>(faka)pulu</i>	‘steep in water, ferment’
Pn:	Mangareva	<i>puru</i>	‘soaked’
Pn:	Tahitian	<i>puru</i>	‘soaked, waterlogged’
Pn:	Hawaiian	<i>pulu</i>	‘soaked’

The most widely reflected POc term with a ‘dry’ meaning is **[ma]maca*, which denoted states in which otherwise present liquid was absent. Thus it was used among other things of food which had dried up through overcooking and of low tide (Ch. 4, §2.6). POc **[ma](r,R)aŋo* ‘wither, dry up’ referred particularly to the dryness of dying vegetation and meant ‘withered, dry’ (vol. 1, p.135).

POc **karaŋo* is obviously formally related to **[ma]raŋo*, but its reflexes display the meanings both of this and of **[ma]maca*. POc **goRu* appears to have been a synonym of **[ma](r,R)aŋo*.

PMP **maja* ‘be dry’

POc **[ma]maca* (V) ‘dry up, evaporate, be empty of liquid’; (N) ‘low tide’

Adm:	Aua	<i>mamaha</i>	‘dry’
NNG:	Kove	<i>mamasa</i>	‘dry’
NNG:	Mutu	<i>mamas</i>	‘(food +) dry up’
NNG:	Mangap	<i>mamāza-ŋana</i>	‘dry’

NNG:	Tami	<i>mamat</i>	‘dry’
NNG:	Roinji	<i>mamasa-na</i>	‘dry’
NNG:	Bing	<i>mas-mamasa</i>	‘low tide’
		<i>mamsa-s</i>	‘dry’
NNG:	Numbami	<i>mamasa</i>	‘dry’
NNG:	Wogeo	<i>mamasa</i>	‘dry’
NNG:	Kairiru	<i>-mamas</i>	‘dry’
SJ:	Kayupulau	<i>mamaxe</i>	‘dry’
PT:	Gumawana	<i>mamaya</i>	‘low tide, shore’
MM:	Meramera	<i>mamasa</i>	‘low tide’
MM:	Lihir	<i>mas</i>	‘(food +) dry up’
MM:	Patpatar	<i>mamasa</i>	‘dry’
MM:	Tolai	<i>mamā</i>	‘lowtide’
MM:	Siar	<i>mas-mas</i>	‘(food +) dry up; low tide’
MM:	Roviana	<i>masa</i>	‘lowtide’
SES:	Gela	<i>mamaha</i>	‘dry’
SES:	Arosi	<i>mamata</i>	‘dry’
NCV:	Raga	<i>mamaha</i>	‘dry’
NCV:	NE Ambae	<i>mamaha</i>	‘be/become dry’
NCV:	Tamambo	<i>mamasa</i>	‘dry (of ground +)’
NCV:	Paamese	<i>mes</i>	‘dry’
Fij:	Bauan	<i>maḍa</i>	‘be empty, be dry’
		<i>mamaḍa</i>	‘dry, be dry’
SV:	N Tanna	<i>mas</i>	‘lowtide’
SV:	Kwamera	<i>maha</i>	‘lowtide, empty of liquid’
Pn:	Tongan	<i>mamaha</i>	‘lowtide’
Pn:	Samoa	<i>masa</i>	‘be shallow’

POc *[*ma-*](*r,R*)*aŋo* displays a phonological problem. Apparent non-Oceanic cognates of the root **raŋo* reflect PMP **Raŋaw*, so we would expect the reconstructable POc form to be ***Raŋo*. But Oceanic languages which reflect POc **r* and **R* differently are not in accord with each other: SES and NCV languages have a reflex of **r* whilst Pn languages have a (zero) reflex of **R*. (Mussau and NNG and MM languages reflect **r* and **R* identically.) I assume tentatively that POc had **[ma]Raŋo* and that forms with **r* are innovative.

PMP **[ma]Raŋaw* ‘dry’, **[ma]Raŋu?* ‘dry’ (Blust 1981, 1986)

POc **[ma]Raŋo* ‘become withered (of vegetation)’²⁴

Adm:	Mussau	<i>malaŋo</i>	‘dry’
NNG:	Manam	<i>marajo</i>	‘dry, arid’
NNG:	Kairiru	<i>maraj</i>	‘ripe coconut’
MM:	Nalik	<i>maraj</i>	‘ripe coconut’

²⁴ In Ross (1996c) I reconstructed POc **[ma]Raŋ(o,u)* ‘dry; coconut growth stage 8: dry and ready to fall’. However, its POc status rested on Baelelea (SES) *maleŋa* ‘coconut’. I no longer think this is cognate with the NNG and MM forms which refer to a withered coconut, and take the latter simply to be an extension of meaning of reflexes of **[ma-](r,R)aŋo*.

MM:	Susurunga	<i>marəŋ</i>	‘(be) old, dry; (old) coconut with lots of meat and little milk’
MM:	Patpatar	<i>marəŋa</i>	‘dry coconut’
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’
Pn:	Samoaan	<i>maŋo</i>	‘dry up; be dry (of wood, clothes)’
Pn:	Niuean	<i>maŋo</i>	‘dry (of wood, trees)’

POc **ka-(r,R)əŋo* ‘be dry; be low tide’

NNG:	Yabem	<i>(ŋa)kələŋ</i>	‘dry (of a cloth etc)’
MM:	Zabana	<i>karaŋo</i>	‘be dry; be low tide’
SES:	Gela	<i>karaŋo</i>	‘dry up; reef, low tide, harvest time’
SES:	Lengo	<i>karaŋo</i>	‘low tide’

POc **goRu* ‘dry, of vegetation; coconut growth stage 8: dry and ready to fall’ (Ross 1996c)

NNG:	Mutu	<i>gor-gori</i>	‘dry’
NNG:	Malai	<i>gor-gori</i>	‘dry, ripe coconut’
NNG:	Kakuna	<i>kolu-ŋana</i>	‘ripe coconut’
SES:	Lengo	<i>golu</i>	‘coconut flesh’
NCV:	Mota	<i>kor</i>	‘become dry, with heat or time; coconut in its last condition before it falls from the tree; dry (of other things too)’
NCV:	Tamambo	<i>koru</i>	‘dry, dying (of tree)’
NCV:	Raga	<i>ʔgoru</i>	‘dry’

8

Talking about space: terms of location and direction

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1 Introduction

Talking about space is a part of talking about the environment as a whole. We include talking about space in this volume because some of the terms reconstructed in §2 are also used to denote parts of the landscape and seascape reconstructed in Chapters 3 and 4. However, much of the terminology reconstructed in this chapter was also used to talk about space in relation to manufactured objects (vol. 1), to flora and fauna (vols. 3 and 4) and to human beings (vol. 5). Many languages have complex terminologies for talking about space, and the length of this chapter bears witness to the fact that Proto Oceanic was no exception.

Following Levinson (1996) and Hyslop (2001), we distinguish four kinds of semantic system employed in talking about space. These are listed here with some commentary on their expression in Oceanic languages.

1. A system of **geographic** directions based on a division of the environment that normally has a vertical ('up'/'down') axis and a horizontal axis. On the horizontal axis European languages have the cardinal directions 'north', 'south', 'east' and 'west'. In Oceanic languages there are usually two sets of geographic directions, one used on or near land, the other used at sea (cf. Hill 1997, François 2003, 2004). Typically each has two subsystems.
 - (a) The land-based subsystems are (cf. Ozanne-Rivierre 1997):
 - (i) one with an inland/seaward axis, sometimes with a transverse axis pointing left and right along the coast (each axis is typically denoted by a local noun in a local construction; p.232);
 - (ii) one based on a river valley with an up/down axis (often using the vertical terms) and a transverse axis with one directionally neutral ('across the valley') term (each axis is typically expressed by a directional verb or other directional morpheme).

- (b) The sea-based subsystems both refer to a northwest–southeast axis,
 - (i) one using the terms for the northwest storm wind and the southeast trade wind (POc **apaRat* and **raki* respectively; Ch. 5, §4.2);
 - (ii) the other applying the river valley subsystem with its up/down axis (and perhaps its transverse axis) metaphorically to the sea, such that ‘down’ is towards the northwest and ‘up’ towards the southeast (François 2003, 2004).

If we wanted to be particular, incidentally, we could label a number of geographic expressions ‘deictic-geographic’. To say that something is seawards, for example, is to place it in relation to the speaker. If the speaker were closer to the sea, the same referent might be ‘inland’.

2. An **intrinsic** system specifies the location of an object in relation to a reference object. European languages often use prepositions for this purpose (*in*, *on*, *under*, *over*, *beside*). A few Oceanic languages also use adpositions, but in the majority a local construction is used. This is often an adpositional phrase containing a relational local noun, i.e. a noun that refers to a part of the reference object or to a location in relation to the reference object (‘inside’, ‘upper surface’, ‘top’, ‘underside’, ‘side’).
3. **Relative** locations entail both the position of a reference person, often the speaker, and the position of a reference object. Relative locations look like intrinsic locations, but the latter do not entail a reference person (Leech 1969:167–168). For example, ‘in front of the house’ is an intrinsic location because a house has a ‘front’. For an Oceanic speaker, this is the side with the ladder, balcony and door. But ‘in front of the tree’ is a relative location because a tree has no intrinsic front. When an English speaker uses this expression, s/he treats the tree as if it were facing her/him, and so the part of the tree that ‘faces’ the speaker is treated as its front. Thus the ‘front’ changes with a change in the speaker’s position. Similarly, ‘turn left’ entails a reference person—the addressee—and a reference object. The reference object is the addressee’s body, and the direction of ‘left’ varies according to the addressee’s location and which way s/he is facing. Relative locations are not used in Oceanic languages, however. Oceanic speakers use terms like ‘front’ and ‘left’ intrinsically. One does not talk about the ‘front’ of a tree, and ‘left’ is strictly an intrinsic part of the speaker’s body, not a direction (Ozanne-Rivierre 1997). Instead, one uses the geographic system: ‘seawards of the tree’, ‘go left-along-the-coast’ (cf. Hill 1997).
4. A **deictic** system is based on location relative to the speaker or to some other person and often also relative to the addressee. Deictic expressions are tied to the context of the individual speech act; they do not refer to fixed points in space. All languages probably have demonstratives of some kind (‘this’/‘that’, ‘here’/‘there’, ‘voici’/‘voilà’ etc). Many Oceanic languages in addition have deictic directional morphemes in their verb phrases (or sometimes in locative phrases) which indicate whether direction associated with the event is towards the speaker and/or, in some languages, towards the addressee.¹

¹ I am very grateful to John Lynch for his help and advice in interpreting data from New Caledonian languages, to Alexandre François for sharing with me his work on Oceanic marine directions, and to Andrew Pawley for his comments on an earlier draft of this paper.

Relationships between widespread Oceanic categories that probably existed in POC and systems of talking about space are summarised below.

- (a) Some **local nouns** (§2) are used to express the directions of the vertical, inland/seaward and coastal axes of the **geographic** system. Overlapping with these semantically are local nouns that express locations and directions in the local environment that are part of the shared experience of speaker and addressee ('home', 'bush', 'garden' etc). There are also relational local nouns that express locations ('inside' etc) in the **intrinsic** system.
- (b) **Directional** morphemes (§3) in verb phrases and in adjuncts are used in Oceanic languages to express **geographic** (vertical and valley-based) and **deictic** directions. In single-verb predicates and in serial verb constructions these morphemes are verbs. Elsewhere they are morphemes grammaticised from verbs. Grammaticisation had probably already occurred in some cases in Proto Oceanic (Ross 2003).²
- (c) **Demonstratives** are used as static **deictics**. The reconstruction of demonstratives is not treated in this chapter.

We can illustrate the typical Oceanic system by summarising the system in Longgu (SES) as described by Hill (1992, 1997, 2002). Local nouns marking the axes of the geographic system are *asi* 'seawards', *loŋa* 'inland', *alaʔa* 'east', *toli* 'west', *vuʔa* 'down', *laŋi* 'up'. Longgu has terms meaning 'left' and 'right', but their referents are the arms and the sides of the body, and they do not form part of the system of spatial orientation and are not local nouns. Where English would use 'left' or 'right', a Longgu speaker refers to *aʔae asi* 'the seawards leg' or *aʔae longa-i* 'the inland leg'. 'Nouns such as *komu* 'village' and *luma* 'house' function as place [local] nouns when their referent is the village or house considered to be the "home" location' (Hill 1997:103) and occur in different constructions from when they are used as common nouns (p.233). One of these constructions is with the preposition *i* or with no preposition. Relational local nouns express intrinsic locations in relation to objects. For example, *ubu-* 'inside' is treated as possessum in relation to the possessor *pera* 'basket':

vugi ubu-na pera-i
 banana inside-P:3SG basket-SG
 'The banana is inside the basket.'

Other relational local nouns are *buri-* 'behind', *naʔova-* 'front', *gege-* 'side', *orova-* 'underneath', *vavo-* 'top surface, space above', *levua-* 'middle, centre'. Demonstratives are also a type of local noun, occurring with the preposition *i* to indicate a location. Unlike many Oceanic languages, which have a person-oriented deictic system (§3.4), Longgu deictics distinguish four degrees of deictic distance from the speaker: *nene* 'this, here', *nina* 'that, there', *ninaina* 'that yonder, yonder' and *nihou* 'that/there far away'.

Like many Oceanic languages, Longgu has postverbal particles that distinguish motion towards and away from the speaker—*mai* 'hither' and *hou* 'thither'—and are hence deictic. Some languages have a third particle indicating motion towards the addressee (§3.4), and others also have particles expressing the geographic directions 'up (valley)', 'down (valley)' and 'across (valley)' (§3.3).

² Note that two morphosyntactic categories were used to express the vertical dimension in POC: local nouns and directional verbs.

There is no one-to-one relationship between the geographic, intrinsic, and deictic systems and the morphosyntactic categories used to express them. For this reason this chapter is organised on the basis of the morphosyntactic categories as they occurred in POC, rather than on the basis of the semantic systems outlined above.

2 Local nouns

In POC and indeed throughout the history of many Oceanic subgroups there were three subclasses of noun: personal, common and local. These subclasses are defined by the constructions in which they occur. Since some nouns occur in a number of constructions, they are assigned to more than one subclass.

1. **Personal:** personal proper names and kin terms used of known individuals. In POC a **personal noun phrase construction** consisted of the personal article **i* or **e* plus a personal noun,³ reflected in Taiof (MM) *e Maras* ‘Maras (proper name)’, *e cina-nai* (ART mother-P:3SG) ‘his/her mother’.⁴ In Longgu (SES) personal nouns occur without an article, but POC **i* is reflected in the ‘pronominal article’ in *i gira* ‘they’ and other free pronouns.
2. **Common:** human nouns and non-human animates when not used of known individuals, as well as inanimates and abstract nouns. A common noun with a specific referent was in most cases preceded by the common article **a* or **na*, as in POC **a/na Rumaq* ‘a/the house’.⁵ The construction is reflected in Taiof *a numa* ‘a/the house’, *a patu-re* (ART head-P:3PL) ‘their heads’; Longgu *a komu-i* (ART village-SG) ‘the village’⁶. If such a noun was used in an **adjunct construction** it was preceded by the sequence **i ta-*, as in POC **i ta-ña Rumaq* (PREP **ta*-P:3SG house) ‘at a/the house’.⁷ In this construction **ta-* was a monovalent semantically empty noun. In most Oceanic languages where this latter construction is reflected, however, **i* has dropped out, leaving **ta-* as a preposition.⁸ Hence Taiof *ta-na patu-na tober* (PREP-P:3SG head-P:3SG hill) ‘on top of the hill’, Longgu *ta-na iola-i* (PREP-P:3SG canoe-SG).
3. **Local:** nouns used with reference to a specific location, a time, or an intrinsically located part of something. The POC **local construction** consisted of the preposition **i* plus a local noun, with no intervening article. Local nouns include:

³ The distribution of these forms is not clear. Perhaps **e* was the POC phrase-initial form, **i* the phrase-internal form. It is also possible that the POC form was simply **i*, and that this, like the preposition **i* (§2.1), has independently become *e* in a number of languages.

⁴ Taiof *cina-nai* reflects POC **tina-* ‘mother’ + **ña* ‘3SG possessor’ + Taiof *aye* ‘3SG free pronoun’.

⁵ Crowley (1985) suggests that human common nouns had no article. This was apparently true of kin terms, but perhaps not of non-kin human common nouns, as an article is reconstructable in this context in Proto Eastern Oceanic (Pawley 1972).

⁶ Longgu *-i* marks a referential noun as singular.

⁷ The suffix *-ña* agrees in person and number with **Rumaq* ‘house’.

⁸ Evidence for reconstructing the sequence **i ta-* is found in Mussau (Adm) *e ta-gi* ‘to me, for me’, Gela *i ta-gua* ‘with me’ (both reflecting POC **i ta-gu*) and in a Longgu (SES) paradigm of prepositions and relators shown on p.5 (Hill 1992). Paradigmaticity indicates that the cell now occupied by *ta-* once contained **i ta-*. Proto South Vanuatu **ira-* (Lynch 2001) appears from its possessive suffixation and its uses as general and possessive preposition also to reflect POC **i ta-*, but this entails assuming the form underwent an idiosyncratic innovation, as it reflects POC **ira-*.

- (a) proper placenames;
- (b) nouns denoting locations, including
 - (i) nouns denoting familiar places like ‘home’, ‘(own) village’, ‘(own) garden’, ‘bush’, ‘beach’ etc.;
 - (ii) nouns denoting geographic directions, ‘down below’, ‘up above’;
- (c) temporal nouns;
- (d) monovalent relational nouns, e.g. nouns denoting intrinsic parts, like ‘inside’, ‘upper surface or space above’, ‘lower surface’, ‘space beneath’ and so on;

In Taiof a local noun may form a locative expression without a preposition (i.e. **i* has been lost), like *koma-na matan* below.⁹ A locative expression with a common noun must be formed with a preposition.

E Maras to nojos no-n koma=na matan.
 ART Maras REAL dwell IMPF-P:3SG inside=ART ditch
 ‘Maras is in the ditch.’

In Longgu local and common nouns are preceded by different paradigms of relators and prepositions (the term ‘relator’ is explained on p.268):

	location	extent	direction
	‘at’	‘as far as’	‘to, towards’
with a local noun	<i>i</i>	<i>mi</i>	<i>vu</i>
with a common noun	<i>ta-</i>	<i>mi ta-</i>	<i>vu ta-</i>

Thus we find:

e la vu komu (local noun)
 S:3SG go R village
 ‘s/he went towards her/his (home) village’

e la vu ta-na iola ŋaia (common noun)
 S:3SG go R PREP-P:3SG canoe D:3SG
 ‘s/he went to her/his (canoe)’

When a local noun indicating a geographic direction follows a verb it may occur without a preposition or relator, e.g. *lae asi* ‘go seawards’.

A noun like **tama-gu* (father-my) used with the personal article served as a name (‘Dad’, ‘Papa’); used without an article it served as a common human noun (‘my father(s)’). Similarly, in a local construction a noun like **Rumaq* ‘house’ behaved grammatically and semantically like a placename, so that **i Rumaq* meant ‘at home’ (p.241), but in the general adjunct construction **i ta-ña Rumaq* ‘at a/the house’ **Rumaq* was a common noun.

⁹ Abbreviations used in glosses are as follows: 1, 2, 3 first, second and third persons; ADN adnominal; ADV adverb; ART article; AUX auxiliary; COM common; CSTR construction marker; D: disjunctive pronoun; DEM demonstrative; DIR direction, directional; E exclusive; ENCL enclitic; HYP hypothetical; I inclusive; IMPF imperfective; IRR irrealis; LOC local, locative; N noun; O: object pronoun; PERS personal; PL plural; P: possessor pronoun; PLC placename; PREP preposition; PREPV prepositional verb; PRO pronoun; R relator; REAL realis; REL relative clause marker; SEQ sequential; SG singular; S: subject pronoun; V verb; VF final verb.

Inspection of the grammars of Oceanic languages shows that many have retained the distinction between local and common constructions, although a majority express it with morphemes other than reflexes of **i* and **ta-* (for elaboration, see Ross 2004); see also the local prepositions listed under POc **la[-]* (p.289). This inspection also shows that common nouns can be readily co-opted into the local construction. Thus it is common to find the common nouns for ‘house’, ‘garden’, ‘village’, ‘bush’ and ‘beach’ also occurring in the local construction, but this does not mean that the POc etyma they reflect necessarily occurred in the POc local construction.

As the Taiof examples above show, the division into common and local nouns cut across the division into zero-valency and monovalent nouns (vol. 1, p.32).

Zero-valency local nouns denoted familiar places like ‘home’, ‘own village’, ‘own garden’, ‘bush’, ‘beach’, i.e. locations whose reference would be clear to the addressee without further specification or whose exact reference was irrelevant (like the English construction with *at* and no article in *at home*, *at school*, *at hospital*, *at work*). Also belonging to the zero-valency local category were nouns denoting regions, either in relation to, say, the island home of the interlocutors or in relation to the speaker. These nouns denote geographic directions such as ‘up above’, ‘down below’, ‘inland’, ‘at sea’ and so on. There is no sharp distinction between these and nouns for familiar places: ‘inland’ and ‘bush’, for example, are often synonymous in Oceanic languages. This is not surprising. Palmer (2001) points out that the terms for a culture’s geographic directions are commonly grammaticised from perceptually salient phenomena of the landscape. These nouns have sometimes been labelled ‘absolute’ local nouns in the literature, to distinguish them from relational local nouns, but I prefer the label ‘geographic’ as some of their uses are deictic, referring to a location in relation to the speaker and addressee. Familiar-place and geographic local nouns are reconstructed in §2.2.

Monovalent local nouns, often labelled ‘relational’ nouns in the literature, referred to parts of objects. These are reconstructed in §2.3.

In POc the zero-valency/monovalent distinction was apparently not as sharp as it is in many modern Oceanic languages (Lynch, Ross & Crowley 2002:78–79), but there were semantically driven tendencies in the behaviour of nouns. When a noun was viewed as semantically inalienable, like the inside of an object, it was monovalent (i.e. directly possessed, with a possessor suffix), but the same noun could also have zero valency if used in a context where inalienability was irrelevant. For this reason, the relational nouns reconstructed in §2.3 have both monovalent and zero-valency forms, and we find cases where some reflexes of a relational noun are monovalent, others zero-valency.

The major local nouns reconstructed below are listed here with simplified glosses, in two groups, relational and familiar-place/geographic. Where a noun is also reconstructed as a common noun, its common-noun gloss is also given, and where a local adverb in **qa-* is reconstructable this is also shown.

Familiar-place and geographic local nouns:

	as common noun	as local noun	adverb
*qutan	‘bushland, hinterland’	‘inland’	*qa-qutan
*loja	...	‘inland’	—
*laur	—	‘seawards’	*qa-laur
*tasik	‘sea, salt water’	‘at sea’	—
*Rumaq	‘house’	‘home’	*qa-Rumaq
*tanoq	‘earth, soil’	‘down below’	*qa-tanoq
*atas	‘high country, uplands’	‘up above’	—
*lanit	‘sky, weather’	‘up top, high up’	—
*laka	...	‘up above’	*qa-laka
*liwanj	‘open space’	‘middle’	—

Relational local nouns:

	as common noun	as local noun	adverb
*lalo-, *lo-, *lalom	—	‘inside’	—
*papa-, *pa-, *papak, *pak	—	‘underside’	—
*papo-, *po-, *papo, *po	—	‘upper surface’	—
*qulu-, *qulu	‘head, (head) hair’	‘top’	PNCV *qa-qulu
*[p ^w a]p ^w aRa-, *[p ^w a]p ^w aRa	‘cheek’	‘side’	—
*qaro-, *qarop	‘face’ ?	‘front’	—
*muqa-, *muqa	—	‘front’	PNCV *qa-muqa
*mata-, *mata	‘eye’	‘front’	—
*nako-, *nako	‘face’	‘front’	—
*muri-	‘back’	‘back’	—

‘—’ indicates that the item is not reconstructable, ‘...’ that the evidence is insufficient to decide whether it is reconstructable.

Heine (1989) observes an implicational relationship ‘under’ > ‘on’/‘in’ > ‘front’ > ‘back’ such that if any of these relational meanings is derived historically from a body-part term, so will be the meanings to the right of it. This is supported by the listing above, as ‘under’ and ‘on’/‘in’ are not derived from body-part nouns, but ‘front’ and ‘back’ are. Heine argues that this is a scale of increasing deictivity from left to right, but Bowden (1992:53) argues that ‘front’ and ‘back’ are based on body-part terms simply because entities in the landscape are not perceived as having intrinsic fronts and backs, i.e. Oceanic languages do not have a relative spatial system (p.230).

2.1 The preposition *i and the prefix *qa-

The preposition *i, which occurred before local nouns, is widely reflected in Oceanic languages, but there are also many languages in which a local noun occurs without a preposition.

PAn **i* (PREP) locative (ACD)POc **i* (PREP w PLC, N LOC) locative

Adm:	Mussau	<i>e-</i>	fossilised prefix on locative nouns
Adm:	Penchal	<i>i</i>	(PREP) locative, temporal, allative, instrumental
Adm:	Lou	<i>e</i>	(PREP) locative, allative
NNG:	Manam	<i>e-</i>	locative prefix (e.g. <i>e-lau</i> 'seawards')
PT:	Molima	<i>i-</i>	locative prefix
PT:	Sudest	<i>e</i>	(PREP) locative
MM:	Tigak	<i>e</i>	(PREP w PLC) locative
MM:	Kara	<i>i</i>	(PREP) locative
MM:	Nalik	<i>i-</i>	prefix on locative demonstratives
MM:	Tabar	<i>i</i>	(PREP w PLC, N LOC) locative
MM:	Lihir	<i>i</i>	(PREP w PLC, N LOC) locative
MM:	Sursurunga	<i>i</i>	(PREP) locative, temporal
MM:	Ramoaaina	<i>i-</i>	prefix on locative demonstratives
MM:	Halia	<i>i</i>	(PREP) locative
MM:	Taiof	<i>i</i>	(PREP w predicate N LOC) locative
SES:	Bugotu	<i>i</i>	(PREP) locative
SES:	Gela	<i>i</i>	(PREP w N LOC) locative
SES:	Lengo	<i>i</i>	(PREP) locative
SES:	Longgu	<i>i</i>	(PREP w N LOC) locative
SES:	Lau	<i>i</i>	(PREP w PLC, N LOC) locative
SES:	Kwaio	<i>i</i>	(PREP) locative
SES:	Kwara'ae	<i>i</i>	(PREP) locative
SES:	Sa'a	<i>i</i>	(PREP) locative
SES:	Arosi	<i>i</i>	(PREP) locative
NCV:	Mota	<i>i</i>	(PREP) locative
NCV:	Merlav	<i>i</i>	(PREP) locative
NCV:	Nguna	<i>e-</i>	(PREP) locative
SV:	Kwamera	<i>i-</i>	prefix on locative nouns
SV:	Lenakel	<i>i-</i>	prefix on locative nouns
SV:	Anejom	<i>i-</i>	prefix on locative nouns
NCal:	Iaai	<i>e-</i>	prefix on locative adverbs
Fij:	Wayan	<i>i</i>	(PREP) locative
Fij:	Bauan	<i>e</i>	(PREP) locative
Pn:	Tongan	<i>i, ?i</i>	(PREP) locative
Pn:	Niuafo'ou	<i>?i</i>	(PREP) locative
Pn:	E Futunan	<i>i</i>	(PREP) locative
Pn:	E Uvean	<i>?i</i>	(PREP) locative
Pn:	Samoa	<i>i</i>	(PREP) locative
Pn:	Pileni	<i>i</i>	(PREP) locative
Pn:	Marquesan	<i>?i</i>	(PREP) locative

Tongan, Niuafo'ou and East Uvean ?i are phonologically problematic, as they reflect POc *qi, the form of the genitive preposition governing a non-specific inalienable possessor (Pawley 1972, Clark 1976, Hooper 1985, Ross 1998b, 2001b). However, as Clark (1976) and Blust (ACD) note, the introduction of a historically secondary glottal stop also occurs in some other Tongan grammatical formatives.

POc *i occurred with local nouns. Its exact distribution is not clear, but it is likely that *i was omissible if the phrase it initiated was licensed by the verb.

There are a number of languages in which the reflex of *i is the general locative preposition. I take these to be cases where an extension of meaning has occurred, as there are ample and widely distributed languages where *i is attested only with local nouns.

As mentioned above, a number of local nouns also formed POc local adverbs with the prefix *qa-. Jauncey (1997) notes for Tamambo that the prefix a- means 'location in/at a place', and must be prefixed to a noun signifying a place in relation to the speaker, i.e. a local noun. The cognate set is listed below. This is the *qa- which Pawley (1972:82, 114) found in Southeast Solomonian and Northern Vanuatu languages as a formative of temporal adverbs (Ch. 9, p.324).

POc *qa- local adverb formative

NNG:	Bariai	ga-	local adverb formative
NNG:	Manam	a-	local adverb formative (fossil)
NNG:	Kairiru	qa-	local adverb formative (fossil)
MM:	Vitu	ye-	local adverb formative
MM:	Siar	a-	local adverb formative
MM:	Tolai	a-	local adverb formative
SES:	Gela	ya-	local adverb formative (fossil)
NCV:	Mota	a-	local adverb formative
NCV:	NE Ambae	a-	local adverb formative
NCV:	Raga	a-	local adverb formative
NCV:	Port Sandwich	a-	local adverb formative
NCV:	Tamambo	a-	local adverb formative
NCV:	Paamese	a-	local adverb formative (fossil)

There also seems to have been an alternant *ja-, reflected in Poeng (NNG) ja-, Nakanai (MM) ga-, Longgu (SES) ja- and Samoan, Tikopia (Pn) ja-, but it is not strongly attested.

2.2 Familiar-place and geographic local nouns

The nouns reconstructed in this section are zero-valency local nouns denoting regions, either in relation to the island home of the interlocutors or in relation to the speaker. They have meanings like 'inland, bush', 'seaward, beach', 'down below' and 'up above'. Some of these glosses are adverbial in English. This is because a zero-valency local noun preceded by *i often performed the task of an English adverbial. For example, POc *i tanoq evidently expressed something like 'down there'.

Some POc zero-valency local nouns, at least, were also used as common nouns, and this difference sometimes also entailed a difference in meaning. Thus *i tanoq meant 'down there' but *tanoq meant 'earth, soil' (vol. 1, p.119); *i qutan meant, among other things, 'inland', but *qutan meant 'bushland' (vol. 1, p.118).

As far as possible, the cognate sets below are limited to reflexes of local-noun uses. However, the glosses of the reconstructions distinguish between common-noun (N) and local-noun (N LOC) meanings.

2.2.1 ‘Inland, bush’

As a common noun POc **qutan* meant ‘bushland, hinterland’ (vol. 1, p.118; this volume, Ch. 3, §5.1). As a local noun, however, **qutan* denoted the direction of the bush, namely ‘inland’. By extension, this has come to mean ‘upwards’ in a number of languages, by virtue of the fact that the inland region is significantly higher than the coast on many Pacific islands.

PAn **quCaN* ‘scrubland, bush’ (ACD)

PMP **qutan* ‘small wild herbaceous plants; scrubland, bush’ (ACD; Dempwolff 1938)

POc (N)**qutan* ‘bushland, hinterland’, (N LOC) **qutan*, (ADV) **qa-qutan* ‘in the bush, inland’

NNG:	Manam	<i>-uta</i>	(root of adverbials) ‘inland’
		<i>(a)uta</i>	(N) ‘inland’
NCV:	Mota	<i>uta</i>	‘bush, forest, unoccupied land; the inland country
NCV:	NE Ambae	<i>(a)ute</i>	(ADV) ‘up in the bush’
NCV:	Tamambo	<i>(a)uta</i>	(ADV) ‘inland direction’
NCV:	Paamese	<i>ut</i>	(N LOC) ‘ashore’
NCV:	Lewo	<i>ura</i>	(N LOC) ‘ashore’
NCV:	Nguna	<i>uta</i>	‘inland’
SV:	Lenakel	<i>-ət, -it</i>	(DIR) ‘upwards’
SV:	Kwamera	<i>(p)uta</i>	(N LOC) ‘up, upwards, on top of’
Mic:	Kosraean	<i>wat</i>	(N) ‘area inland or towards the mountains’
Mic:	Marshallese	<i>(e)ḃc</i>	(N) ‘interior of an island’
Mic:	Mokilese	<i>(e)wic</i>	(N) ‘inland’
Fij:	Rotuman	<i>ufa</i>	‘land (from the sea); interior (from the coast)’
Pn:	Tongan	<i>ʔuta</i>	(N LOC) ‘inland (from shore); shore, land (from sea)’
Pn:	Niuafo’ou	<i>(ŋā)ʔuta</i>	(N LOC) ‘upland’
Pn:	Samoan	<i>uta</i>	(ADV) ‘on shore, inland’; (N LOC) <i>i uta</i> ‘on the side facing the land’ as opposed to <i>i tai</i> ‘on the side facing the sea’
		<i>(ŋā)ʔuta</i>	(ADV) ‘to shore, in an inland direction’
Pn:	Pileni	<i>(ya)uta</i>	(N LOC) ‘shore, village location on shore, inland’
Pn:	Tikopia	<i>(ŋa)uta</i>	‘inland, landwards’
Pn:	Hawaiian	<i>uka</i>	‘inland (from shore); shore, land (from sea)’
Pn:	Marquesan	<i>uta</i>	(N LOC) ‘towards the mountain’

The cognate set below has fewer members than the one above, but appears to reflect a local noun with similar meanings. Polynesian reflexes display a vowel change and a change in meaning from ‘inland’ to ‘top, space above, up top’, a change presumably mediated by the fact that on a high island (as opposed to atoll) the inland of the island was also its ‘top’.

POc (N) **loŋa* ‘inland’, (N LOC) **loŋa* ‘inland’

NNG:	Bariai	<i>loŋa</i>	‘bush people’
SES:	Bugotu	<i>loŋa, (i)loŋa</i>	‘landwards, from sea’
SES:	Gela	<i>loŋa, (i)loŋa</i>	‘landwards, inland’
SES:	Longgu	<i>loŋa</i>	(N LOC) ‘direction towards bush’
SES:	Kwaio	<i>(i ka)loŋa</i>	‘in the forest’
Mic:	Marshallese	<i>-laŋ</i>	(DIR) ‘upward’
Mic:	Puluwatese	<i>-loŋ</i>	(DIR) ‘inland’
Mic:	Woleaian	<i>roŋ</i>	(DIR) ‘inland’

PPn **luŋa* ‘top, space above, up top’ (-u- for expected *-o-)

Pn:	Niuean	<i>luŋa</i>	(N LOC) ‘above, upon, top’
Pn:	Niuafo’ou	<i>(ʔo)luŋa</i>	(N LOC) ‘up’
Pn:	Samoa	<i>luŋa</i>	(N LOC) ‘top, space above, up top’
Pn:	Pileni	<i>luŋa</i>	(N LOC) ‘top, up, east’

2.2.2 ‘Seaward, towards the beach, at sea’

The principal POc local noun meaning ‘seawards’ was **laur*, and it was evidently the antonym of **qutan* and **loŋa* above. It reflects PMP **lahud* ‘downriver, towards the sea’, and it is likely that it was inherited into POc primarily, perhaps exclusively, as a local noun denoting a direction (for common-noun reflexes, see p.95). In this regard it differed from POc **tasik* ‘sea, salt water’ and POc **laman* ‘deep sea beyond the reef’, reconstructed in Chapter 4, which were common nouns.

POc **tasik* is quite often reflected as a local noun and presumably functioned as both a local and a common noun in POc. Occasional reflexes have meanings similar to those of POc **laur*, but most mean ‘at sea’, and this was presumably its POc meaning.

It is unlikely that POc **laman* normally occurred as a local noun, as only two local noun reflexes have been found (Mussau [Adm] *lamana* ‘beach’, Tigak [MM] *laman* ‘down there, at the beach’).

PMP **lahud* ‘downriver, towards the sea’ (Dempwolff 1938, Blust 1997)

POc (N LOC) **laur* ‘sea, seawards’; (ADV) **qa-laur* ‘in a seaward direction’

Yap:	Yapese	<i>lʔāy</i>	‘seaward’
NNG:	Manam	<i>-lau</i>	(root of adverbials) ‘seawards’
		<i>(i)lau</i>	(N) ‘seawards’
MM:	Nakanai	<i>(go)lau</i>	‘go toward the sea’
MM:	Meramera	<i>-lau</i>	(root of adverbials) ‘beach’
MM:	Kokota	<i>rauru</i>	‘seaward’
SES:	Bugotu	<i>lau, (i)lau</i>	‘seawards’ (as opposed to <i>i-loŋa</i> ‘landwards, inland, towards land’)
SES:	Gela	<i>lau, (i)lau</i>	‘seawards, shorewards from a speaker inland, (river) bank’ (as opposed to <i>i-loŋa</i> ‘landwards, inland, towards land’)
SES:	Lau	<i>lau</i>	‘north; open sea to the north’

NCV:	Mota	<i>lau</i>	‘the beach, as approached from the land’
NCV:	NE Ambae	<i>(a)lau</i>	(ADV) ‘down by the sea’
NCV:	Tamambo	<i>(a)lau</i>	(ADV) ‘seawards, shore direction’
NCV:	Paamese	<i>(a)lau</i>	‘seawards’

PMP **tasik* ‘sea’ (Dempwolff 1938)

POc (N) **tasik* ‘sea, salt water’, (N LOC) **tasik* ‘at sea’

MM:	Lihir	<i>(i) tes</i>	‘at sea’
MM:	Ramoaina	<i>(nə) tai</i>	‘on the sea, out to sea’ (not ‘seawards’)
MM:	Tolai	<i>(na) ta</i>	‘on the sea, out to sea’ (not ‘seawards’)
SES:	Longgu	<i>asi</i>	(N LOC) ‘seawards’
SES:	Kwaio	<i>(i) asi</i>	‘at the coast’
SV:	Lenakel	<i>(i) rhe</i>	(ADV) ‘at/to sea’
Fij:	Wayan	<i>taōi</i>	(N LOC) ‘coast, seashore, sea, from the perspective of the land’
Pn:	Niufo’ou	<i>(ŋā) tai</i>	(N LOC) ‘outer sea’
Pn:	Samoa	<i>tai</i>	(ADV) ‘at sea’, (<i>i tai</i> ‘on the side facing the sea’, as opposed to <i>i uta</i> ‘on the side facing the land’)
		<i>(ŋā) tai</i>	(ADV) ‘to sea’
Pn:	Marquesan	<i>tai</i>	(N LOC) ‘sea’

2.2.3 *Directions along the coastline*

The items reconstructed above for ‘inland’ and ‘seawards’ were orientations at an angle to the coastline. Also recorded for a few languages are items referring to the two directions along the coastline. Possible PWOC candidates for these meanings are given below. Although the data are fragmentary, the fact that both members of the pair are recorded in widely separated languages supports their reconstruction. The Nalik glosses ‘south-east’ and ‘north-west’ are equivalent respectively to ‘to one’s left when facing the sea’ and ‘to one’s right when facing the sea’ if one is on the west coast of New Ireland.

PWOC (N LOC) **pa*, (ADV) **qa-pa* ‘to one’s left when facing the sea’

NNG:	Manam	<i>(a) wa</i>	(N) ‘to one’s left when facing the sea’
MM:	Vitu	<i>(ye) va</i>	(ADV) ‘downwards’
MM:	Nalik	<i>pa</i>	(N LOC) ‘south-east’

PWOC (N LOC) **ta*, (ADV) **qa-ta* ‘to one’s right when facing the sea’

NNG:	Manam	<i>(a) ta</i>	(N) ‘to one’s right when facing the sea’
MM:	Vitu	<i>(ye) ta</i>	(ADV) ‘upwards’
MM:	Nalik	<i>ta</i>	(N LOC) ‘north-west’

Nakanai (MM) has the non-cognate pair of roots (used in directional and local verbs) *-ale* ‘to one’s left when facing the sea’ and *-muli* ‘to one’s right when facing the sea’.

2.2.4 ‘At home’

The cognate set attesting POc **Rumaq* ‘house’ was presented in vol. 1, p.48. It is reasonably clear that it also functioned as a local noun in the phrase **i Rumaq* ‘at home’, and apparently also in the adverb **qa-Rumaq*.

PAn **Rumaq* ‘dwelling house’ (Blust 1987)

POc (N) **Rumaq* ‘house’, (N LOC) **Rumaq*, (ADV) **qa-Rumaq* ‘at home’

PT:	Saliba	<i>numa</i>	(N LOC) ‘home’
MM:	Nakanai	<i>(go)luma</i>	‘go to nearest hamlet, usually one’s home’
MM:	Meramera	<i>-luma</i>	(root of adverbials) ‘home’
MM:	Ramoaaina	<i>(nə)ruma</i>	‘at home’
MM:	Taiof	<i>numa</i>	(N LOC) ‘home’
NCV:	Tamambo	<i>(a)imo</i>	(ADV) ‘at home’
NCV:	Paamese	<i>(tela)im</i>	(N LOC) ‘home’
NCV:	Lewo	<i>um^wa</i>	(N LOC) ‘home’
SV:	Lenakel	<i>īm^wa</i>	‘at home, homewards’ (cf. <i>nim^wa</i> ‘house’)

2.2.5 ‘Down below’

POc **tanoq* is reconstructed as a common noun meaning ‘earth, soil, ground; land’ in vol. 1, p.119 and in this volume, p.41. However, there is well distributed evidence that as a local noun it meant ‘down below’. This is not surprising when one considers that POc speakers must generally have lived in stilt houses (vol. 1, Ch. 3) for whose inhabitants the ground was indeed ‘down below’.

PMP **taneq* ‘earth, land’ (Dempwolff 1938)

POc (N) **tanoq* ‘earth, soil, ground; land’, (N LOC) **tanoq*, (ADV) **qa-tanoq* ‘down on the ground, down below’

Adm:	Loniū	<i>tan</i>	(ADV) ‘down’
NNG:	Takia	<i>tan (na)</i>	(N + POSTPOSITION) ‘on the ground, down below’
PT:	Gumawana	<i>tono</i>	‘down’
MM:	Harua	<i>tano</i>	‘down there’
MM:	Nakanai	<i>(go)talo</i>	‘go down’
MM:	Meramera	<i>tano(do)</i>	‘down there’ (-do DEM)
NCV:	Tamambo	<i>(a)tano</i>	‘down on the ground, downwards’
NCV:	Paamese	<i>dan</i>	‘down, below’
NCV:	Lewo	<i>tano</i>	‘underneath, downwards’
SV:	Kwamera	<i>təna</i>	‘earth, ground; land, island, country’
NCal:	Iaai	<i>kənɔ</i>	‘earth, ground’
NCal:	Nengone	<i>ten</i>	‘under’

The meanings above overlap with the adverb reflexes of POc **sipo* ‘go downward’, (ADV) ‘down below’, but **tanoq*, a noun, and **sipo* a verb (and perhaps adverb), belonged to different word classes (§3.3.1).

2.2.6 ‘Up above’

A few of the reflexes of POC **atas* ‘top, space above’ are monovalent relational nouns. However, the vast majority of reflexes are geographic, not relational, nouns, and it seems that POC **atas* was also a geographic noun. It also seems that it was not a common noun (in this respect it resembles POC **laur*, p.239).

The items listed under ‘cf. also’ below reflect a Proto North Bougainville form **yasa*, which has replaced **yatasa*. Possibly **yasa* is derived from expected **yatasa* by idiosyncratic deletion of the middle syllable.

PAn **aCas* ‘high, tall’ (ACD)

POC (N) **atas* ‘top; space above’, (N LOC) **atas* ‘up top’

NNG:	Ali	<i>yat</i>	‘on top’
NNG:	Tumleo	<i>yot</i>	‘on top’
PT:	Are	<i>yata</i>	‘on top’
PT:	Gapapaiwa	<i>yata</i>	‘on top’
PT:	Sinaugoro	<i>iata(na-i)</i>	‘on top of it’ (N-P:3SG-POSTP)
PT:	Motu	<i>lata- ata(i)</i>	‘summit, top’ ‘on top’ (N-POSTP)
MM:	Bali	<i>yata</i>	‘up (there)’
MM:	Nakanai	<i>(go)ata</i>	‘go upwards’
MM:	Meramera	<i>uata</i>	‘upwards’
MM:	Lavongai	<i>(la)kat</i>	‘top’
MM:	Nalik	<i>uata</i>	‘top’
MM:	Sursurunga	<i>(u-ram)iet iet</i>	‘upwards’ ‘top’
MM:	Tangga	<i>(l)iat (ua)yat</i>	‘up (there)’ ‘upwards’
Mic:	Kiribati	<i>(i)eta</i>	‘up, on high, above, top, upper, heavens’
Mic:	Marshallese	<i>ec</i>	‘upper, eastern’
Mic:	Chuukese	<i>ās asa-</i>	‘upper part, top, summit, eastern side’ ‘upper part’
Mic:	Woleaian	<i>yat</i>	‘up, top’
Fij:	Wayan	<i>ata</i>	(N LOC) ‘top, above; interior of a mountainous island, up the hill, inland’

cf. also

MM:	Solos	<i>yas (i)yas</i>	‘top’ ‘up (there)’
MM:	Petats	<i>(i)yas yas</i>	‘up (there)’ ‘topside; upwards’
MM:	Halia (Haku)	<i>(i)yasa (pal)yasa</i>	‘up (there)’ ‘upwards’
MM:	Halia (Selau)	<i>(i)yasa</i>	‘up (there)’
MM:	Taiof	<i>yas</i>	‘up (there); upwards’

POc **laŋit* ‘sky, weather’ is reconstructed as a common noun in Chapter 5, but the reflexes below suggest that it was also used as a POc local noun.

PAn **laŋiC* ‘sky’ (Dempwolff 1938)

POc (N) **laŋit* ‘sky, weather’, (N LOC) **laŋit* ‘up top, high up’

Yap:	Yapese	<i>lǣŋ</i>	‘up’
SES:	Lau	(i) <i>laŋi-</i>	‘up, above’
SES:	Kwaio	<i>laŋi-</i>	‘space above’
NCV:	Mota	<i>laŋ</i>	‘upwards, heavenwards’
NCV:	Nguna	(e) <i>laŋi</i>	‘up, high, above, top’
Mic:	Marshallese	<i>laŋ</i>	‘up, above’

The meanings above overlap with the adverb reflexes of POc **sake* ‘go upward’, (ADV) ‘upwards, up top’, but **atas* and **laŋit* were nouns, **sake* a verb (and perhaps adverb, p.277).

It is less clear whether POc **laka* ‘up above’ was a noun or a verb. In Takia its reflex is a zero-valency noun, in Mapos Buang and Kiriwina a local adverb. These could be derived from either a noun or a directional verb. Monovalent noun reflexes occur in the two New Ireland (MM) languages Lihir and Siar, but in other New Ireland languages (Lavongai, Tigak and Kara) the reflexes are verbs. However, the Southeast Solomonian reflexes reflect the derived adverb **qa-laka* ‘up there, up above’ (which was then used as a verb in some SES languages). Since **qa-* is far more readily reconstructable as a prefix to nouns than to verbs, I assume that **laka* was a noun.

POc (N LOC) **laka* ‘up above’, (ADV) **qa-laka* ‘in an upward direction’

NNG:	Takia	<i>lak (na)</i>	‘high up’ (<i>na</i> local postposition)
NNG:	Mapos Buang	<i>raq</i>	‘up, above’
PT:	Kiriwina	<i>lake(va)</i>	‘top, in sky’
MM:	Lavongai	(<i>saŋ</i>) <i>lak</i>	‘(sun) rise’
MM:	Tigak	<i>lak</i>	‘(sun) rise’
MM:	Kara (East)	<i>lak</i>	‘(sun) rise’
MM:	Lihir	<i>laka-</i>	‘top surface, space above’
MM:	Siar	<i>laka-</i>	‘top surface, space above’
SES:	Gela	(<i>ya</i>) <i>laya</i>	‘up’
SES:	Talise	(<i>ya</i>) <i>laya</i>	‘go up’
SES:	Birao	(<i>ha</i>) <i>laha</i>	‘go up’

There was also a POc verb **laka*, which meant ‘walk’ and apparently had no directional meaning.

2.2.7 ‘In the middle, between’

There is well distributed evidence that POc **liwaŋ*, **liwa-*/**liwaŋa-* was a local noun meaning ‘open space, space between, middle’, and that it had at least one relational alternant. The form we would expect to find reflected in most languages with relational forms is POc **liwa-*. However, we also find reflexes of **liwaŋa-*. This may be the result of local developments, and this in turn may suggest that there was no relational form in POc.

The forms listed below under ‘cf. also’ are similar in form to those listed here. However, the fact that they share a formal irregularity—they seem to reflect POc **lua*—and a different meaning—‘outside’—suggests that POc **lua* ‘outside’ may have been a separate etymon, and also a local noun.

PMP **liwaŋ* ‘open space’ (ACD: Proto Western Malayo-Polynesian)

POc (N) **liwaŋ*, **liwa-/liwaŋa-* ‘open space, space between, middle’, (N LOC) **liwaŋ* ‘in the middle’

Adm:	Loniū	(lɔhɔ)luwa-	‘middle’
NNG:	Mangap	lwo-	‘torso; middle’
NNG:	Manam	luʔaŋa-	‘space in middle’
NNG:	Hote (Misim)	livuŋ	‘front’
PT:	Minaveha	niwani-	‘midst, among’
PT:	Sudest	luyawo-luyawo-	‘middle’ (metathesis of <i>**luwayo-</i>)
MM:	Ramoaina	(nə)liwən	‘between’
MM:	Tolai	(na)livuan	‘in the middle’
		livuan	‘(be) in the middle’
SES:	Longgu	levua-	‘middle, centre’
NCV:	NE Ambae	livuge-	‘middle’
NCV:	Tamambo	livuya-	‘middle part of s.t.’
NCV:	Paamese	luhi, luhu	‘middle’
SV:	Sye	(i)lvuy(teve)-	‘between, in the middle of’
Mic:	Woleaian	riwan-	‘between, among’
Fij:	Bauan	liwa	(N) ‘ocean far from land’, (ADV) ‘far from habitation’
		(mā)liwa	(N) ‘space between, interstice’
cf. also:			
MM:	Minigir	(na)lua	‘outside’
MM:	Tolai	(na)lua	‘outside’
SV:	Lenakel	(i)lua	‘outside’
SV:	Kwamera	(i)rua	‘outside’

2.3 Relational local nouns

The function of a POc monovalent relational local noun preceded by **i* was similar to that of an English preposition, as in these Tabar (MM) examples, where the relational noun *paki-* ‘underneath’ performs a function similar to that of the English preposition *under*.¹⁰

<i>i</i>	<i>paki-na</i>	<i>mi</i>	<i>vanua</i>
PREP	underneath-P:3SG	ART	house
‘under the house’ (more literally ‘at the house’s underneath’)			
<i>i</i>	<i>paki-gu</i>		
PREP	underneath-P:1SG		
‘under me’			

¹⁰ Tabar and Lengo sentences are from my fieldnotes.

In these Lengo (SES) expressions the relational noun *muri-* ‘back’ performs a function similar to that of the English preposition *behind*.

i muri-e na vae
 PREP back-CSTR ART house
 ‘behind the house’ (more literally ‘at the house’s back’)

i muri-gu
 PREP back-P:1SG
 ‘behind me’

Hence we can with reasonable confidence make POc reconstructions such as:

**i lalo-ña Rumaq*
 PREP inside-P:3SG house
 ‘inside the house’ (more literally ‘at the house’s inside’)

**i gab^wari-ña Rumaq*
 PREP underneath-P:3SG house
 ‘underneath the house’ (more literally ‘at the house’s underneath’)
 (*gab^wari-* ‘the area underneath a raised house’; vol. 1, p.51)

**i muri-gu*
 PREP back-P:1SG
 ‘behind me’

Many Oceanic languages have relational nouns with the meanings reconstructed below: ‘inside’ (§2.3.1), ‘underneath, lower surface, space below’ (§2.3.2), ‘top, upper surface, space above’ (§2.3.3), ‘side’ (§2.3.4), ‘outside’ (§2.3.5), ‘front, time before’ (§2.3.6), ‘back, space behind, time after’ (§2.3.7). Although the nearest semantic equivalents of Oceanic relational nouns are English prepositions, I have used nouns and noun phrases in the titles of these subsections in an attempt to replicate the meanings of the reconstructed Oceanic terms.¹¹

In their monovalent form, relational local nouns are reconstructed below like other monovalent nouns, i.e. without their final consonant, on the assumption that it was lost before a possessor suffix: for example, **lalom* ‘inside’ became **lalo-*, **papak* ‘underneath’ became **papa-*. However, as I note in Lynch, Ross and Crowley (2002, Ch. 4), there is some evidence from Tanna languages (SV) that POc retained the final consonant in this context, so that, e.g., POc **lalo-ña* in the reconstructed example above may have been (optionally?) **lalom-ña*.

2.3.1 ‘Inside’

The most widely reflected POc term for ‘inside’ is **lalo-/lalom*. This reflects PMP **Daləm* with assimilation of the initial liquid to the intervocalic liquid: the expected POc form is ***ralo-/**ralom*. Reconstruction of unsuffixed **lalom* is supported by just one reflex, Mussau *e-lom-e*.¹²

¹¹ Some of these titles, like ‘inside’, show categorial ambiguity between noun and preposition because the English preposition reflects the grammaticisation of a relational noun.

¹² Initial *e-* reflects the POc local preposition **i*. Final *-e* is also found on another Mussau relational noun, *pak-e*, reflecting POc **pak* ‘underside’. Its origin is not known.

In Polynesian languages reflexes of **lalo-/lalom* denote the region underneath something. Blust (1997) suggests that this meaning change comes from the use of **lalom* in relation to a planar surface, the sea, rather than a three-dimensional container.

PMP **Daləm* ‘inside’

POc (N, N LOC) **lalo-*, **lalom* ‘inside’

Adm:	Mussau	(e)lom(e)	(ADV) ‘inside’
NNG:	Gitua	<i>lolo-</i>	‘inside’
NNG:	Mangap	<i>lele-</i>	‘inside, in’
NNG:	Kakuna	<i>lolo-</i>	‘inside’
NNG:	Bam	<i>liluo</i>	‘room’
NNG:	Kairiru	<i>lal</i>	‘inside’
NNG:	Ulau-Suain	<i>lulua-</i>	‘room’
NNG:	Ali	<i>lal</i>	‘room’
NNG:	Numbami	(tae)lalo	‘intestines’
		(weni)lalo	‘forest’
NNG:	Yabem	(ŋa)lelom	‘inside’
NNG:	Kela	<i>raro</i>	‘inside’
PT:	Motu	<i>lalo-</i>	‘inside, within’
PT:	Mekeo	<i>alo-</i>	‘inside’
MM:	Bola	<i>lilo</i>	‘inside’
MM:	Meramera	<i>lilo</i>	‘inside’
MM:	Notsi	<i>lolo</i>	‘inside’
MM:	Lihir	<i>lilie</i>	‘inside’
MM:	Sursurunga	<i>lali</i>	‘underside’
MM:	Ramoaaina	<i>lolo</i>	‘intestines’
SES:	Gela	<i>lalo</i>	‘deep, profound’
SES:	Talise	<i>lalo-na</i>	‘in’
SES:	Lau	(i)lalo	‘inside, in’
SES:	Sa’a	<i>lalo</i>	‘inside’
SES:	Arosi	<i>raro</i>	‘in’
NCV:	Mota	<i>lolo-</i>	‘the inner part; a hollow; the inward part of man, heart, affections’
NCV:	Raga	<i>lolo-</i>	‘inside, middle; body, stomach’
NCV:	Uripiv	<i>lolo-</i>	‘inside’
NCV:	Port Sandwich	<i>nalö-n</i>	‘inside; seat of feelings’
SV:	Kwamera	<i>reri-</i>	‘internal portion, insides, heart, mind, feeling, emotion’
SV:	Anejom	<i>lele-</i>	‘inside; heart, seat of feelings’
NCal:	Tinrin	<i>ñuuwu-</i>	‘inside’
Mic:	Kiribati	(i)nano-n	‘inside, in’
Mic:	Kosraean	<i>lʷal</i>	‘deep’
Mic:	Marshallese	<i>i-lɔwa</i>	‘inside, in’
		<i>lalʷ</i>	‘down, bottom, below, earth, world’
Mic:	Ponapean	<i>lɔɛ</i>	‘inside (it)’

Mic:	Chuukese	<i>rrɔr</i>	‘inside of’
Mic:	Puluwatese	<i>llɔn</i>	‘in it’
Mic:	Woleaian	<i>raro</i>	‘inside’

PPn **lalo* ‘region underneath’

Pn:	Tongan	<i>lalo</i>	‘below, under’
Pn:	Samoan	<i>lalo</i>	‘under, down, below’
Pn:	Pileni	<i>lalo</i>	‘bottom, down, west’

There is evidence that POc **lalo-* had two short forms, **lo-* and **la-*. A number of their reflexes occur as prepositions and may have been conflated with reflexes of POc **lako/*la* ‘go (to); away from speaker’. They are listed together with a discussion of this conflation in §3.4.5. Listed below are those reflexes of the short forms which are not prepositions; most are local nouns. Significantly, there is a difference between the distributions of the two short forms. Reflexes of **lo-* occur quite commonly as local nouns, and a number of them have a fossilised prefix reflecting the POc local preposition **i*. Reflexes of **la-* have a stronger tendency to occur as prepositions (p.288), and may reflect the short form of **lako* rather than of **lalo-*.

There is, of course, also a possibility that **lalo-* has undergone haplology to form **lo-* more than once in the history of Oceanic languages, but reflexes of **lo-* below and in §3.4.5 are widespread enough to warrant its reconstruction in POc.

POc (N LOC) **lo-* ‘inside’

Adm:	Titan	<i>lo(n-um)</i>	‘floor, inside of a house’ (<i>um</i> ‘house’)
NNG:	Malasanga	<i>lo-</i>	‘inside’
NNG:	Sio	<i>(i)lo</i>	‘inside’
NNG:	Tami	<i>lo</i>	‘inside’
NNG:	Poeng	<i>lo-</i>	‘inside’
NNG:	Roinji	<i>lo</i>	‘inside’
NNG:	Manam	<i>(i)lo-</i>	‘inside, in’
NNG:	Bing	<i>lo</i>	‘inside’
NNG:	Takia	<i>(i)lo-</i>	‘inside, in’
MM:	Nakanai	<i>-(i)lo</i>	‘inside’
MM:	Siar	<i>lo</i>	‘inside’
SES:	Gela	<i>lo-</i>	‘inside’
NCV:	Lonwolwol	<i>lo-</i>	‘inside; heart, feelings’

POc (N LOC) **la-* ‘inside’; ?? (PREP) ‘in’

Yap:	Yapese	<i>lā-n</i>	‘inside’
MM:	Tigak	<i>la-</i>	‘inside’
MM:	Kara (East)	<i>la</i>	‘inside’
Mic:	Woleaian	<i>ra-n</i>	‘inside’

POc **loto-* ‘space within a concave object’ is not well supported. It has become the default relational noun for ‘inside’ in Polynesian languages (where POc **lalo-* is reflected with the meaning ‘underneath’; see above) and is also reflected in Wayan Fijian, so it can be reconstructed for Proto Central Pacific. Its reconstruction in POc rests on a single Admiralties reflex, Loniū *lɔtiyɛ-*, with *-i-* for expected *-o-*.

POc (N, N LOC) **loto* ‘space within a concave object’

Adm:	Loniū	<i>lɔtiyɛ-</i>	‘inside’
Fij:	Wayan	<i>loto-</i>	‘bottom, lowest part (e.g. of kava bowl)’

PPn **loto* ‘inside’

Pn:	Tongan	<i>loto</i>	‘inside; hole or depression in coral reef or sea bed’
Pn:	Samoa	<i>loto</i>	‘deep hole in lagoon; (house) interior’
Pn:	Tahitian	<i>roto</i>	‘pool, lake, lagoon; inside’
Pn:	Hawaiian	<i>loko</i>	‘pond, lake, pool; inside, interior; internal organs, as tripe’

In many Oceanic languages the word for ‘inside’ is the reflex of a POc body-part term. Two of these may have had the secondary meaning ‘inside’: POc **b^wal(o,a)-*, **b^wal(o,a)k* seems to have denoted the belly, POc **tinaqe-* the intestines.

POc (N) **b^wal(o,a)-*, **b^wal(o,a)k* ‘belly; hollow space’, (N LOC) ‘inside’

Adm:	Nyindrou	<i>bolo-n</i>	‘inside, in’
Adm:	Titan	<i>pólo-n</i>	(PREP) ‘among, inside’
NNG:	Kairiru	<i>balai</i>	‘inside’
MM:	Vitu	<i>polok</i>	‘inside’
MM:	Sursurunga	<i>polgo</i>	‘inside’
MM:	Tolai	<i>(ta ra) bala-na</i>	‘inside, in’ (<i>ta</i> PREP, <i>ra</i> ART, <i>bala-</i> ‘belly, interior’)
NCV:	Raga	<i>b^wala</i>	‘shell’
		<i>b^wala(lolo)</i>	‘middle’
NCV:	Lonwolwol	<i>bwele-n</i>	‘hollow vessel, empty shell’
NCV:	Paamese	<i>vale(-ŋe-ne)</i>	‘hollow part of something, cave’
NCV:	Namakir	<i>bwele-n</i>	‘belly’
NCV:	Nguna	<i>(na-)pwele</i>	‘stomach, belly, abdomen, waist, genital region’
		<i>(na)-pwala(u-na)</i>	‘among, middle, inside’

PMP **tinaqi* ‘small intestine’ (Blust 1981)POc (N) **tinaqe-* ‘intestines; ?? (N LOC) inside’

Adm:	Drehet	<i>kxine</i>	‘inner part, inside’
PT:	Tawala	<i>(u) hine-na</i>	‘inside, in’
PT:	Iduna	<i>hinage-ne</i>	‘inside’
PT:	Gapapaiwa	<i>sine</i>	‘inside’
PT:	Sudest	<i>tine</i>	‘inside’

2.3.2 ‘Underneath, lower surface, space below’

The most widely reflected POc term for ‘underneath, underside’ is **papa-*, **papak*. This reflects PMP **babaq*, which Blust reconstructs as referring to the underside or lower surface of something (the change from PMP **-q* to POc **-k* is unexplained). In a number

of Oceanic languages, its meaning also includes the space beneath something, e.g. a house (see the NNG reflexes below), and it is probable that this extension of meaning had already occurred in POc. Its zero-valency forms are the source of local adverbs meaning ‘below, down there’ in a number of languages.

Scattered reflexes also suggest the reconstruction of monosyllabic forms without the first (reduplicated) syllable. An innovative monovalent form **p^wake-* is reflected in Meso-Melanesian languages, apparently by the addition of **-e* to the monosyllabic form **pak*.

No reflexes occur in Central Pacific languages. In Fijian, **papa-*, **papak* has been ousted by reflexes of POc **ruku-* ‘underneath’ (see below), in Polynesian languages by reflexes of POc **lalom* ‘inside’ (p.247).

PMP **babaq* ‘lower surface, bottom, underside’ (ACD)

POc (N, N LOC) **papa-*, **pa-*, **papak*, **pak* ‘underneath, lower surface, bottom, underside’

Adm:	Mussau	<i>pak(e)</i>	‘underside’
Adm:	Loniu	<i>paʔaha-</i>	‘underside’ (metathesis of <i>*pahaʔa-</i> < <i>*papaqa-</i> with unexplained final <i>*-a-</i>)
Adm:	Drehet	<i>pehe(kxa-)</i>	‘underside’
NNG:	Lukep (Pono)	<i>pa(rumu)</i>	‘area under house’ (< POc <i>*pak qi Rumaq</i> ‘underneath of house’)
NNG:	Dami	<i>pa(rume)</i>	‘under’ (< POc <i>*pak qi Rumaq</i>)
NNG:	Bing	<i>papa(rum)</i>	‘under (a house)’ (< POc <i>*papak qi Rumaq</i>)
PT:	Are	<i>baba-</i>	‘beneath’
PT:	Gapapaiwa	<i>vava-</i>	‘beneath’
PT:	Tawala	<i>baba-</i>	‘base, underneath, bottom; reason’
PT:	Mekeo	<i>papu-</i>	‘under’
SES:	Talise	<i>vava-</i>	‘below’
SES:	Birao	<i>vava-</i>	‘below’
NCV:	Nokuku	<i>veva-n</i>	‘underside’
NCV:	Kiai	<i>vova-na</i>	‘underside’
NCV:	Uripiv	<i>(mel)ve-n</i>	‘the underneath of it, the shade of it’ (<i>*malu</i> ‘shadow’)
NCV:	Lonwolwol	<i>fa-n</i>	‘underneath’
NCV:	Paamese	<i>hehe-ne</i>	‘underneath’
NCV:	Nguna	<i>na-ve(ruku)</i>	‘underneath’
Mic:	Kiribati	<i>ā-</i>	‘underside, underneath, bottom’
Mic:	Ponapean	<i>pā-</i>	‘underneath’
Mic:	Mokilese	<i>pā-</i>	‘underneath’
Mic:	Chuukese	<i>fā-</i>	‘underneath’
Mic:	Woleaian	<i>fā-</i>	‘underneath’
NCal:	Cèmuhî	<i>hāhî-n</i>	‘underneath’

Proto Meso-Melanesian **pake-* ‘underneath, underside’

MM:	Bali	<i>va-vake(ni)</i>	‘down (there)’
MM:	Tigak	<i>pak(a-)</i>	‘underside’
MM:	Kara (East)	<i>pa-</i>	‘underside; down there’

MM:	Notsi	<i>pai-</i>	‘underside’
MM:	Tabar	<i>paki-</i>	‘underside’
MM:	Lihir	<i>pakie-</i>	‘underside’
		<i>pek-</i>	‘down (there)’
MM:	Tangga	<i>(ua-i)fafi</i>	‘downwards’
MM:	Konomala	<i>fəi-</i>	‘underside’
MM:	Tolai	<i>(na)vavai</i>	‘under’
MM:	Taiof	<i>fai-</i>	‘underside’
MM:	Teop	<i>pa-</i>	‘underside’
MM:	Roviana	<i>(pana)peka</i>	‘below’ (vowel metathesis)
MM:	Vangunu	<i>(pana)peka</i>	‘below’ (vowel metathesis)
MM:	Kia	<i>peka</i>	‘below’ (vowel metathesis)
MM:	Laghu	<i>peka</i>	‘below’ (vowel metathesis)

Three other POc terms can be reconstructed with a meaning related to ‘underneath’ or with a denotation which has given rise to it in daughter languages.

Several reflexes of the first, POc **ruku-*, are concatenated with a reflex of **pa-* ‘underside’, the short form of **papa-*. These seem to be compounds, implying that the meaning of **ruku-* was perhaps more specific than that of **papa-*. The latter was evidently the generic term for ‘underneath’. Perhaps **ruku-* denoted the undersurface of something.

The second term, POc **gab^wari-* meant ‘the area underneath a raised house’ (vol. 1, p.51) and has come to mean ‘underneath’ in some languages by extension. POc **puqu-*, *puqun* had the relational meaning ‘base, foundation’ when used in association with an object, as well as the more abstract meaning ‘origin, source, reason’.

POc (N, N LOC) **ruku-* ‘underneath, undersurface (?)’

MM:	Bulu	<i>luku(va)-</i>	‘underside’ (-va < POc <i>*pa-</i> ‘underside’)
MM:	Meramera	<i>luʔu(va)-</i>	‘underside’ (-va < POc <i>*pa-</i> ‘underside’)
MM:	Nakanai	<i>(lau)lu(va)-</i>	‘underside’ (-va < POc <i>*pa-</i> ‘underside’)
MM:	Nalik	<i>ru</i>	‘down (there)’
SES:	Gela	<i>(ru)ruyu</i>	‘below’
SES:	Lau	<i>rū</i>	‘inside of roof’
SES:	Kahua	<i>ruyu(ha)-</i>	‘below’ (-ha < POc <i>*pa-</i> ‘underside’)
NCV:	Tamambo	<i>ruhu-ruhu</i>	‘underneath part of s.t.’
NCV:	Nguna	<i>(na-ve)ruku</i>	‘underneath’ (ve- < POc <i>*pa-</i> ‘underside’)
Fij:	Wayan	<i>ruku</i>	‘underneath, under, below, space underneath’
Fij:	Bauan	<i>ruku-</i>	‘space underneath’

POc (N, N LOC) **gab^wari-* ‘the area underneath a raised house’ (vol. 1, p.51)

Adm:	Titan	<i>kap^waliŋ</i>	‘area underneath a house’
NNG:	Mapos Buang	<i>ybi(ne)</i>	‘underneath’
NNG:	Mangga	<i>kabi(ni)</i>	‘underneath’
NNG:	Patep	<i>ŋbi-</i>	‘underneath’
PT:	Gumawana	<i>gabula</i>	‘underneath’
PT:	Tawala	<i>gaboli-</i>	‘area underneath a house’

PT:	Dobu	<i>gabura</i>	‘area underneath a house’
PT:	Duau	<i>gabule-</i>	‘area underneath a house’
PT:	Misima	<i>gabúla</i>	‘area underneath a house; underneath’
PT:	Sinaugoro	<i>gabule-</i>	‘underneath’

PMP **puqun* ‘beginning, cause, origin, source, basis’ (ACD)

POc (N, N LOC) **puqu-*, *puqun* ‘base, foundation, origin, source, reason’

Adm:	Loniu	<i>puʔu-</i>	‘bottom, underside’
NNG:	Tami	<i>pu-</i>	‘base, origin’
NNG:	Mangga	<i>kabi(ni)</i>	‘underneath’
NNG:	Takia	<i>fú-n</i>	‘bottoms’
NNG:	Yabem	<i>m̐</i>	‘origin’ ¹³
NNG:	Bukawa	<i>(ŋa)pu</i>	‘underside’
NNG:	Mangga	<i>vu</i>	‘underside’
NNG:	Wampar	<i>fo(n)</i>	‘origin’
NNG:	Labu	<i>(a)ho</i>	‘base; bottom; reason’
NNG:	Silisili	<i>fogo</i>	‘origin’
NNG:	Wampur	<i>hugu-n</i>	‘trunk’
NNG:	Adzera	<i>fugu-n</i>	‘tap-root; base’
PT:	Bwaidoga	<i>vu-vu-</i>	‘cause, origin, foundation of anything; (tree) root’
MM:	Tolai	<i>vu-</i>	‘beginning, cause, origin, source, basis, root, foundations’
SES:	Longgu	<i>vuʔa</i>	‘below, down; a time before’
Fij:	Wayan	<i>-vū</i>	‘base, bottom; origin, source, cause; taproot, tuber’

2.3.3 ‘Top, upper surface, space above’

The basic POc term for ‘top, upper surface, space above’ is **papo[-]*, **po[-]*. Blust (ACD, 1997) writes that PMP **babaw* ‘upper surface, top’ is the antonym of PMP **babaq* ‘lower surface, bottom’, and the same is true of their POc reflexes: POc **papo[-]*, **po[-]* is the antonym of POc **papa-*, **papak* (p.249).

The unsuffixed forms are a source of local adverbs meaning ‘above, up there’ in a number of languages, although here POc **qulu[-]* below is a close competitor.

The Kiribati (Mic) reflex of POc **papo[-]* also has the meaning ‘outside’, and this is the sole sense of the Nemi (NCal) and Polynesian reflexes. Blust (ACD) suggests that (as with **lalom*; p.246) this is the result of applying the term to the planar surface of the sea. In relation to the sea, **papo[-]* was its surface and the space above it. This is beyond the land, hence ‘outside’ it.

¹³ Yabem *m̐* (syllabic low-tone bilabial nasal) is the regular reflex of earlier **vu* < POc **puqu-*.

PMP **babaw* ‘upper surface, top; above; highlands’ (ACD)POc (N, N LOC) **papo[-]*, **po[-]* ‘upper surface, top’

Adm:	Mussau	<i>po(na)</i>	‘top’
NNG:	Tami	<i>[ka]popo-</i>	‘top (of s.t.)’
		<i>po</i>	‘above’
NNG:	Takia	<i>fo</i>	(POSTPOSITION) ‘on’
NNG:	Numbami	<i>wao-</i>	‘above’
NNG:	Yabem	<i>aḏ</i>	‘upwards’
		<i>(ŋ)aḏ</i>	‘upper surface’
NNG:	Kela	<i>baba</i>	‘topside’
NNG:	Mapos Buang	<i>vavu</i>	‘up top’
		<i>vavu(ne)</i>	‘upwards’
NNG:	Wampar	<i>we(ŋ)</i>	‘topside’
NNG:	Yalu	<i>wau(g)</i>	‘topside’
NNG:	Adzera	<i>wagu(ŋ)</i>	‘topside’
MM:	Notsi	<i>papa-</i>	‘topside’
MM:	Tabar	<i>popo-</i>	‘topside’
MM:	Tangga	<i>fo-</i>	‘topside’
SES:	Baegu	<i>fafo(luma)</i>	‘thatch’ (<i>luma</i> ‘house, building’)
SES:	Lau	<i>fafo-</i>	‘top’
SES:	Longgu	<i>vavo-</i>	‘top surface, space above’
SES:	’Are’are	<i>haho-</i>	‘topside’
SES:	Sa’a	<i>haho-</i>	‘above’
SES:	Arosi	<i>haho-</i>	‘topside’
NCV:	Mota	<i>vawo</i>	‘above, upon’
NCal:	Nemi	<i>p^wap</i>	‘outside’
Mic:	Kiribati	<i>āo</i>	‘upper part of, surface, outside, back’
		<i>(i)ao-</i>	‘on, on top’
Mic:	Kosraean	<i>fε-</i>	‘above, on’
Mic:	Marshallese	<i>εwε-</i>	‘on; upon; top; surface; over’
Mic:	Mokilese	<i>pō-</i>	‘on’
Mic:	Chuukese	<i>wḁ-r</i>	‘above, on it’
Mic:	Puluwatese	<i>wḁ-n</i>	‘above, on it’
Mic:	Woleaian	<i>wḁ-</i>	‘on, topside, upside’
Pn:	Samoa	<i>fafo</i>	‘outside, out of doors, a place other than Samoa’
Pn:	Rennellese	<i>haho</i>	‘outside’
Pn:	Maori	<i>waho</i>	‘outside; open sea; coast, as opposed to inland’
Pn:	Hawaiian	<i>waho</i>	‘outside, beyond, out, outer, outward’

Given the tendency for body-part terms to be used by metaphorical extension as relational nouns (cf. p.248), it is unsurprising that the word for ‘head’ and ‘head hair’, POc **qulu[-]*, also acquired the meaning ‘top’.

PAn **qulu* ‘head’ (ACD)

POc (N)**qulu*[-] ‘head, (head) hair’, (N LOC) ‘top part’

Adm:	Mussau	<i>ulu (bo)</i>	‘headwaters of a river’
Adm:	Nauna	<i>kulu(n puli)</i>	‘(mountain) peak’
NNG:	Yabem	<i>lo-lo(?)</i>	‘topside’
NNG:	Bukawa	<i>lu-lu(?)</i>	‘topside’
PT:	Molima	<i>ʔunu-ʔunu-</i>	‘head, forehead; (river) source’
MM:	Tigak	<i>kuli-</i>	‘top’
		<i>kul</i>	‘up (there)’
MM:	Tiang	<i>kələ</i>	‘topside’
MM:	Nalik	<i>kula</i>	‘up (there)’
MM:	Tabar	<i>kulu</i>	‘topside’
MM:	Lamasong	<i>kun</i>	‘up (there)’
MM:	Konomala	<i>ulə</i>	‘topside’
MM:	Tolai	<i>ul</i>	‘head, hair, top, apex, crown’
MM:	Roviana	<i>ulu</i>	‘top’
SES:	Gela	<i>ulu-</i>	‘head, except of a chief; (in compounds) hair; eastern end, upper end’
SES:	Bugotu	<i>ulu</i>	‘head, top end’
SES:	Lau	<i>ulu(nao)</i>	‘first-born, elder, senior’
		<i>ulu-ulu-</i>	(tree) topmost branch
SES:	’Are’are	<i>uru</i>	‘cloud, heaven, sky, top’
NCV:	NE Ambae	<i>ulu-</i>	‘top’
NCV:	Tamambo	<i>ulu-</i>	‘top part’
NCV:	Raga	<i>ulu-</i>	‘space above’
NCV:	Paamese	<i>(n)ulu(ʔout)</i>	‘at the top of the garden’ (< POc * <i>na qulu ni qutan</i> ART top PREP bush)
NCal:	Nemi	<i>hule-n</i>	‘top’
Mic:	Kosraean	<i>ulu-</i>	‘top’
Fij:	Wayan	<i>-ulu</i>	‘head or top part of an animal or thing’
Fij:	Bauan	<i>ulu-</i>	‘head, top’
Pn:	Tongan	<i>ʔulu</i>	‘head, upper end’
Pn:	Samoan	<i>ulu</i>	‘head, hair’
		<i>ulu(matua)</i>	‘first-born, eldest child’
Pn:	Maori	<i>uru</i>	‘head, (head) hair; chief; top, upper end; (weapon +) point’

In NCV languages we find reflexes of the adverb **qa-qulu* ‘up there, up above’: NE Ambae *a-ulu* ‘up high, on top’, Tamambo *a-ulu* ‘on top, at the gardens’, Kiai *aulu* ‘above’.

2.3.4 ‘Side’

It is tempting to look for a POc relational noun which would correspond in its use to the English preposition ‘beside’. However, in many of its English uses ‘beside’ denotes a relative location, and, as I noted in §1, speakers of Oceanic languages do not make use of

relative locations. We would expect POc reconstructions corresponding to meanings of English ‘side’ to denote an intrinsic, not a relative, location, and consequently perhaps to denote a part of a particular object.

This expectation is at least partly fulfilled. We can reconstruct POc **[p^wa]p^waRa[-]* ‘side; cheek’, a body-part term whose primary meaning was probably ‘side of the face’. Its uses are analogous to those of POc **mata[-]* ‘eye; face; front’ (p.249). However, a good deal of confusion surrounds reflexes of **[p^wa]p^waRa[-]*. Reflexes of POc **baban/*bapan* ‘plank; canoe plank or strake’ (vol. 1, p.185) are similar in both form and meaning to those of **[p^wa]p^waRa[-]*. Listed under ‘cf. also’ below **[p^wa]p^waRa[-]* are terms whose glosses include the meaning ‘side’ but whose forms reflect **baban*. The Lau and Bauan reflexes have glosses which are associated with both items, suggesting conflation.

PCEMP **papaR* ‘cheek, temple, side,’ (ACD)¹⁴

POc (N) **[p^wa]p^waRa[-]* ‘cheek, side of head’, (N LOC) ‘side’

NNG:	Kairiru	<i>poreq</i>	‘side of house’ (-q unexplained)
MM:	Nalik	<i>par, pāran</i>	‘side’ (dialectal variants)
MM:	Tolai	<i>papar, papara-</i>	‘side’
MM:	Minigir	<i>papara</i>	‘side’
MM:	Ramoaaina	<i>papar</i>	‘side’
MM:	Kandas	<i>papori</i>	‘side’
MM:	Taiof	<i>pana</i>	‘side’
MM:	Mono-Alu	<i>(pa)pala</i>	‘side’
MM:	Roviana	<i>papara</i>	‘side of face, cheek’
cf. also			
NNG:	Rauto	<i>vava-</i>	‘side’
NNG:	Maeng	<i>vava-</i>	‘side’
NNG:	Poeng	<i>vava-</i>	‘side’
SJ:	Sobei	<i>popa</i>	‘cheek’
SES:	Kwaio	<i>baba</i>	‘side, cheek’
SES:	Lau	<i>baba</i>	‘side; long side board of canoe’
SES:	Arosi	<i>baba</i>	‘cheek, temples; side (of a stream +)’
Fij:	Bauan	<i>baba</i>	‘side of s.t., cheek bone; side of a canoe’

POc **p^wala(η)* ‘side, part’ is reconstructable, but its exact sense is unclear.

PMP **balaη* ‘side, part’ (ACD)

POc **p^wala(η)* ‘side, part’ (ACD)

MM:	Tigak	<i>pal</i>	‘part’
SES:	Gela	<i>pala</i>	‘side, part’
SES:	Lau	<i>bara-</i>	‘side’
NCV:	Mota	<i>para</i>	‘sideways, turning aside’
Pn:	Tongan	<i>pala</i>	‘side, edge’

POc **bali* denoted ‘one of two (opposing) sides or parts’.

¹⁴ Blust also gives ‘plank’ as a gloss. See text.

PMP **baliw* ‘moiety; answer; oppose; partner, friend, enemy; opposite side or part’ (ACD)¹⁵

POc (N, N LOC) **bali[-]* ‘one of two (opposing) sides or parts’

SES:	Gela	<i>bali</i>	‘bring together (opposite planks of a canoe)’
SES:	Kwaio	<i>bali-</i>	‘part, side, portion, half’
NCV:	Mota	<i>(ta)vali(u)</i>	‘one of two sides or parts’
NCV:	Raga	<i>bal(si)</i>	‘side’
NCV:	Lonwolwol	<i>wali</i>	‘one of (a pair); the mate of’
Mic:	Ponapean	<i>pali</i>	‘side’
Mic:	Woleaian	<i>pariy</i>	‘side’
Pn:	Tahitian	<i>pari</i>	‘side’
Pn:	Tuamotuan	<i>pari(a)</i>	‘a half’

cf. also:

MM:	Motu	<i>badi(nai)</i>	‘beside’ (-d- for expected <i>**r-</i>)

There are two other reconstructions from which terms for ‘side’ are derived. One, POc **siriŋ* ‘side, edge’, is derived from a PMP term whose basic meaning was apparently ‘be close to, be near to’. Only three Oceanic reflexes have been found to date. The other, PEOc **tapa-* ‘side, outside’, is limited to Eastern Oceanic, where the earlier sense seems to have been ‘side’ in the sense of ‘outer surface other than front or back’.

PMP **sidiŋ* ‘border on, neighbour; peer, equal’ (ACD)

POc (N, N LOC) **siriŋ* ‘side, edge’

NNG:	Dami	<i>siri-</i>	‘side’
NNG:	Takia	<i>siriŋe-</i>	‘side’
Mic:	Marshallese	<i>tur^{uu}u-</i>	‘beside’

PEOc (N, N LOC) **tapa-* ‘side, outside’

NCV:	NE Ambae	<i>tava(lu)-</i>	‘side’
NCV:	Tamambo	<i>tava(lu)</i>	‘side part of s.t.’
NCV:	Paamese	<i>tav</i>	‘one side’
Pn:	Tongan	<i>tafa</i>	‘edge, border’
Pn:	Samoan	<i>tafa</i>	‘side’
Pn:	K’marangi	<i>taha</i>	‘outside, shore’
Pn:	Rennellese	<i>taha</i>	‘outside, beside, near, edge, side’
Pn:	Tuamotuan	<i>taha</i>	‘side, margin, edge, border’

2.3.5 ‘Outside’

It is reasonably clear that the ‘inside’/‘outside’ opposition found in European languages did not occur in POc. This is unsurprising, since POc relation terms were nouns denoting parts of an object. The inside of a house is readily conceived as a part of it (POc **lalo-*), but the English term ‘outside’ only denotes a part insofar as it refers to the external surfaces of the building. As noted at various points in §2.3, terms which denote (among

¹⁵ The PMP etymon is discussed at length by Blust (1980a) and in the ACD.

other things) particular external surfaces are also used metonymically to denote the external surface or ‘outside’ of an object in general. This is true of some reflexes of POc **papo*[-] ‘upper surface, top’ (p.252), of POc **muri*[-] ‘back part, rear’ (p.261) and of PEOc **tapa*- ‘side, outside’ (above).

The terms in the set below could tempt us to reconstruct POc **luku*- ‘side, outside’.¹⁶ However, their uneven distribution is suspicious, and it seems far more likely that they reflect PMP **liku*D, POc **liku*(*r*) ‘(person’s) back’ (Blust 1981). The meaning of scattered reflexes of this word has extended to include the backs and rear parts of inanimate objects (like POc **muri*[-]), and thence the external surfaces of objects in general. The specification of ‘back’ in the Marshallese and Woleaian reflexes below supports this interpretation.

Yap:	Yapese	(<i>wu</i>) <i>lu?</i>	‘outside of’
NNG:	Manam	(<i>e</i>) <i>luku</i>	‘outside’
Mic:	Kosraean	<i>liki</i>	‘outside’
Mic:	Marshallese	<i>liki</i> -	‘outside; ocean side of; behind, in back of’
Mic:	Ponapean	<i>liki</i> -	‘outside’
Mic:	Mokilese	<i>liki</i> -	‘outside’
Mic:	Chuukese	<i>riki</i>	‘exterior, outside, outside surface, outer edge, immediate environs’
Mic:	Woleaian	<i>rix</i>	‘outside, back of s.t.’
Fij:	Wayan	<i>liku</i>	(N LOC) ‘back side of the island’

2.3.6 ‘Front, time before’

According to Blust (1997), the PMP relational noun for ‘front’ was **qadap* ‘front’, which was also used of the human face. Although reflexes of this term have been replaced by body-part terms (see below) in a majority of Oceanic languages, enough reflexes survive to make it clear that its reflex POc **qaro*-, **qarop* ‘front; face’ is reconstructable.

PAn **qadap* ‘front, face’

POc (N) **qaro*-, **qarop* ‘face’, (N LOC) ‘front’

NNG:	Mangap	<i>kere</i> -	‘front’
NNG:	Manam	<i>aro</i> -	‘space in front’
NNG:	Kairiru	<i>aro</i> -	‘in front of (s.t.)’
PT:	Dawawa	<i>karo</i>	‘in front’
SES:	Sa’a	<i>saro</i>	‘face, turn oneself’
Fij:	Rotuman	<i>aro</i>	‘front, side or surface that is usually seen.’
Pn:	Tongan	<i>ʔao</i>	‘front’
Pn:	E Futunan	<i>ʔalo</i>	‘in front’
Pn:	Marquesan	<i>aʔo</i>	‘front’
Pn:	Hawaiian	<i>alo</i>	‘front’
Pn:	Maori	<i>aro</i>	‘front of body, pubic area of females’

¹⁶ This putative item resembles POc **ruku*- ‘underneath’, but this is probably fortuitous.

None of the items above reflects final POc **-p*, but we can be certain that the form **qarop* occurred, as a reflex is preserved in PPn **ʔarofiwaʔe* ‘sole of foot’ (e.g. Tongan *ʔaofi vaʔe*, East Futunan *ʔalofi-vaʔe*, Samoan *alofivae*), reflecting POc **qarop qi qaqe*, literally ‘front of foot’ (where **qi* is the non-specific possessive preposition (Ross 1998b, 2001b)).

Another generic POc term for ‘front’ (but probably not ‘face’) was **muqa[-]*, which—its reflexes suggest—occurred more often as a zero-valency than a monovalent noun. As a zero-valency local noun it occurred in the prepositional phrase **i muqa* ‘in front, formerly’. The reduplicated form **muqa-muqa* ‘in front, formerly’ represents a morphological pattern not found with other local nouns.

As the glosses indicate, POc **muqa[-]* had the temporal sense of ‘time before’ as well as the local sense of ‘front’. It was thus the antonym of POc **muri[-]* ‘back, time after’ (§2.3.7).

POc (N LOC) **muqa[-]* ‘front’, **muqa* ‘front, be in front’, **i muqa*, **qa-muqa* **muqa-muqa* (ADV) ‘in front, formerly’

Yap:	Yapese	<i>mʔōn</i>	‘front’
Adm:	Mussau	<i>mua</i>	‘front’
Adm:	Titan	<i>mo(ndrol)</i>	‘bow of canoe’
NNG:	Manam	<i>mua</i>	‘go first, precede’
MM:	Vitu	<i>muya-</i>	‘front’
MM:	Nalik	<i>(pa)mua</i>	‘in front’
MM:	Notsi	<i>(la)mua</i>	‘front’
MM:	Tabar	<i>mu-mua</i>	‘formerly’
		<i>moa</i>	‘front’
MM:	Lihir	<i>(i)muo</i>	‘formerly’
		<i>muo</i>	‘in front’
MM:	Solos	<i>ma-mua</i>	‘in front’
MM:	Halia (Selau)	<i>(to)mua-na</i>	‘old’
MM:	Taiof	<i>(i)mua-n</i>	‘formerly’
MM:	Teop	<i>(ta)mua-na</i>	‘old’
MM:	Banoni	<i>ma-ma</i>	‘in front’
NCV:	Mota	<i>m^woa-i</i>	‘first, foremost, principal; to be first’
NCV:	Raga	<i>mua-i</i>	‘first’
NCV:	NE Ambae	<i>mue-</i>	‘front of’
NCV:	Lewo	<i>(va)mo</i>	‘front’ (va ‘go’)
Mic:	Nauruan	<i>(ā)m^wō</i>	‘front’
Mic:	Kiribati	<i>moa</i>	‘front, fore part’
Mic:	Woleaian	<i>mm^wa-</i>	‘front, first, tip, before’
Mic:	Marshallese	<i>m^uā-</i>	‘front’
		<i>m^wāha-</i>	‘ahead of, before, in front of’
Mic:	Mokilese	<i>m^wō-</i>	‘front’
Mic:	Ponapean	<i>m^wowε-</i>	‘ahead of, in front of, before’
Mic:	Chuukese	<i>m^w-m^wa-</i>	‘in front of, more than’
Fij:	Wayan	<i>mua</i>	‘end-point or tip of a long object; head for or set course for a place’

Fij:	Bauan	<i>mua</i>	‘the first; tip, point, prow’
Pn:	Tongan	<i>muʔa</i>	‘front’
Pn:	Niuafo’ou	<i>muʔa</i>	‘front’
Pn:	Rapanui	(ʔi) <i>muʔa</i>	‘front’
Pn:	Tahitian	(i) <i>mua</i>	‘front’

In NCV languages we find reflexes of the adverb **qa-muqa* ‘in front, formerly’: Mota (a)m^woa ‘before, first’, Raga (a)mua ‘before, at first, first, in front of’, NE Ambae (a)mue ‘in front, at the front’, Port Sandwich (a)mo (POSTVERBAL ADV) ‘before’.

There is evidence in Western Oceanic languages for a competing form **muga*. This occurs far more often in verbal reflexes than does **muqa*, so it is possible that **muga* was the POC verb, and that **muqa* supplanted **muga* in PEOc. The possibility of conflating the two terms is illustrated in Vitu and Bali, dialects of the Bali-Vitu language. In one, Vitu, the monovalent term for ‘front’ is *muya-*, reflecting **muqa*, whilst in the other, Bali, it is *muga-*, reflecting **muga*. Since reflexes of **muga* are otherwise not monovalent, it is reasonable to infer that this is a conflation whereby the noun *muya-* has been replaced by the verb-form *muga*.

Although **muqa* and **muga* are formally similar, a historical relationship between them is problematic: we would expect an alternation between POC **k* and **g*, but not between **q* and **g*.¹⁷

PWOC (?? N LOC, V) **muga* ‘front; be in front; formerly’

NNG:	Bariai	<i>muga</i>	‘front’
		<i>muga(ŋa)</i>	‘forehead’
		<i>muga(eai)</i>	‘formerly’ (- <i>eai</i> POSTP)
NNG:	Arop-Lokep	<i>mugu</i>	‘first of all, formerly’
NNG:	Mangap	<i>muʔgu</i>	‘first of all, formerly, long ago’
NNG:	Gitua	<i>munga</i>	‘precede, go ahead, future’
NNG:	Sio	<i>muga</i>	‘precede; before’
NNG:	Tami	<i>muŋ</i>	‘front; in front’
NNG:	Bing	<i>mug</i>	‘formerly’
NNG:	Gedaged	<i>mug</i>	‘precede’
NNG:	Yabem	<i>muŋ</i>	‘precede’
NNG:	Adzera	<i>moŋʔ</i>	‘prior’
		<i>moŋʔ(an)</i>	‘precede’
PT:	Suau	- <i>muga(i)</i>	‘precede’
MM:	Bali	<i>muga-</i>	‘front’
MM:	Bola	<i>muga</i>	‘frontside’
MM:	Nakanai	<i>ma-muga</i>	(RELATIONAL N) ‘front’
MM:	Ramoaaina	(nə)mugə	‘in front; formerly’
MM:	Kandas	<i>mugu</i>	‘in front’
MM:	Bilur	<i>mugo</i>	‘frontside’
MM:	Siar	<i>muŋ</i>	‘in front of’

¹⁷ There are non-Oceanic items that look cognate, but they are descended from borrowings of Sanskrit *mukha* ‘face’. The items are Isneg *múkāt* ‘face’, Ilokano *mukat* ‘eye mucus’, Tagalog *mukhaʔ*, Indonesian *muka* ‘face’, Balinese *muə* ‘face’. Sasak *mua* ‘face’ (Gonda 1973:104). I am grateful to Robert Blust for this information.

The body-part terms whose reflexes are often used for ‘front’ are POc **mata[-]* ‘eye, face, front’ and POc **nako[-]* ‘face, front’. The original and basic meanings of **mata[-]* and **nako[-]* were ‘eye’ and ‘face’ respectively. Nonetheless, reflexes of these terms occur with great frequency in the meaning ‘front’. Scattered reflexes below suggest that **i mata* was a POc expression meaning ‘in front’, and other modern uses suggest that it has long been used for the front of an inanimate object, e.g. Nalik (MM) *la maran a fal* [PREP eye PREP house] and Tolai (MM) *ta ra mata-na pal* [PREP ART eye-P:3SG house], both ‘in front of the house’.

PAn **maCa* ‘eye’

POc (N)**mata[-]* ‘eye; face’, (N LOC) ‘front’

NNG:	Lusi	<i>mata-</i>	‘eye; front’
NNG:	Bariai	<i>mata</i>	‘eye; front’
NNG:	Mangap	<i>mata-</i>	‘eye; front’
NNG:	Takia	<i>mala-</i>	‘eye, front’
NNG:	Buang	<i>mala</i>	‘eye, front’
NNG:	Adzera	<i>mara-</i>	‘eye, front’
NNG:	Kaulong	<i>(e)mara</i>	‘in front’
PT:	Kiriwina	<i>mata-</i>	‘eye; front’
MM:	Nalik	<i>mara-</i>	‘eye; front’
MM:	Siar	<i>mata-</i>	‘eye; front’
MM:	Tolai	<i>mata</i>	‘eye; front’
MM:	Taiof	<i>mata-</i>	‘eye; front’
SES:	Gela	<i>(i)mata</i>	‘in front of’
SES:	Sa’a	<i>mā</i>	‘eye; front’
		<i>(i)mā</i>	‘outside’
NCal:	Tinrin	<i>(ŋā)m^wāŋā</i>	‘front’
Mic:	Kosraean	<i>matl-</i>	‘eye; front’
Fij:	Wayan	<i>mata-</i>	‘face, front of head, face of object with both front and back side’
		<i>(i)mata</i>	‘in front’
Fij:	Bauan	<i>mata-</i>	‘eye; face; front’
		<i>(i)mata</i>	‘in front’
Pn:	Tongan	<i>mata</i>	‘eye, face’
Pn:	Samoaan	<i>mata</i>	‘eye, face’
Pn:	Maori	<i>mata</i>	‘eye, face’

POc (N, N LOC)**nako[-]* ‘face, front’

Adm:	Pak	<i>nogo(gi)</i>	‘front, before, face’
NNG:	Gitua	<i>nago</i>	‘face’
NNG:	Tami	<i>nao</i>	‘front, face’
NNG:	Takia	<i>nao-</i>	‘face’
		<i>nao(-n na)</i>	‘in front of’ (N-P:3SG POSTPOSITION)
PT:	Ubir	<i>na(-na-i)</i>	‘in front of it, him’

PT:	Tawala	<i>nao-</i>	‘front/forward position’
		<i>u nao-na</i>	‘in front’ (PREP N-P:3SG)
MM:	Lavongai	<i>(ai)no</i>	‘formerly’
		<i>no</i>	‘forehead; frontside’
MM:	Tigak	<i>(ai)no</i>	‘formerly’
		<i>no</i>	‘forehead; frontside’
MM:	W. Kara	<i>no</i>	‘forehead’
MM:	Nalik	<i>no</i>	‘forehead’
SES:	Gela	<i>nayo</i>	‘front, before, face’
SES:	Bugotu	<i>nayo</i>	‘front’
SES:	Longgu	<i>naʔo(va-)</i>	‘front’
SES:	Lau	<i>nao</i>	‘front’
SES:	Kwaio	<i>naʔo-</i>	‘front’
SES:	‘Are’are	<i>naʔo</i>	‘front’
SES:	Sa’a	<i>naʔo</i>	‘front, before, face’
NCV:	Mota	<i>nago-i</i>	‘face, front, cutting edge’
NCV:	Merlav	<i>nago-i</i>	‘front, before, face’
NCV:	Tamambo	<i>naho-</i>	‘face’
NCV:	Paamese	<i>nā-</i>	‘face, front’
NCV:	Nguna	<i>nako-</i>	‘front, before, face’

2.3.7 ‘Back, space behind, time after’

The generic POc term for the back (of something or someone), the space behind (something or someone), and the time after (an event) was **muri[-]*. However, it has a more complex history than other POc relational nouns. Blust (ACD) derives it from PMP **ma-udehi*, containing the PMP undergoer-subject verbal prefix **ma-* and the root **udehi* which he glosses as ‘last; come after or behind; late, later; future; stern of a boat; youngest child.’ Blust’s glosses are not intended to be a claim about the morpholexical class of the item, but it is a reasonable inference from work on the history of PMP and POc **ma-* (Evans and Ross 2001) that PMP **udehi* was a noun, perhaps meaning ‘that which is behind, that which is last, that which is after or in the future’ and that **ma-udehi* was a stative (adjectival) verb derived from it.

There is evidence in the Gapapaiwa (PT), Ramoaina (MM), Arosi (SES), Bauan (Fij), Samoan (Pn), and Rennellese (Pn) definitions below that POc **muri* remained a stative verb, but there is also overwhelming evidence that it was a monovalent relational noun with spatial meanings like ‘back part, rear, behind, space to the rear of, time after’ as well as more concrete uses like ‘stern of a canoe’. It is also glossed as an adverb of place and/or time in a number of languages, but where there is evidence about its morpholexical class, these uses derive from its nominal use with a preposition, suggesting POc **i muri* ‘behind, later’ (more literally, ‘in the space behind, at a time after’). POc **muri* thus also had a temporal use, referring to time after the time of speaking (p.322). Note that the syntactic behaviour of POc **muri[-]* broadly matches that of its antonym **muqa[-]/*muga* (§2.3.6), which also had both nominal and verbal uses.

It appears that the PMP root **udehi* was also inherited into POc as the base **uri*, but only two reflexes have been found. They are both in NNG languages: Gedaged *uli* ‘follow, pursue; come after, succeed; go to the rear’ and Kaulong *e-uli* ‘back’ (*e-* ART).

PMP **ma-udehi* ‘be last; be after or behind; be late, be later; future’ (ACD)¹⁸

POc (N, N LOC) **muri[-]* ‘be behind, be after; back part, rear, behind, space to the rear of, time after; (canoe) stern; space outside’, **i muri*, **muri-muri* ‘at the back, later’

Adm:	Wuvulu	<i>muki</i>	‘(canoe) stern’
Adm:	Loniu	<i>muʔu (tun)</i>	‘(canoe) stern’
Adm:	Drehet	<i>(o)mu(ŋ)</i>	‘back’
NNG:	Kove	<i>muhi-</i>	‘s.o.’s back’
NNG:	Bariai	<i>mur[-]</i>	‘s.o.’s back’
NNG:	Gitua	<i>mur</i>	‘behind, afterwards’
NNG:	Gedaged	<i>mul-</i>	‘behind, rear, back part, stern, rear, posterior, outside of s.t.’
NNG:	Manam	<i>muri</i>	‘behind’
NNG:	Yabem	<i>(ŋa)mu(ŋa)</i>	‘back of s.t.’
NNG:	Bukawa	<i>(ŋa)^mbu(ⁿga)</i>	‘back of s.t.’
NNG:	Kaiwa	<i>mul</i>	‘back of s.t.’
PT:	Iduna	<i>muli(ne)</i>	‘back of s.t., behind’
PT:	Dobu	<i>muri-</i>	‘behind, afterwards’
PT:	Gapapaiwa	<i>muri</i>	‘follow’
		<i>muri-</i>	‘back of s.t.; behind, afterwards’
PT:	Tawala	<i>muli-</i>	‘back of s.t.; behind, afterwards’
PT:	Motu	<i>muri-</i>	‘back of s.t.; space behind’
MM:	Bali	<i>muri</i>	‘back of s.t.’
MM:	Meramera	<i>(ma)muli</i>	‘back of s.t.’
		<i>(muli)muli</i>	‘later’
MM:	Nakanai	<i>(muli)muli</i>	‘later’
MM:	Lavongai	<i>muŋ</i>	‘back of s.t.; s.o.’s back’
MM:	Tigak	<i>(ai)muk</i>	‘later’
		<i>mugi-</i>	‘back of s.t.; s.o.’s back’
MM:	Tabar	<i>muri-</i>	‘back of s.t.’
MM:	Ramoaina	<i>mur</i>	‘follow; behind, back; last’
		<i>(na)mur</i>	‘later, afterwards’
		<i>mur</i>	‘s.o.’s back’
SES:	Gela	<i>muri-</i>	‘behind, afterwards; back; outside of s.t.; afterbirth; posterity’
SES:	Lengo	<i>(i)muri(a)</i>	‘after’
SES:	Arosi	<i>muri-</i>	‘follow; behind, back; outside of s.t.; afterwards; left hand when facing an object’
Mic:	Ponapean	<i>m^wuri</i>	‘behind’
Mic:	Woleaian	<i>m^wizi-</i>	‘behind, after, backside, rear’

¹⁸ Blust (ACD) does not provide a gloss for **ma-udehi*. The gloss here is based on that for **udehi*.

Mic:	Mokilese	<i>m^weri-</i>	‘back of s.t.; s.o.’s back’
Mic:	Puluwatese	<i>m^wir-</i>	‘back of s.t.; s.o.’s back’
Fij:	Bauan	<i>muri</i>	‘following, after’
		<i>(e) muri</i>	‘behind, later’
		<i>(ki) muri</i>	‘to the rear’
Pn:	Tongan	<i>mui</i>	‘space behind; rear; end, extremity, tip; back, rear; later; young, immature, only partly developed’
Pn:	Samoa	<i>muli</i>	‘come last, be last; young, new’
Pn:	Rennellese	<i>mugi</i>	‘follow, be or go behind or after; rear end, esp. lower or western end’
Pn:	Maori	<i>muri</i>	‘rear, hind part; sequel, time to come; behind, afterwards, backwards; youngest child’
Pn:	Hawaiian	<i>muli</i>	‘behind, afterwards; last, following behind; younger, youngest; (canoe) stern’

The reflexes below contain a Northwest Solomonian innovation whereby Proto Northwest Solomonian **mudi[-]* is reconstructable (this would reflect POc **mudri*) instead of expected ***muri[-]*.

Proto Northwest Solomonian **mudi*-‘back of s.t.; s.o.’s back’

MM:	Nehan	<i>mudi</i>	‘back of s.t.; s.o.’s back’
MM:	Petats	<i>mur</i>	‘s.o.’s back’
MM:	Halia (Haku)	<i>mur</i>	‘back of s.t.; s.o.’s back’
MM:	Halia (Selau)	<i>muri-</i>	‘back of s.t.’
		<i>mur</i>	‘s.o.’s back’
MM:	Banoni	<i>muri</i>	‘behind’
MM:	Mono-Alu	<i>(muri)muri</i>	‘later’
MM:	Vangunu	<i>(tara)meji-na</i>	‘after’
MM:	Varisi	<i>(tara)muzi-na</i>	‘after’
MM:	Nduke	<i>mudi-</i>	‘back of s.t.; s.o.’s back’
MM:	Roviana	<i>mudi-</i>	‘back of s.t.; s.o.’s back’

The semantic and formal similarity of the reflexes of POc **burit* below to those of POc **muri[-]* above is evidently due to chance. In the 2003 version of this chapter, I attributed members of the set below to a putative PMP **pa-udehi*, paradigmatically related to PMP **ma-udehi* (ancestral to POc **muri[-]*), but the presence in this set (listed in the ACD) of Bugotu *buriti* indicates that I was wrong.

PMP **burit* ‘hind part, rear, back’ (ACD)

POc **burit* ‘hind part, rear, back’, (N, N LOC) ‘back part, rear, behind, space to the rear of, time after; (canoe) stern’, (ADV) ‘behind, afterwards’

NNG:	Kela	<i>^mhuri(ya)</i>	‘back of s.t.’
MM:	Tinputz	<i>puri</i>	‘behind’
MM:	Teop	<i>huri</i>	‘behind’
SES:	Lau	<i>huri</i>	‘back, stern’
SES:	Bugotu	<i>buriti</i>	‘back’

SES:	Longgu	<i>huri-</i>	'behind; after'
SES:	Lau	<i>huri</i>	'back; behind, after; stern, rear'
		<i>huri(wela)</i>	'after-birth'
		<i>(i) huri</i>	'afterwards'
SES:	Kwaio	<i>buli-na</i>	'after'
		<i>buli</i>	'after, behind'
SES:	'Are'are	<i>puri-na</i>	'after'
SES:	Sa'a	<i>(i) puri</i>	'back of, behind; stern of a canoe'
		<i>puri-na</i>	'after, back, stern'

One body-part term occurs with fair frequency with the sense of 'back part of, space behind'. This is POc **takuRu[-]* '(s.o.'s) back'. The evidence that this was a body-part term in POc is clear. It may also have been used by extension as a POc relational local noun, but it is also possible that local-noun uses in modern languages represent independent parallel developments.

POc (N, ? N LOC) **takuRu[-]* '(s.o.'s) back'

Adm:	Titan	<i>lákulo-</i>	'(s.o.'s) back' (<i>l-</i> for expected <i>t-</i>)
NNG:	Sio	<i>taulo</i>	'behind'
PT:	Gumawana	<i>tolu-</i>	'(s.o.'s) back'
PT:	Dawawa	<i>tauri</i>	'back of s.t.; s.o.'s back'
PT:	Motu	<i>doru-</i>	'back, behind'
MM:	Lavongai	<i>toŋ</i>	'back of s.t.'
MM:	Nalik	<i>toru-</i>	(N LOC) 'space behind' (e.g. <i>la toru-gu</i> [PREP N LOC-P:1SG] 'behind me')
MM:	Minigir	<i>tauru-</i>	'(s.o.'s) back'
MM:	Bilur	<i>taru-</i>	'(s.o.'s) back'
MM:	Siar	<i>taru-</i>	'(s.o.'s) back'
MM:	Taiof	<i>touno-</i>	'(s.o.'s) back'
MM:	Teop	<i>tonu-</i>	'(s.o.'s) back'
MM:	Kia	<i>tayuru-</i>	'back of s.t.; s.o.'s back'
MM:	Kokota	<i>tagru-</i>	'back of s.t.; s.o.'s back'
MM:	Maringe	<i>t^hagru-</i>	'back of s.t.; s.o.'s back'
NCV	Mota	<i>tawur, tawuru-</i> <i>(a)tawur</i>	'back of s.t.; s.o.'s back' 'behind'
NCV:	NE Ambae	<i>tagu-</i>	(N LOC) 'space behind'
NCV:	Raga	<i>(a)tayu-</i>	(N LOC) 'behind'
NCV:	Port Sandwich	<i>(a)rax</i>	(N LOC) 'behind'
NCV:	Lonwolwol	<i>tao-</i>	'lower back (region around hips); behind'
NCV:	Lewo	<i>ra-</i> <i>(va)rau</i>	'back of s.t.; s.o.'s back' 'behind' (<i>va</i> 'go')
NCV:	Nguna	<i>(na)taku</i> <i>(e)daku</i>	'back; the far side, other side' (ADV) 'at the back, behind; after'
SV:	Sye	<i>(n)toc(-noki)</i> <i>(n)tocu(-nta-)</i>	'back of skull' 'shoulder blade'

SV:	Kwamera	<i>taku-</i>	‘back’
SV:	Anejom	<i>(i)tay</i>	(ADV) ‘behind’ (e.g. <i>itay a niom^w</i> [ADV PREP N] ‘behind the house’)
NCal:	Nyelâyu	<i>dū-</i>	‘(s.o.’s) back; behind’
NCal:	Tinrin	<i>ʔɔɔ-</i>	‘(s.o.’s) back’
Mic:	Kiribati	<i>akū-</i>	‘back; behind’
Mic:	Kosraean	<i>tɔkɔ-</i>	‘back of s.t.; s.o.’s back’
Mic:	Marshallese	<i>æliki-</i>	‘(s.o.’s) back’
Mic:	Puluwatese	<i>hækir</i>	‘(s.o.’s) back’
Mic:	Woleaian	<i>taxizi-</i>	‘back of s.t.; s.o.’s back’
Fij:	Wayan	<i>takū</i>	(N LOC) ‘behind’
Fij:	Bauan	<i>daku-</i>	‘back of s.t.; s.o.’s back’
cf. also			
SES:	’Are’are	<i>kokoru-</i>	‘(s.o.’s) back’
SES:	Sa’a	<i>kokolu-</i>	‘(s.o.’s) back’

2.4 The interrogative local noun ‘where?’

The interrogative local noun ‘where?’ was POc **pai*. Micronesian reflexes of **i pai* reflect Proto Micronesian **i-fā* rather than expected **i-fai*.

PMP **pai* ‘where?’ (ACD)

POc (N LOC) **pai*, **i pai* ‘where at?’

NNG:	Bebeli	<i>ehae</i>	‘where?’
NNG:	Numbami	<i>ai(a)</i>	‘where?’
MM:	Bali	<i>ve(ni)</i>	‘where?’
MM:	Bola	<i>vai</i>	‘where?’
MM:	Meramera	<i>(i)va</i>	‘where?’
MM:	Nakanai	<i>-ve</i>	‘where?’
MM:	Tigak	<i>ve</i>	‘where?’
MM:	Kara (East)	<i>fa</i>	‘where?’
MM:	Nalik	<i>fa</i>	‘where?’
MM:	Tabar	<i>ve</i>	‘where?’
MM:	Lihir	<i>he</i>	‘where?’
MM:	Sursurunga	<i>ai, ai(ə)</i>	‘where?’
MM:	Patpatar	<i>he</i>	‘where?’
MM:	Minigir	<i>va</i>	‘where?’
MM:	Tolai	<i>ve</i>	‘where?’
MM:	Ramoaaina	<i>(ə)wai</i>	‘where?’
MM:	Teop	<i>(ha)ve</i>	‘where?’
MM:	Banoni	<i>vai</i>	‘where?’
MM:	Uruava	<i>vei(a)</i>	‘where?’
MM:	Lungga	<i>pai</i>	‘where?’
MM:	Roviana	<i>(pa)vei</i>	‘where?’

MM:	Kia	<i>hae</i>	‘where?’
MM:	Gela	<i>(i)vei</i>	‘where?’
SES:	Longgu	<i>evei</i>	‘where?’
SES:	Lau	<i>(i)fai</i>	‘where?’
SES:	Kwaio	<i>(i)fai</i>	‘where?’
SES:	Arosi	<i>(naʔi)hei</i>	‘where?’
SES:	Bauro	<i>(i)hai</i>	‘where?’
NCV:	Raga	<i>(be)he</i>	‘where?’
NCV:	Uripiv	<i>(ni)be</i>	‘where?’
NCV:	Lonwolwol	<i>be</i>	‘where?’
NCV:	Paamese	<i>(e)vē</i>	‘where?’
NCV:	Lewo	<i>pe</i>	‘where?’
NCV:	Namakir	<i>(-o)be-</i>	‘where?’
Mic:	Chuukese	<i>(i)fa</i>	‘where? how? what?’
Mic:	Puluwatese	<i>(yi)fa</i>	‘where? what? which?’
Mic:	Satawalese	<i>(i)fa</i>	‘where (is it)? which?’
Mic:	Carolinian	<i>(i)fa</i>	‘where?’
Mic:	Woleaian	<i>(i)fā</i>	‘where? which? what?’
Fij:	Bauan	<i>vei</i>	‘where?’
Fij:	Wayan	<i>vei</i>	‘where?’

Also found are forms which appear to reflect **pea*, **pia* and, in Polynesian, PPn **fē*. These probably reflect POc **pai-a* (cf Numbami *aia*, Sursurunga *aiə*, Uruava *veia* above), together with vowel sequence reductions which have occurred independently but in parallel. The step from POc **paia* to **pea* is an obvious one. In a number of languages the height distance between the vowels of **pea* has been maximised, giving **pia*. And in Polynesian, an innovation which is regular in Tongic and sporadic in some other Polynesian languages apparently produced **fē* as an alternant to **fea* (< **pea* < **paia*). The forms are listed below. Where a reconstruction is preceded by a question mark, the forms beneath it may be the result of parallel developments.

? POc (N LOC) **pea* ‘where at?’

Adm:	Mussau	<i>bea</i>	‘where?’

? PNCV (ADV) **vea*, **bea*

NCV:	Mota	<i>vea</i>	‘where?’
NCV:	Kiai	<i>vea</i>	‘where?’
NCV:	Tamambo	<i>(a)bea</i>	‘where?’

PPn (ADV) **[i] fea* ‘where at?’

Pn:	Tongan	<i>fē</i>	‘where?’
Pn:	Niuean	<i>fē</i>	‘where?’
Pn:	Samoan	<i>fea</i>	‘where?’
Pn:	Anutan	<i>pea</i>	‘where?’
Pn:	E Futunan	<i>fea</i>	‘where?’
Pn:	E Uvean	<i>fea</i>	‘where?’
Pn:	Tikopia	<i>fea</i>	‘where? what? when?’

Pn:	Ifira-Mele	(i)fea	‘where at?’
Pn:	Hawaiian	hea	‘where?’
Pn:	Maori	φea	‘where?’
Pn:	Tahitian	hea	‘where?’
Pn:	K’marangi	hē	‘where’
Pn:	Mae	fē	‘where?’
Pn:	Nukuria	ihē	‘where?’

? POC (N LOC)*[i] pia ‘where at?’

MM:	Nehan	ia	‘where?’
MM:	Solos	īa	‘where?’
MM:	Petats	īa	‘where?’
MM:	Taiof	ifia	‘where?’
MM:	Mono-Alu	hi(na)	‘where?’
MM:	Nduke	(o)via	‘where?’
SES:	Gela	via	‘wherever, of whatever kind, where, what, which’
NCV:	Port Sandwich	(a) ^m bi	‘where?’
Pn:	Maori (Aupōuri)	hia	‘where?’
Pn:	Tahitian	hia	‘where?’

3 Directional verbs

Directional verbs can be conveniently divided into verbs of **deictic direction** (‘towards speaker’, ‘towards addressee’, ‘away from speaker and addressee’) and verbs of **geographic direction**, and especially vertical direction (‘go up’, ‘go down’).

3.1 Some Proto Oceanic serial verb constructions

Directional verbs play an important role in certain serial verb constructions in Oceanic languages, and they evidently did so in POC, to judge both from the wide distribution of such constructions today and from grammaticised versions of these constructions (Ross 2003).

Verbs of deictic direction occur in serial verb constructions of deictic direction, where they follow a verb of locomotion (transitive or intransitive) or a verb of geographic direction. The examples below are from Yabem (NNG). In both the first two examples, the deictic directional verb is -yà ‘go away from speaker and addressee’.¹⁹ In the first example it follows the locomotion verb -lob ‘fly’, in the second the geographic directional verb -pi ‘go up’.

balosi ge-lob ge-yà lo?
dove S:3SG-fly S:3SG-go:3 mountain
‘The doves flew off to the mountain.’

¹⁹ Deictic direction verbs are glossed ‘come’ (move to(wards) speaker), ‘go:2’ (move to(wards) hearer) and ‘go:3’ (move to(wards) a third person or place).

ke-pi lom ge-yà.
 S:3SG-go.up men's.house S:3SG-go:3
 'He climbed up to the men's house.'

Verbs of geographic direction also occur in serial verb constructions of geographic direction, where they follow a locomotion verb (transitive or intransitive). In this example, the locomotion verb is *-pwanɛ?* 'insert', the geographic directional verb *-sep* 'go down'.

ya-pwanɛ? mɔ e-sep aò-ʔ-sùŋ
 S:1SG-IRR:insert taro S:3SG-IRR:descend mouth-P:1SG-hole
 'I'll put the taro into my mouth.'

Commonly the two constructions are combined, giving a sequence of locomotion verb, geographic directional verb and deictic directional verb, e.g. *-ne* 'sink', *-sep* 'go down' and *-yà* 'go away from speaker and addressee' in this example.

way ge-ne ke-sep gwe? ge-yà
 canoe S:3SG-sink S:3SG-descend sea S:3SG-go:3
 'The canoe sank into the sea.'

Directional verbs, both deictic and geographic, also occur in sequential serial verb constructions, where the first verb is a directional verb expressing 'go [up/down] and ...' or 'come and ...', the second a verb expressing the main event of the predication. This example is from Bali (MM):

Hizi mi=ri zio ki vahi-aŋa ihaŋa.
 they IRR=HYP:3 go.down SEQ:3 get-PL fish
 'They will go and catch fish.'

3.2 Grammaticisations of serial verb constructions

Directional verbs are grammaticised in a number of ways in Oceanic languages (Lichtenberk 1991). Three of these grammaticisation paths give rise to morphemes expressing location and direction. Reflexes of directional verbs which have undergone these grammaticisations occur in the cognate sets below, and for that reason are described here.

In the first type of grammaticisation, a directional verb in a serial verb construction loses its subject proclitic/prefix and becomes a directional adverbial enclitic (glossed DIR in cognate sets). In the two Sisiqa (MM) examples below, the directional enclitics *=me* and *=la* reflect the POC deictic directional verb forms **ma* 'come' and **la* 'go:2' (§3.4) respectively. Each is preceded by a locomotion verb ('carry', 'walk'), reflecting an earlier serial verb construction of deictic direction.

ra ko-gisu=me kavia kuda
 I S:1SG:REAL-carry=hither some coconut
 'I have brought some coconuts.'

yōi ma-zo=la Susuka
 s/he S:3SG:IRR-walk=thither Susuka
 S/he is going to Susuka village.'

In this Manam (NNG) example there is a sequence of locomotion verb ('take') and two directional enclitics, *-ra?e* 'up, to one's right when facing sea' (< geographical directional verb POc **sake* 'go up', p.273) and *-la?o* 'away' (< deictic directional verb POc **lako* 'go:3', p.287) reflecting an earlier three-verb sequence (Lichtenberk 1983:576–582).

Ogi i-do?-i-ra?e-la?o.

axe S:3SG-take-O:3PL-upward-away

'He took the axes away upward.'

In the second type of grammaticisation, described by Pawley (1973) and Durie (1988), a directional verb in a serial verb construction is reanalysed as a preposition or a relator (see below) and comes to form a constituent primarily with the following locative expression. Prepositional reflexes of POc **mai* 'come' occur in Polynesian languages. In Samoan, for example, we find (Mosel & Hovdhaugen 1992:147):

Na oso i lalo le tama mai le solofanua ...

PAST jump PREP down ART boy PREP ART horse

'The boy jumped down from the horse ...'

In Meso-Melanesian languages of New Britain and New Ireland and in Longgu (SES), the deictic directional verbs **mai* 'come' and **ua* 'go:2' have become respectively ablative and allative relators (Ross 2003). I use the term 'relator' for a preposition-like morpheme which differs in its distribution from a preposition in that it precedes either a prepositional phrase or a local noun. This distribution reflects its verbal ancestry: a POc deictic directional verb could be followed by a locative expression consisting of a local noun or a prepositional phrase. Hence in Longgu, *vu* is the allative relator reflecting **ua*:

... m-ara la ma?a vu masu?u

and-S:3PL go PERFECTIVE R bush

'... and they went into the bush'

amalu ho la vu ta-na malaba-i ni um^wani-a

D:1EP IRR go R PREP-P:3SG garden-SG in.order.to weed-O:3SG

'we will go into the garden to weed it'

In the third, least widespread, grammaticisation type, the deictic directional verb in a sequential serial verb construction becomes a pre-verbal clitic indicating the location or direction of the event in relation to the speech act participants. In the best described case, Sinaugoro (PT) (Tauberschmidt 1999:31–32), the clitics are enclitics to the preverbal subject/aspect/mood marking complex. In this example =*ma* reflects POc **ma* 'come'.

Si=ma yani-yani.

S:1IPL=near.me ITR-eat

'Let's eat here.'

3.3 Geographic directional verbs and enclitics

Geographic direction verbs occurred both independently and in geographic directional serial verb constructions. From the latter usage, they have often developed into enclitics or adverbs marking geographic direction.

The main semantic domain of geographic direction verbs is that of vertical direction, downward and upward. Vertical direction terms have developed two kinds of secondary

meanings in Oceanic languages, and these were probably present in Proto Oceanic. First, ‘downward’ and ‘upward’ often have the secondary horizontal senses ‘to the northwest’ and ‘to the southeast’. Second, because Oceanic speakers often dwell on mountainous islands, in some languages ‘downward’ also means ‘seaward’, and ‘upward’ also means ‘inland’ or, from the sea, ‘landward’.

A pair of antonyms occurred in POc. These were the generic verbs of movement down and up:

**sipo* ‘go downward’ **sake* ‘go upward’

As I noted earlier (p.229), POc apparently had a subsystem of geographic direction which was based on a river valley and had an up/down axis and a transverse axis with one directionally neutral (‘across the valley’) term. The terms used for ‘down the valley’ and ‘up the valley’ were evidently **sipo* and **sake*. The transverse term was possibly **pano*, which also served as a verb of deictic direction and is reconstructed on p.289. However, there are no known Western Oceanic or Southeast Solomonian reflexes of **pano* with this sense, so this may be a later innovation.

Recent work by François (2003, 2004) suggests strongly that this subsystem was also applied metaphorically to directions at sea. The two cardinal directions at sea were evidently provided by the major winds, POc **apaRat*, the northwest storm wind, and **raki*, the southeast trade wind, as the reflexes below (repeated from Chapter 5, §4.2) suggest:

PMP **habaRat* ‘west monsoon’ (Dempwolff 1938, ACD)

POc **apaRat* ‘northwest wind; wet season when northwesterlies blow and sea is rough’

Adm:	Wuvulu	<i>afā</i>	‘northwest wind’
Adm:	Drehet	<i>yaha</i>	‘stormy season, generally from November to March; strong wind and rough sea from the northwest’
NNG:	Gitua	<i>yavara</i>	‘north wind’
NNG:	Tami	<i>yawal</i>	‘northwest wind’
NNG:	Kairiru	<i>yavar</i>	‘northwest wind, makes sea rough’
PT:	Muyuw	<i>yavat</i>	‘west, west wind’
PT:	Iduna	<i>yavalata</i>	‘rains with wind from the northwest in February and March’
PT:	Motu	<i>lahara</i>	‘northwest wind, season of northwest wind’
MM:	Bali	<i>vurata</i>	‘northwest wind’

POc **raki* ‘southeast trades’ (probably also ‘dry season when the southeast trades blow’)

Adm:	Lou	<i>ra</i>	‘northeast, northeast wind’
Adm:	Titan	<i>ⁿray</i>	‘wind from the mainland, mountain breeze, blows at night’
NNG:	Kove	<i>hai</i>	‘southeast trade, year’
NNG:	Gitua	<i>rak</i>	‘southeast trade’
NNG:	Tami	<i>lai</i>	‘southeast trade’
NNG:	Maleu	<i>na-lai</i>	‘southeast trade’
NNG:	Ali	<i>rai</i>	‘southeast trade’
NNG:	Tumleo	<i>riei</i>	‘southeast trade’
MM:	Vitu	<i>rayi</i>	‘southeast trade’

MM:	Bulu	<i>layi</i>	‘southeast trade’
NCV:	Lewo	<i>lagi(pesoi)</i>	‘east wind’
Mic:	Marshallese	<i>r^{uu}ak</i>	‘south, summer’
Pn:	E Uvean	<i>laki</i>	‘southeast or southwest wind’
Pn:	Niuean	<i>laki</i>	‘west’
Pn:	Samoan	<i>laʔi</i>	‘southwest veering to northwest’

After examining the sea-based directional systems of a sample of Oceanic languages, François concludes that in POc ‘go down’ apparently had the secondary sense ‘go northwest’, whilst ‘go up’ had the secondary sense ‘go southeast’. More tentatively, he suggests that **pano* may have been used for movement across the northwest–southeast axis. He suggests that the basis of this metaphor was that sailing into the wind felt to the sailors like going uphill.

In Ross (1995a) I suggested that **sake* ‘go up’ and **sipo* ‘go down’ were used by POc speakers to denote ‘east’ and ‘west’, i.e. the locations of sunrise and sunset. This inference was based on the fact that the glosses for their reflexes in many Oceanic languages are given as ‘east’ and ‘west’ (this is also true of some of the sources that François 2004 cites). However, François argues in his detailed account of Mwotlap directional systems that this is semantically implausible, as reflexes of **sake* and **sipo* are used for ‘go southeast’ and ‘go northwest’ respectively, and it is hard to see how these meanings—or ‘go east’ and ‘go west’—could be derived from ‘go to the place where the sun rises/sets’ (François 2003). In François (2004) he also presents the systems of a number of languages which display the ‘go up/southeast’ and ‘go down/northwest’ correlations. I find his reconstruction of a terminological subsystem corresponding to the major wind directions convincing, and I think it likely that systems which are oriented to the rising and setting of the sun are probably more recent developments.

François (2004) is a reconstruction of a POc terminological subsystem, i.e. a system of meanings and the relationships among them. The languages in his sample by no means all use reflexes of **sipo* and **sake* for ‘go downward’ and ‘go upward’, and he makes no attempt to reconstruct the POc forms, assuming that the relevant POc etyma were **sipo* and **sake*. I return briefly to the reconstruction of **sipo* and **sake* as directions at sea in §3.3.3 below.

3.3.1 Downward movement

Three possible verbs of downward movement are reconstructed below. They are:

POc **sipo* ‘go down, downwards’

POc **sobu* ‘go downward, dive down’

POc **surup* ‘(?) enter, penetrate; go down’

The most widely reflected of these is **sipo*, the generic verb of downward movement. POc **sobu* seems also to have carried the meaning ‘dive down’, as several of its reflexes have to do with action in the sea. I also include POc **surup* ‘enter, penetrate, go down’ here on account of reflexes with the gloss ‘go down’, but the latter are found only in Meso-Melanesian and Southeast Solomonic languages, and I question whether it had this sense in POc.

POc *sipo 'go down, downwards'

Adm:	Mussau	<i>sio</i>	'go downward'
		<i>(la-)sio</i>	'go down (to)'
		<i>(la-)sio(-kasu)</i>	'come down (from)' (<i>kasu</i> 'go from')
NNG:	Kove	<i>(i)ðio</i>	'go downward'
NNG:	Bariai	<i>(ga)dio</i>	(DIR) 'downward'
NNG:	Gitua	<i>zio(vave)</i>	(DIR) 'downward'
NNG:	Tuam	<i>(i)zi(la)</i>	'sink'
NNG:	Yabem	<i>siʔ</i>	(DIR) 'downward'
NNG:	Bing	<i>siy</i>	'come'
NNG:	Takia	<i>-s(-la)</i>	'go seaward, move downhill; land, arrive (of a boat)'
NNG:	Manam	<i>-ria</i>	(DIR) 'downward; to one's left when facing sea'
NNG:	Kaiep	<i>(a)si</i>	(DIR) 'downward'
SJ:	Sobei	<i>-si</i>	(DIR) 'downward'
PT:	Tawala	<i>-hi</i>	(DIR) 'towards addressee'
PT:	Sinaugoro	<i>(va-)riyo</i>	'go down' (<i>-riyo</i> occurs as the second element of verbal compounds)
MM:	Kia	<i>hi(nae)</i>	'go down'
MM:	Laghu	<i>hi(nae)</i>	'go down'
SES:	Lengo	<i>ðivo</i>	'go down'
SES:	Longgu	<i>sivo</i>	'go down'
SES:	Kwaio	<i>sifo</i>	'go down'
SES:	Sa'a	<i>siho</i>	(DIR) 'downward'
NCV:	Merei	<i>sio</i>	'move downward/seaward'
NCV:	Tamambo	<i>jivo</i>	'go down'
SV:	Sye	<i>-sep, -hep</i>	(DIR) 'downward'
		<i>yep</i>	'go down'
NCal:	Xârâcùù	<i>ḃē</i>	(DEM) 'coming down'
Mic:	Kosraean	<i>-ye</i>	(DIR) 'downward'
Mic:	Mokilese	<i>-ti</i>	(DIR) 'downward'
Mic:	Puluwatese	<i>-tiw</i>	(DIR) 'downward, west'
Fij:	Wayan	<i>ðivo</i>	(DIR) 'downward'
Fij:	Bauan	<i>ðivo-ðivo</i>	'wind sweeping down from hills'
Fij:	Yasawa	<i>ðivo</i>	(DIR) 'downward'
Pn:	Tongan	<i>hifo</i>	(DIR) 'downward'
Pn:	Samoan	<i>ifo</i>	(DIR) 'downward'
Pn:	Pileni	<i>ifo</i>	(DIR) 'downward'
Pn:	Rennellese	<i>iho</i>	(V, DIR) 'downward; seaward; northward, westward'

PEMP **sobu* ‘go downward’ (Blust 1978a)POc **sobu* ‘go downward, dive down’

PT:	Gumawana	<i>-sou</i>	‘move down’
PT:	Tawala	<i>-hopu</i>	‘go down’
PT:	Saliba	<i>dobu</i>	‘go down’
SES:	Gela	<i>sovu-sovu</i>	‘splash about in sea’
Fij:	Wayan	<i>sovu</i>	‘go down’
Fij:	Bauan	<i>sobu</i>	‘go down’, (DIR) ‘downward’
Fij:	Boumaa	<i>sobu</i>	‘go down’, (DIR) ‘downward’
Fij:	Rotuman	<i>jopu</i>	‘dive, swim under water’
Pn:	Rarotongan	<i>ʔopu</i>	‘(boat or stone) sink, (sun) set, fade away’

PMP **surup* ‘enter, penetrate’ (ACD)POc **surup* ‘enter, penetrate; go down (?)’

MM:	Barok	<i>su</i>	‘downwards’
MM:	Konomala	<i>sup</i>	‘(sun) set’
SES:	Bugotu	<i>horu</i>	‘go down’ (-o- for expected <i>*-u-</i>)
SES:	Gela	<i>horu</i>	‘go down’ (-o- for expected <i>*-u-</i>)
Fij:	Bauan	<i>ḏuru</i>	‘enter’
Fij:	Rotuman	<i>suru</i>	‘enter’
Pn:	Tongan	<i>hū</i>	‘enter’
Pn:	Samoan	<i>ulu</i>	‘enter’
Pn:	Marquesan	<i>uʔu</i>	‘enter’

The forms listed below also seem to constitute a cognate set, but, as the questions implicit in the reconstruction **[s,j]u[(a,u)]* indicate, their history is not fully understood. The New Caledonian reflexes suggest a contrast between a directional adverbial form in **j-* and a verb in **s-*, but this contrast is not reflected elsewhere in the set.

POc **[s,j]u[(a,u)]* ‘go down vertically, fall’²⁰

NNG:	Sio	<i>due</i>	‘downwards’
NNG:	Mangap	<i>-su</i>	‘go down’
		<i>-su(-la)</i>	‘go down away from speaker’
NNG:	Tami	<i>suʔ</i>	‘downwards’
NNG:	Lukep	<i>du</i>	‘go down’
NNG:	Malasanga	<i>(i)rua</i>	‘(sun) set’
NNG:	Roinji	<i>ru</i>	‘(sun) set’
NNG:	Mindiri	<i>du(lau)</i>	‘(sun) set’
NNG:	Gedaged	<i>-du</i>	‘go down’
NNG:	Megiar	<i>-du</i>	‘go down’
NNG:	Takia	<i>(i)du(man)</i>	‘downwards’
		<i>-du</i>	‘go down, fall’

²⁰ A possible non-Oceanic cognate is Kéo (CMP) *ndua* ‘go down’. The fact that some items here are simply glossed ‘(sun) set’ may be an artifact of data collection. They may well denote downward movement more generally.

SJ:	Sobei	-so	(DIR) 'downward'
MM:	Tigak	(i)sua	'go down'
MM:	Notsi	(bi-)dū	(adverb) 'from below' ²¹
		(ta-)dū	(adverb) 'from the west'
SES:	Longgu	su	'dive, (sun) set'
SES:	Lau	sū	'dive, (sun) set'
SES:	Arosi	sū	'dive, (sun) set'
NCal:	Nêlêmwa	du	(DIR) 'downward'
		tu	'go downward'
NCal:	Nyelâyü	-du	(DIR) 'downward'
		tu	'go downward'

POc *wau 'go seawards' and *bala 'move downward (?)' are also tentatively reconstructed, but they are not well supported.

POc *wau 'go seawards'

NNG:	Bam	wau(la)	(DIR) 'downward'
NNG:	Sissano	eu	(DIR) 'downward'
PT:	Gumawana	-iwo	'move seaward'
Mic:	Puluwatese	-wow	(DIR) 'seaward' (contrast -waw 'towards addressee')
Mic:	Woleaian	wai	(DIR) 'seaward'

POc *bala 'move downward (?)'

NNG:	Manam	bala	'move down, move to one's left when facing sea'
MM:	Tolai	ba	(DIR) 'downward'
PT:	Gumawana	-bala	'move across'
Fij:	Nadrogā	bale	(DIR) 'downward'

3.3.2 Upward movement

The generic verb of upward movement was POc *sake 'go upward, go southeast', also used, for example, of boarding a canoe.

POc *sake 'go upward'

Adm:	Mussau	sae	'go upward'
		sae(-mae)	'come up (from)'
		(la-)sae	'go up (to)' (la 'go away from speaker')
NNG:	Kove	-ðae	'go upward'
NNG:	Gitua	-zage	'(sun) rise'
NNG:	Tami	sai	'go up to'

²¹ The two Notsi ablative adverbs form a paradigm with the locative/allative adverbs *bi-lū* 'down below, downward' and *ti-lū* 'to the west, westward'. It is unclear to me how to interpret the *-dū/-lū* contrast historically, and this may indicate that *-dū* does not reflect POc *jua.

NNG:	Mangap	-se	'go upward'
		-sa-la	'go upward away from speaker'
NNG:	Yabem	-sa	(DIR clause-final) 'upward'
NNG:	Gedaged	-sa	'(plant) grow'
NNG:	Takia	-s(-da)	'move up, be high, be full, go up, rise, board (a canoe)'
		-sa(-la)	'go inland, move uphill' (i.e. towards the volcano), depart (by boat)'
NNG:	Manam	-raʔe	'move up, move to one's right when facing sea'; (DIR) 'upward'
NNG:	Ali	-ha	'(sun) rise'
NNG:	Sissano	ha	(DIR) 'upward'
SJ:	Sobei	-sa[sa]	(DIR) 'upward'
PT:	Tawala	-gae	'go upward'
PT:	Saliba	-sae	'go upward, eastward'
PT:	Sinaugoro	-raye	(second element of verbal compounds) 'upward'
PT:	Motu	-dae(roha)	'(sun) rise' (roha 'to come in sight')
MM:	Bali	zaye	'(sun) rise'; (DIR) 'upward'
MM:	Nakanai	sahe	'climb'
MM:	Meramera	saʔe	'climb'
MM:	Tigak	(i)sa	'go upward'
MM:	Halia (Haku)	sei	'(sun) rise'
MM:	Teop	hae	'board (canoe)'
MM:	Banoni	sai	(DIR) 'upward'
MM:	Mono-Alu	sae	(DIR) 'upward'
MM:	Roviana	saye(la)	'go up'
MM:	Hoava	saye(la)	'go up'
MM:	Kia	haye	'board (canoe)'
MM:	Kokota	hage	'go up; go landward; go east'
SES:	Gela	haye	'enter'
SES:	Longgu	taʔe	'ascend, go up, stand up, get into canoe'
SES:	Kwaio	taʔe	'embark, rise'
SES:	Sa'a	taʔe	(DIR) 'up, inland'
SES:	Arosi	taʔe	'go upward'
NCV:	Merei	sa	'move upward/landward'
NCV:	Araki	sa[ha]	'go up, go inland, go eastward'
NCV:	Tamambo	sahe	'go upward'
SV:	Lenakel	(a)hak	'(sun) already risen'
SV:	SW Tanna	-hak(ta)	(DIR) 'upward'
SV:	Sye	say	'go up, go upstream, (tide) rise'
Mic:	Kosraean	-ek	(DIR) 'upward'
Mic:	Marshallese	tak	'(sun) rise'; (DIR) 'upward'
Mic:	Mokilese	-ta	(DIR) 'upward'
Mic:	Puluwatese	-tæ	(DIR) 'upward'

Mic:	Woleaian	<i>tax</i>	(DIR) 'upward, eastward'
Fij:	Bauan	<i>ðake</i>	(DIR) 'upward, eastward'
Fij:	Wayan	<i>ðake</i>	'climb up, mount'
Pn:	Tongan	<i>hake</i>	'go upward, esp. from the sea to the land'; (DIR) 'upward'
Pn:	Samoa	<i>aʔe</i>	(DIR) 'upward'
Pn:	Pileni	<i>-ake</i>	(DIR) 'upward'
Pn:	Marquesan	<i>aʔe</i>	'upwards, distant in time'

Some or all of the forms below probably also reflect POc **sake* 'go upward', but they all reflect unexplained anomalies. The New Caledonian forms reflect the same contrast between an adverb in **j-* and a verb in **s-* as was noted above with regard to POc **[s,j]u[(a,u)]* 'go down vertically, fall'.

NNG:	Takia	<i>(-s)da</i>	'move up, be high, be full, go up, rise, board (a canoe)'
NCal:	Nêlêmwa	<i>da</i>	(DIR) 'upward'
		<i>(o-)da</i>	'go upward' (o 'go')
NCal:	Nyelâyû	<i>-da</i>	(DIR) 'upward'
		<i>ta</i>	'go upward'
NCal:	Nemi	<i>-da</i>	(DIR) 'upward'
		<i>ta</i>	'go upward'
NCal:	Cèmuhi	<i>da</i>	(DIR) 'upward'
NCal:	Tinrin	<i>ɬa(-juu)</i>	'go up'
Fij:	Wayan	<i>ða(va)</i>	'ascend, go up a slope'
		<i>ða(dra)</i>	(DIR) 'upward'

3.3.3 **sipo* and **sake* as directions at sea

Above I noted François' (2004) reconstruction of POc speakers' use of terms for 'go downward' and 'go upward' for 'go northwest' and 'go southeast', i.e. directions corresponding with those of the major winds. François assumes that the relevant POc terms were **sipo* and **sake*, reconstructed in §§3.3.1–3.3.2. As these were the generic terms for 'go downward' and 'go upward', his assumption is probably correct, but it is not particularly well supported by the available data, as the sets below show. In fact, all supporting data for both terms in these meanings come from Eastern Oceanic languages. The Yabem and Motu reflexes of **sipo* have 'wrong' directions in their glosses. This may mean that this use of **sake* and **sipo* was an Eastern Oceanic innovation, but it may also mean that insufficient Western Oceanic (and Admiralties) systems have been carefully recorded. In a number of Western Oceanic languages, 'east' and 'west' are translated as 'place where the sun rises' and 'place where the sun sets', but these phrasal expressions may be modern renderings of English 'east' and 'west'.

POc **sipo* 'go downward, go northwest'

NNG:	Yabem	<i>-sep</i>	'go down, go east'
PT:	Motu	<i>diho</i>	'south, south wind; down; go down, descend'
NCV:	NE Ambae	<i>hivo</i>	'move downward/seaward/northwestward'

NCV:	Araki	<i>si[vo]</i>	‘go down, go seaward, go westward’
SV:	Anejom	<i>-se[h]</i>	(DIR) ‘down, north, west’
Mic:	Woleaian	<i>tiw</i>	(DIR) ‘downward, westward’
Pn:	Rennellese	<i>iho</i>	(V, DIR) ‘downward; seaward; northward, westward’

POc **sake* ‘go upward, go southeast’ (Dempwolff 1938)

NCV:	Mwotlap	<i>hag</i>	(DIR) ‘(on land) eastward, (at sea) south-eastward’
NCV:	NE Ambae	<i>hage</i>	‘move upward/landward/southeastward’
NCV:	Araki	<i>sa[ha]</i>	‘go up, go inland, go eastward’
SV:	Anejom	<i>-tʃai</i>	(DIR) ‘upward, southward, eastward’
Mic:	Kiribati	<i>rake</i>	‘(sun) rise’; (DIR) ‘upward, eastward’
Mic:	Woleaian	<i>tax</i>	(DIR) ‘upward, eastward’
Fij:	Bauan	<i>ḏake</i>	(DIR) ‘upward, eastward’
Pn:	Rennellese	<i>ake</i>	(V, DIR) ‘upward; inland; southward, eastward’

François also alludes to members of the Polynesian sets below. However, these are clearly locative nouns, and may just as well reflect an orientation to sunset and sunrise, as Biggs (1994:25) implies.

PPn **si-sifo* ‘(N) west’ (Biggs & Clark 1993)

Pn:	Tongan	<i>hihifo</i>	‘west’
Pn:	Niuean	<i>hifo</i>	‘go west’
Pn:	Samoan	<i>sisifo</i>	‘west’
Pn:	Tokelauan	<i>sisifo</i>	‘west’

PPn **sa-sake* ‘(N) east’ (Biggs & Clark 1993)

Pn:	Tongan	<i>ha-hake</i>	‘east’
Pn:	Samoan	<i>sa-saʔe</i>	(ADV) ‘in the east’
		<i>(ŋā-ŋ)aʔe</i>	(ADV) ‘eastward’

The important point about François’ reconstruction is that the equation of ‘go downward’ and ‘go upward’ with ‘go northwest’ and ‘go southeast’ occurs widely, suggesting that the equation itself should be reconstructed for POc, even if the forms themselves are hard to reconstruct. Except for Wayan, the terms listed below are drawn from François (2004).

		‘downward, northwest’	‘upward, southeast’
PT:	Saliba	<i>sae</i>	<i>dobi</i>
SES:	Longgu	<i>alaʔa</i>	<i>toli</i>
NCV:	Mwotlap	<i>hag</i>	<i>hōw</i>
NCV:	NE Ambae	<i>hage</i>	<i>hivo</i>
SV:	Anejom	<i>-jai</i>	<i>-se(h)</i>
NCal:	Nemi	<i>-da</i>	<i>-dic</i>
Mic:	Woleaian	<i>-tiw</i>	<i>-tax</i>
Fij:	Wayan	<i>vua i rā</i>	<i>vua i ata</i> (<i>vua</i> ‘direction’)
Fij:	Bauan	<i>sobu</i> ‘go down, west’	<i>ḏake</i> ‘go up, east’

3.3.4 Geographic direction adverbs derived from verbs

In a scattering of Oceanic languages, the verbs POC **sipo* ‘go downward’ (p.271) and POC **sake* ‘go upward’ (p.273) are also reflected as (or as the roots of) locative and/or allative adverbs. These are distinct from directional adverbials in that they often form part of the locative demonstrative paradigm, with meanings like ‘down below’ and ‘up here’. These reflexes are sufficiently well distributed to arouse the suspicion, at least, that this was also one of their POC functions.

The meanings of the items listed below overlap substantially with reflexes of the POC local nouns **tanoq* ‘down below’ (p.241) and POC **atas* ‘top; space above’ (p.243). There are also a few reflexes below of **sipo* and **sake* which function as nouns, but it seems certain that these are the results of locally restricted developments.

POC **sipo* ‘go downward’, (ADV) ‘downwards, down below’

NNG:	Kove	<i>sio</i>	(ADV) ‘down below’
NNG:	Lusi	<i>sio</i>	(ADV) ‘below, down there’
NNG:	Bariai	<i>(ga)dio</i>	(ADV) ‘downward’
SES:	Kwaio	<i>(ʔai)sifo</i>	(ADV) ‘downwards, northwesterly’
NCV:	Merei	<i>(ai)sio</i>	(ADV) ‘down here’
NCV:	Araki	<i>sivo(su)</i>	(ADV) ‘down there’ (-su DEM)
SV:	Sye	<i>(ye)hep</i>	(ADV) ‘down here’
Pn:	Samoan	<i>si-sifo</i>	(ADV) ‘in the west’
		<i>(ŋā-ŋa)ifo</i>	(ADV) ‘westward’

POC **sake* ‘go upward’, (ADV) ‘upwards, up top’

Adm:	Mussau	<i>sae-sae(na)</i>	‘upwards’
NNG:	Lusi	<i>sai</i>	(ADV) ‘on top, above’
NNG:	Bariai	<i>(ga)dae</i>	(ADV) ‘above’
NNG:	Tuam	<i>(i)za</i>	(ADV) ‘upwards’
NNG:	Gitua	<i>sage</i>	(ADV) ‘up above’
PT:	Motu	<i>dae-</i>	(N) ‘above’
MM:	Siar	<i>sai(gali)</i>	(ADV) ‘up there, over there’
MM:	Label	<i>sa</i>	(ADV) ‘up there’
		<i>(u)sa</i>	(ADV) ‘upwards’
MM:	Minigir	<i>(ke-na)sa</i>	(ADV) ‘up there’
NCV:	Merei	<i>(ai)sa</i>	(ADV) ‘up here’
NCV:	Araki	<i>saha(su)</i>	(ADV) ‘up there’
NCV:	Paamese	<i>(ne)sa</i>	(N LOC) ‘up, above, on top’
SV:	Sye	<i>(ya)hay</i>	(ADV) ‘up here’
NCal:	Iaai	<i>(e)ðā</i>	(ADV) ‘upward, inland’
Mic:	Kiribati	<i>rake</i>	‘up, above’
Fij:	Wayan	<i>ðake</i>	(DIR) ‘upwards’
Fij:	Bauan	<i>ðake</i>	(N LOC) ‘up, above’
Pn:	Tongan	<i>ha-hake</i>	(N) ‘east’, (ADJ) ‘eastern’
Pn:	Samoan	<i>sa-saʔe</i>	(N LOC) ‘east’
		<i>(ŋā-ŋ)aʔe</i>	(ADV) ‘eastward’

3.4 Deictic directional verbs and enclitics

3.4.1 A note on deixis in Oceanic

Proto Oceanic deixis was person-oriented. That is, there were forms with the meanings ‘near speaker’, ‘near addressee’ and ‘distant from both speaker and addressee’. This pattern is well represented in Oceanic demonstrative forms right across the Pacific. Individual languages may lose a member of the paradigm, finishing up with a proximal/distal system. Some languages have reinterpreted the three-way system in terms of orientation to the speaker alone (‘near speaker’ vs ‘an intermediate distance from speaker’ vs ‘far from speaker’), but such languages are by no means as widespread as the person-oriented system. A good many languages have added members to the system, distinguishing, for example, between referents that can and cannot be seen by the speech act participants, or adding a member for referents the speaker points at, but none of these additions can be reconstructed as a POC category.

A reconstruction of POC demonstrative forms is beyond the scope of this chapter, but a sample of person-oriented systems is given below. The forms given are those used adnominally, except where shown (they may also have other language-specific uses).

		near speaker	near addressee	distal
Adm:	Mussau	<i>toko</i>	<i>o[ia]</i>	<i>teke</i>
NNG:	Lukep (Pono)	<i>i</i>	<i>in</i>	<i>ni</i>
NNG:	Yabem	<i>tɔnɛʔ</i>	<i>tɔnaŋ</i>	<i>tone</i>
NNG:	Kairiru	<i>an</i>	<i>at</i>	<i>nai</i>
PT:	Gapapaiwa	<i>we-ni</i>	<i>na-ni</i>	<i>noko-ni</i>
PT:	Gumawana	<i>ame</i>	<i>moe</i>	<i>amo</i>
PT:	Sinaugoro	<i>mai</i>	<i>mani</i>	<i>mo[a]</i>
MM:	Bali	<i>-ani</i>	<i>-ina</i>	<i>-ini</i>
MM:	Tigak	<i>gura</i>	<i>gara</i>	<i>tara</i>
MM:	Roviana SG	<i>hie</i>	<i>isa</i>	<i>hoi</i>
SES:	Bugotu	<i>ani, eni</i>	<i>ŋeni, ari</i>	<i>ŋgeri</i>
NCV:	Araki	<i>ne, kesi</i>	<i>ho-ni, vaha-ni</i>	<i>vā[ha]-su</i>
NCV:	Lewo	<i>nini</i>	<i>nam^{wā}</i>	<i>nenā</i>
		(also <i>nene</i> ‘near speaker and hearer’)		
SV:	Anejom PRO SG	<i>niñ[ki], nī</i>	<i>nā[nai]</i>	<i>nai[kou]</i>
NCal:	Tinrin	<i>=ha</i>	<i>=m^{wā}</i>	<i>=ra</i>
NCal:	Iaai	<i>āŋ</i>	<i>ē</i>	<i>e-lē</i>
Mic:	Kosraean	<i>ʌ</i>	<i>an</i>	<i>ɔ</i>
Mic:	Ulithian	<i>-ē</i>	<i>-lā</i>	<i>-lāy</i>
Fij:	Boumaa	<i>yai, ī</i>	<i>yā</i>	<i>mayā</i>
Fij:	Wailevu	<i>γā</i>	<i>γāri</i>	<i>γaḏei</i>
Pn:	Tongan	<i>nī</i>	<i>na</i>	<i>ia</i> (also <i>ē</i> ‘pointing’)
Pn:	Pileni	<i>ne[i]</i>	<i>na</i>	<i>la</i>
Pn:	Marquesan	<i>nei</i>	<i>nā</i>	<i>ʔā, aʔa</i>

The person-oriented system of deixis was manifested not only in demonstratives, but also in the system of deictic directional verbs. POC had a system with at least three members: ‘come to[wards] speaker’, ‘go/come to[wards] addressee’ and ‘go to a point

away from both speaker and addressee', glossed here as 'come', 'go:2' and 'go:3' respectively. There were possibly two 'go:3' verbs, however. One licensed a location expression, i.e. its basic meaning was 'go to'. The other simply meant 'go away (from speaker)' and did not license a location expression. Thus in Kele (Adm) there is a contrast between *la* 'go to' and *aw* 'go away' (Ross 2002f). This suggests that POc had a four-member system, and I will assume this here. Against this is the fact that I have found no language in which a four-member system is preserved.

Three-member deictic directional verb systems are found right across Oceania,²² and a sample is given below. Some are reflected as directional enclitics, rather than as verbs. It is sometimes difficult to tell from a source whether the third member should be assigned to 'go:3' or 'go away'. However, in languages where deictic directional verbs have become directional enclitics, the 'go:3' form has lost its capacity to license a location expression and inevitably means 'go away'. Note that the two systems from the Admiralties make the contrast between 'go:3' and 'go away' which supports the reconstruction of a four-member system.

	come	go:2	go:3	go away
Adm: Loniū	<i>mε</i>	—	<i>la</i>	<i>yaw</i>
Adm: Kele	<i>sa</i>	—	<i>la</i>	<i>aw</i> (also <i>doh</i> 'come from')
NNG: Yabem	<i>-mèŋ</i>	<i>-wàʔ</i>	<i>-yà</i>	—
PT: Gumawana	<i>-ma</i>	<i>-wo</i>	<i>-na</i>	—
MM: Hoava	<i>-mae</i>	<i>-atu</i>	<i>-la</i>	—
NCV: NE Ambae	<i>vanai</i>	<i>vanatu</i>	—	<i>vano</i>
Mic: Kosraean DIR	<i>-ma</i>	<i>-ɽ</i>	—	<i>-læ</i>
Mic: Mokilese DIR	<i>-to, -tɔ</i>	<i>-wε</i>	—	<i>-la</i>
Fij: Bauan DIR	<i>mai</i>	<i>yani</i>	—	<i>tani</i>
Fij: Wayan DIR	<i>mai</i>	<i>ati</i>	—	<i>dei</i>
Pn: Tongan DIR	<i>mai</i>	<i>atu</i>	—	<i>aŋe</i>
Pn: Samoan DIR	<i>mai</i>	<i>atu</i>	—	<i>ʔese</i>
Pn: Pileni DIR	<i>mai</i>	<i>atu</i>	—	<i>aŋe</i>

3.4.2 Reconstructing Proto Oceanic deictic directional forms

The main deictic directional forms of POc, which account for the majority of the forms listed above, were as follows:

		verb	directional adverb
come	<i>*mai, *ma</i>	'come'	'towards speaker' (p.281)
go:2	<i>*ua</i>	'go towards addressee'	'towards addressee' (p.283)
	<i>*watu</i>	'go towards addressee'	'towards addressee' (p.286)
go:3	<i>*lako, *la</i>	'go (to)'	'away from speaker' (p.287)
go away	<i>*pano, *pa</i>	'go away'	'away from speaker' (p.290)

²² There are also a fair number of languages that have reduced the three-member system to a two-member system of 'come to[wards] speaker' and 'go away (from speaker)'. The latter is usually descended from one of 'go:2', 'go:3' or 'go away (from speaker)'.

Note that I reconstruct these POc forms as both verbs and directional adverbs. In §3.2 I briefly discussed the grammaticisation of deictic directional verbs as directional adverbs. This process raises the question, Were there already directional adverbs in POc, or are modern Oceanic directional adverbs the outcomes of independent parallel developments? The answer appears to be: both. Directional adverbs are so widespread in Oceanic languages that one may infer that they were already present in POc, otherwise we would not find such a plethora of reflexes of verbs as enclitics in modern Oceanic languages. On the other hand, there are cases where it is clear that the development of the directional adverb is more recent because it reflects not just the verb root but also accretions to it that have occurred in the history of the particular language.²³ The Sobei (SJ) directional enclitics *-ema* ‘towards speaker’ and *-ewo* ‘away from speaker’ transparently reflect the verbs *-ma* ‘come’ and *-wo* ‘go’ with a fossilised third person singular subject marker *e-*. The Sye (SV) directional adverb *mpelom* ‘towards speaker’ is transparently derived from the verb *velom* ‘come’. This must be a late development, since *ve-lo-m* seems itself to reflect the concatenation of three roots, **pano/*pa* ‘go away’, **lako/*la* ‘go’, and **ma* ‘come; towards speaker’.

Three of the verbs listed above, **mai/*ma*, **lako/*la* and **pano/*pa*, have long and short forms. It is difficult to reconstruct the distribution of the long and short forms with any certainty, as they do not correspond with the division between verb and enclitic. However, there seem to be two contexts in which the short forms may have emerged, both of them in serial verb constructions. One was as the final verb of a deictic directional serial verb construction. The other was as the first verb of a sequential serial verb construction (the gloss V AUX is used to label these below). POc **watu* and **ua* look superficially like a long/short pair, but they are regionally distributed, unlike the other three pairs (p.286).

Two other verbs seem to have been used as deictic directional verbs, but probably not as directional enclitics, in POc. They are less well attested than the verbs reconstructed above.

come	<i>*p^wati</i>	‘come’ (p.283)
go:3/go away	<i>*[y]aku</i>	‘go (to)’ or ‘go away’ (p.293)

It is unclear whether **[y]aku* meant ‘go (to)’ or ‘go away’.

I also reconstruct the prepositional verb **tani* ‘(go) away from’ below (p.293). It was not deictic, but it overlaps semantically with the verbs reconstructed in this section.

3.4.3 ‘Come towards speaker’

Blust (ACD) reconstructs PAn **aRi*, which in its root form was used imperatively as ‘come on’, ‘let’s go’ (Paiwan [Formosan] *ari* ‘let’s go!’) and apparently survives in the Takia interjection *aria* with the same meanings.²⁴ The indicative form was PAn **maRi* ‘come’ (from **um-aRi*, where **um* is the actor focus infix; vol. 1, p.29), and this form is well reflected in Formosan and WMP languages. However, it seems likely that the variant **mai* existed from the earliest times, as Blust notes Favorlang (Formosan) *mai* and Yami (WMP) *mai*, and that **mai* ousted reflexes of **maRi* throughout the Central/Eastern Malayo-Polynesian grouping (e.g. Manggarai, Sikka, Rotinese *mai*) to which POc belonged.

²³ For a more detailed examination of this issue, see Pawley (2003b).

²⁴ The interjection *aria* is widespread in Melanesia, and it is impossible to track its history accurately.

There is just one Oceanic reflex, Mangap (NNG) *-mar* ‘come towards speaker’, which appears to reflect **maRi* rather than **mai*. However, the fact that Mangap has a distinction between *-mar* ‘come towards speaker’ and *-ma* ‘come towards addressee’ suggests that a pre-Mangap reflex of **ma* expanded its use from ‘towards speaker’ to ‘towards us, speaker and addressee’, and that a further morpheme, perhaps a demonstrative, was then suffixed to it to disambiguate ‘towards speaker’, giving *-ma-r*.

Also reconstructable is the POc form **ma*, reflected in WOC and CEOc languages. There is no reconstructable functional distinction between **-mai* and **-ma*, as reflexes of both occur as verbs and as directional enclitics, and both should probably be glossed in POc as (V) ‘come’ and (DIR) ‘towards speaker’. In many languages, a reflex of **mai* or **ma* occurs as the second element of one or more compounds, and these are taken to be reflexes of an earlier final verb of a serial construction or reflexes of a directional enclitic (it is impossible to tell which). A number of these are listed below.

PAn **maRi*, **mai* ‘come’ (ACD)

PCEMP **mai* ‘come’

POc **mai*, **ma* ‘come’, (DIR) ‘towards speaker’

Adm:	Mussau	<i>mae</i>	‘come’
		<i>(sio)mae</i>	‘come down (from)’
Adm:	Loniū	<i>-mε</i>	‘come’; (DIR) ‘towards speaker’
Adm:	Aua	<i>-mai</i>	(DIR) ‘towards speaker’
NNG:	Mangap	<i>-ma</i>	‘come towards addressee’
		<i>-ma(r)</i>	‘come towards speaker’
		<i>(-le)-ma</i>	‘come inside’ (<i>-le</i> ‘enter’)
NNG:	Yabem	<i>-mè(ŋ)</i>	‘come’ (<i>-ŋ</i> is a suffix of unknown origin)
NNG:	Sio	<i>mɔ</i>	‘come’
NNG:	Tuam-Mutu	<i>(ka)miai</i>	‘come’
NNG:	Gitua	<i>(la)m</i>	‘come’
NNG:	Manam	<i>mai</i>	‘move towards speaker from neither up nor down’; (DIR) ‘towards speaker’
NNG:	Kairiru	<i>-myai</i>	‘come’
SJ:	Sobei	<i>-(e)ma</i>	(DIR) ‘towards speaker’
		<i>-ma</i>	‘come’
PT:	Tawala	<i>mai</i>	(DIR) ‘towards speaker’
PT:	Gumawana	<i>-ma</i>	‘come’
PT:	Saliba	<i>ma</i>	(DIR) ‘hither’
PT:	Sudest	<i>ma</i>	(DIR) ‘towards speaker’
PT:	Sinaugoro	<i>(iaɣo)ma</i>	‘come’ (<i>iaɣo</i> ‘go’ < POc <i>*lako</i>)
		<i>-ma</i>	(preverbal clitic) ‘near speaker’ ²⁵
		<i>-ma(riɣo)</i>	‘come down’ (<i>-riɣo</i> ‘downward’ < POc <i>*sipo</i> occurs in verbal compounds)
PT:	Motu	<i>-mai</i>	‘come’

²⁵ This is an enclitic to the preverbal tense/aspect/mood marker. It marks the location of the action relative to the speaker and addressee. To judge from its preverbal position, it reflects the use of a deictic direction verb with the sense ‘come and ...’ in the initial slot of a sequential serial verb construction.

MM:	Vitu	<i>mai</i>	‘come’
MM:	Bali	<i>mai</i>	‘come’
MM:	Bulu	<i>mai</i>	(DIR) ‘towards speaker’
MM:	Harua	<i>mai</i>	‘come from’
MM:	Tigak	<i>(i)ma</i>	‘come’
MM:	Notsi	<i>(kala)me</i>	‘come’
MM:	Selau	<i>(la)ma</i>	‘come’
MM:	Taiof	<i>(o)m</i> <i>-ma</i>	‘come’ ‘first/second person object enclitic’ ²⁶
MM:	Banoni	<i>ma</i> <i>(tai)ma</i>	(DIR) ‘towards speaker’ ‘come’ (<i>tai</i> ‘go’)
MM:	Mono	<i>(lao)ma</i>	‘come’
MM:	Babatana	<i>me</i>	(DIR) ‘towards speaker’
MM:	Hoava	<i>mae</i>	‘come’
MM:	Kokota	<i>mai</i>	‘come’
SES:	Bugotu	<i>mai</i>	‘come’; (DIR) ‘towards speaker’
SES:	Gela	<i>mai</i>	‘come’; (DIR) ‘towards speaker’
SES:	Longgu	<i>mai</i>	(DIR) ‘towards speaker’
SES:	Kwaio	<i>mai</i> <i>(leka)mai</i>	(DIR) ‘towards speaker’ ‘come’ (<i>leka</i> ‘go’)
NCV:	Mwotlap	<i>mε</i>	(DIR) ‘towards speaker’
NCV:	NE Ambae	<i>-mai, -mei, -ai</i>	(DIR) ‘towards speaker’ ²⁷
NCV:	Merei	<i>ma</i>	(DIR) ‘towards addressee’
NCV:	Araki	<i>ma</i>	(DIR) ‘towards speaker’
NCV:	Tamambo	<i>mai</i>	‘come’
NCV:	Sakao	<i>(la)m</i>	‘come’
SV:	Sye	<i>(ve-lo-)m</i> <i>(-mpe-lo-)m</i>	‘come’ (<i>ve</i> ‘go’) (DIR) ‘towards speaker’
SV:	Anejom	<i>-(pa)m</i> <i>(ha)m, (apa)m</i>	(DIR) ‘towards speaker’ (<i>pan</i> ‘away from speaker’) ‘come’ (<i>han, apan</i> ‘go’)
NCal:	Nêlêmwa	<i>me</i> <i>ō-me</i>	(DIR) ‘towards speaker’ ‘come’ (<i>o</i> ‘go’)
NCal:	Nyelâyü	<i>-me</i>	(DIR) ‘towards speaker’
NCal:	Xârâcùù	<i>mẽ</i>	(DEM) ‘near speaker’
NCal:	Iaai	<i>(jē)m</i>	(DIR) ‘towards speaker’
Mic:	Kosraean	<i>-ma</i>	(DIR) ‘towards speaker’
Mic:	Kiribati	<i>mai</i>	‘come’
Fij:	Nadrogaa	<i>mā, mei</i>	(DIR) ‘towards speaker’

²⁶ In Taiof the first/second person object marker, except for first person inclusive plural, is *-ma*. I suspect this was originally the ‘towards speaker’ directional. (The third person/first person inclusive plural form is *-i[ñ]*.)

²⁷ These forms occurs as a fossil in *van-ai* ‘move across towards deictic centre’ (cf *vano* ‘move across’), *ha-mai* ‘move upwards towards deictic centre’ (*hage* ‘move upwards’) and *hi-mei* ‘move downwards towards deictic centre’ (*hivo* ‘move upwards’).

Fij:	Wayan	<i>mai</i>	(DIR) ‘towards speaker’
Fij:	Bauan	<i>mai</i>	(DIR) ‘towards speaker’
Fij:	Boumaa	<i>mai</i>	(DIR) ‘towards speaker’
Pn:	Tongan	<i>mai</i>	‘come’; (DIR) ‘towards speaker’
Pn:	Samoaan	<i>mai</i>	(DIR) ‘towards speaker’
Pn:	Marquesan	<i>mai</i>	(DIR) ‘towards speaker’

In a number of languages POc **mai/*ma* is reflected as a preposition or a relator. However, the reflexes listed below are probably the result of parallel innovations in different groups of languages, and it is unnecessary to reconstruct a preposition or relator usage for POc **mai/*ma* (cf. §3.2).

POc **mai, *ma* ‘come’, (DIR) ‘towards speaker’

PT:	Tawala	<i>mei</i>	(PREP) ‘like, resembling’
MM:	Meramera	<i>maʔ-</i>	(R-) ablative
MM:	Lamasong	<i>ma-</i>	(R-) ablative
MM:	Madak	<i>me-</i>	(R-) ablative
MM:	Barok	<i>mu-</i>	(R-) ablative
MM:	Konomala	<i>mə</i>	(R) ablative
MM:	Patpatar	<i>ma-</i>	(R-) ablative
		<i>ma</i>	(PREP w PLC) ablative
MM:	Label	<i>mi-</i>	(R-) ablative
MM:	Tolai	<i>ma-, ma-ma-</i>	(R-) ablative
SES:	Longgu	<i>mi</i>	(R with placename or local noun) ablative
Fij:	Bauan	<i>mai</i>	(PREP) ablative

One other POc morpheme with the same meanings as **mai* may be reconstructable. This is **p^wati*. Note, however, that most reflexes are in the South New Ireland grouping of MM, and that the POc status of this reconstruction is dependent on the Arosi reflex alone.

POc **p^wati* ‘come’, (DIR) ‘towards speaker’

NNG:	Wogeo	<i>(e)wot</i>	‘come’
MM:	Minigir	<i>(vana)uti</i>	‘come’
MM:	Tolai	<i>pot</i>	‘come’
MM:	Tolai–Nodup	<i>(le)poti</i>	‘come’
MM:	Label	<i>(la-m)ut</i>	‘come’
		<i>hot</i>	‘towards speaker’
MM:	Bilur	<i>vot</i>	‘come’
MM:	Kandas	<i>(uan)pat</i>	‘come back’
SES:	Arosi	<i>boi</i>	‘come’

3.4.4 ‘Go towards addressee’

Two alternant forms, POc **ua* and **watu*, mean ‘go towards addressee’, (DIR) ‘towards addressee’.

It is just possible that POc **ua* reflects PAn **kuSa* ‘go’. However, no reflexes of PAn **kuSa* have been found in non-Oceanic languages outside Taiwan,²⁸ and it is more likely that the Taiwan and Oceanic sets reflect different etyma, the more so as no member of the Oceanic set reflects PAn **k-*.

Some of the reflexes of **ua* can be confused with those of POc **pa* and **ba*. That there is a contrast between **pa* and **ua* is attested by the pairs Adzera *fa* ‘go’ (p.291) and *waʔ-* ‘go out’ (p.286) and Kiriwina *va* (PREP, p.292) and *wa* (VF, below).

POc **ua* ‘go towards addressee’, (DIR) ‘towards addressee’

Adm:	Seimat	- <i>wa</i>	(DIR) ‘away from speaker’
SJ:	Sobei	-(<i>e</i>) <i>wo</i>	(DIR) ‘away from speaker’
		- <i>wo</i>	‘go’
PT:	Gumawana	- <i>wo</i>	(DIR) ‘towards addressee’
PT:	Saliba	- <i>wa</i>	(DIR) ‘thither’
PT:	Kiriwina	- <i>wa</i>	‘go (to addressee)’
PT:	Sudest	- <i>wo</i>	(DIR) ‘away from speaker’
		<i>wa</i>	‘go’
PT:	’Ala’ala	- <i>ovo</i>	(DIR) ‘away’
MM:	Bali	<i>ua</i>	‘go’
MM:	Tolai	<i>vue</i>	(DIR) ‘away’
MM:	Halia	<i>wa</i>	(DIR) ‘towards (a specified destination)’
			(Ross 1982:44–45)
Fij:	Nadrogaa	<i>wā</i>	(DIR) ‘thither’
Fij:	Wayan	<i>ā</i>	(DIR) ‘thither’

In a number of languages POc **ua* is reflected as a preposition or a relator (cf. §3.2).

POc **ua* ‘go towards addressee’, (DIR) ‘towards addressee’

Adm:	Yapese	<i>u</i>	(PREP) locative, ablative
PT:	Tawala	<i>u</i>	(PREP w N LOC) locative, allative
PT:	Kiriwina	<i>o</i>	(PREP w N LOC) locative ‘in, into’
PT:	Muyuw	<i>u, wa</i>	(PREP) locative, allative
MM:	Bulu	<i>o</i>	(PREP w PLC) locative
MM:	Nakanai	<i>o-</i>	(VF formative) locative
MM:	Meramera	<i>u-</i>	(R-) allative
MM:	Lamasong	<i>u-</i>	(R-) allative
MM:	Madak	<i>u-</i>	(R-) allative
MM:	Barok	<i>u-</i>	(R-) allative
MM:	Sursurunga	<i>u(r)</i>	(R) allative
MM:	Tangga	<i>ua, u</i>	(R) allative (<i>ua</i> w DEM, <i>u</i> elsewhere)
MM:	Konomala	<i>uə</i>	(R) allative
MM:	Patpatar	<i>u-</i>	(R-) allative
		<i>u</i>	(PREP w PLC) allative

²⁸ Supporting data given by Tsuchida (1976:235) are Kanakanavu *m-u-ā-kusa* ‘go’, Tsou *uso* ‘go forward’, Saaroa *m-aʔu-kua* ‘go where?’, Puyuma *mu-kuwaʔ* ‘go’, Thao *m-úʔaʔ* ‘go’, Pazeh *mu-husaʔ* ‘go’, Atayal, Seediq (*m*)*usaʔ* ‘go’, Rukai (*m*)*wa* ‘go’.

MM: Label	<i>u-</i>	(R-) allative
MM: Kandas	<i>u-</i>	(R-) allative
	<i>u</i>	(PREP w N LOC) locative, allative
MM: Ramoaaina	<i>u-</i>	(R-) allative
	<i>u</i>	(PREP) locative, allative
MM: Minigir	<i>u-</i>	(R-) allative
MM: Tolai	<i>u-</i>	(R-) allative
SES: Longgu	<i>vu</i>	(R) allative, towards
Fij: Bauan	<i>vuā, vei</i>	(PREP) locative, allative, dative, cause

Proto South Vanuatu **un-*, which forms locative nouns from common nouns (Lynch 2001:132), may also belong here.

Longgu *vu* appears to be cognate with forms in the Malaita/Makira subgroup (SES) that reflect Proto Malaita/Makira **vua* or **vuni*. Lichtenberk (1985) attributes all these forms to POc **pani* (V) ‘give’, (PREPV) ‘beneficiary case-marker’. The Malaita/Makira forms certainly have benefactive meanings, but Longgu *vu* is clearly allative, and the best account of both its form and meaning is given by attributing it to **ua*—although this means assuming that initial **v-* has arisen by epenthesis. But what are we to do with the Malaita/Makira forms? The best explanation seems to be that there was a conflation of pre-Proto Malaita/Makira **vua* ‘allative relator’ (cognate with Longgu *vu* and reflecting POc **ua*) and **vani* ‘beneficiary prepositional verb’ (reflecting POc **pani*), resulting in **vua* with a benefactive function and **vuni* with a form cobbled together from both items but in benefactive function.

This interpretation is supported by the Longgu dative verbal preposition *wini-*, which takes an object pronoun suffix when it governs a first or second person referent, e.g. *wini-o* DATIVE-O:2SG ‘to you’, but assumes the allomorph *wa-* with a possessor pronoun suffix when it governs a third person, e.g. *wa-na* DATIVE-P:3SG ‘to it/him/her’.²⁹ As Hill (1992:245) points out, *wa-* overlaps semantically with *vu* (< POc **ua*). It appears that *wini* reflects POc **pani* and *wa-* POc **ua*, but the two form a single paradigm in Longgu. This inference would also explain the non-etymological initial **v-* of *vu*: it is inherited from pre-Proto Malaita/Makira **vua*, where it resulted from ‘infection’ by **vani*.

The Bauan Fijian forms are tentatively included in the set above. The form *vuā* again has epenthetic *v-*, but its meaning and the parallel with the prepositional use of *mai* suggest that it reflects **ua*. More specifically, *vuā* apparently reflects pre-Fijian **vua-i-a* (go.towards-TR-O:3SG) and means ‘to/for/from/with him/her’. The form *vei* is more problematic. It may reflect either **vua-i* (go.towards-ART) or **pa-i* (go.away-ART). Either way, **i* is the personal article. Semantically, it is also possible that **pani* ‘give’ has played a role in the history of these forms, as they have a dative function.

Other reflexes of **ua* apparently occur as demonstratives in a number of languages.

POc **ua* ‘go towards addressee’, (DIR) ‘towards addressee’, (DEM) ‘away from speaker’, anaphoric

NNG: Lusi	(<i>ye-ra</i>) <i>wa</i>	(LOC) ‘away from speaker’
	(<i>ne-dua</i>) <i>wa</i>	(PRO) ‘that one remote from speaker’
		(cf. <i>ne-dua</i> (PRO) ‘away from speaker’)
NNG: Bariai	<i>oa</i>	(ADN) away from speaker, anaphoric

²⁹ The possessor pronoun suffix was apparently acquired by analogy with the preposition *ta-*.

NNG:	Manam	(<i>ena</i>) <i>wa</i>	(ADN) 3
PT:	Saliba	- <i>wa</i>	(ADN ENCL) anaphoric
PT:	Kiriwina	- <i>we</i>	(ADN AFFIX) ‘away from speaker’
PT:	’Ala’ala	<i>uʔa</i>	(PRO) 3
Mic:	Kosraean	<i>æ</i>	(ADN, POST) anaphoric
Mic:	Mokilese	- <i>wa</i>	(ADN ENCL) anaphoric SG
Mic:	Puluwatese	(<i>ye</i>) <i>we</i>	(ADN, POST) anaphoric
Mic:	Woleaian	<i>we</i>	(ADN, POST) anaphoric SG
Mic:	Ulithian	- <i>wē</i>	(ADN ENCL) anaphoric SG

Forms reflecting POc **watu* are listed below. It is tempting to reconstruct this as **uatu* in view of its probable relationship to **ua*, discussed below. However, the reflexes listed below point to POc **watu*, even if this perhaps reflects pre-POc **uatu*.

Irregular loss of initial **w-* is reflected in New Caledonian and Central Pacific (Fij and Pn) languages, which reflect **atu* for expected ***watu*. POc **w* is lost regularly in all positions in Hoava and Roviana, word-initially in Gela and Bugotu, and sporadically in Mota and NE Ambae and other NCV languages.

POc **watu* ‘go towards addressee’, (DIR) ‘towards addressee’

Adm:	Aua	- <i>wau</i>	(DIR) ‘away from speaker’
NNG:	Yabem	- <i>wàʔ</i>	‘go (to addressee)’
NNG:	Adzera	<i>waʔ-</i>	‘go out’
PT:	Motu	<i>vasi</i>	‘go:2/3’
MM:	Hoava	<i>atu</i>	‘go (to addressee)’
MM:	Roviana	<i>atu-atu</i>	(INTERJECTION) implying movement away, of speaker or addressee
SES:	Gela	(<i>g</i>) <i>atu</i>	(DIR) ‘away from speaker’
SES:	Bugotu	<i>atu</i>	(DIR) ‘away from speaker’
SES:	Kwaio	<i>ka[ʔ]u</i>	(DIR) ‘thither’
SES:	Lau	<i>kou</i>	(DIR) ‘away from speaker’
SES:	Longgu	<i>hou</i>	(DIR) ‘thither’
SES:	Arosi	<i>wou</i>	(DIR) ‘thither’
SES:	Sa’a	<i>wau</i>	‘there’
NCV:	Mota	<i>at</i>	‘outwards or away from speaker’s point of reference’
NCV:	NE Ambae	- <i>atu</i>	‘towards addressee, towards past/future deictic centre’ (lexicalised in some compounds)
NCal:	Nemi	- <i>ec</i>	(DIR) ‘away from speaker’
Mic:	Kiribati	<i>wati</i>	(DIR) ‘away, hence’
Mic:	Kosraean	- <i>ɔt</i>	(DIR) ‘towards addressee’
Mic:	Marshallese	<i>wac</i>	(DIR) ‘towards addressee’
Mic:	Mokilese	- <i>wε</i>	(DIR) ‘towards addressee’
Mic:	Puluwatese	- <i>waw</i>	(DIR) ‘towards addressee’
Fij:	Wayan	<i>ati</i>	(DIR) ‘away from speaker towards addressee or elsewhere’

Fij:	Nabukelevu	<i>atu</i>	(DIR) ‘outwards or away from speaker’s point of reference’
Pn:	Tongan	<i>atu</i>	(DIR) ‘away from speaker towards addressee or elsewhere; onward in time’
Pn:	Niuean	<i>atu</i>	(DIR) ‘away from speaker towards addressee’
Pn:	Samoaan	<i>atu</i>	(DIR) ‘away from speaker towards addressee’

Reflexes of **ua* and **watu* have a distribution which roughly matches major subgroups: **ua* is found throughout Western Oceanic, **watu* elsewhere. But the distribution is imperfect. Possible reflexes of **ua* occur in Southeast Solomonian and Fijian (and apparently as demonstratives in Micronesian). Reflexes of **watu* occur in a few Western Oceanic languages. And reflexes of both forms appear in the Admiralties. Despite these imperfections, however, the distribution of the two forms is quite different from that of the other deictic directional verbs, where geography plays no significant role. It seems legitimate to suggest that both forms occurred in POc, and that as POc broke up and diversified, one form or the other tended to win out on an areal basis.

Why did POc have the two forms **ua* and **watu*? Evidently, as hinted by Blust (ACD, under the entry for PAn **-Cu* ‘near addressee’), **watu* represents an innovation whereby the POc demonstrative morpheme **-tu* ‘near addressee’ was added to **ua*, stretching it to the canonic CVCV shape of POc morphemes. An obvious alternative suggestion is that **ua* represents the short form of **watu* in the same way as **ma* and **la* represent the short forms of **mai* (p.281) and **lako* (see below). This is unlikely, however, as the external evidence indicates that the inherited POc form was **ua*, and the fairly neat geographic distribution of **ua* and **watu* is very different from the scattered, interlaced distributions of **mai* and **ma* and of **lako* and **la*.

3.4.5 ‘Go away to’

Just as POc **mai* ‘come’ had a short form **ma*, so POc **lako* ‘go’ had the short form **la*. Again, reflexes of both occur as verbs and as directional enclitics, and each probably had both functions in POc, viz. **mai*, **ma* glossed as (V) ‘come’ and (DIR) ‘towards speaker’ and **lako*, **la* glossed as (V) ‘go (to)’ and (DIR) ‘away from speaker’. In some languages, a reflex of **lako* or **la* occurs as the second element of one or more compounds, and these are again taken to be reflexes of an earlier final verb or directional enclitic.

PMP **lako* ‘go’

POc **lako*, **la* (V) ‘go (to)’, (DIR) ‘away from speaker’

Adm:	Mussau	<i>la</i>	(DIR) ‘away from speaker’
		<i>lao</i>	‘go to’ (<i>la</i> in compounds)
Adm:	Loniū	<i>-la</i>	(DIR) ‘away from speaker’
		<i>-le</i>	‘go to’
Adm:	Kele	<i>la</i>	‘go to’
NNG:	Gitua	<i>lago</i>	‘go’
NNG:	Mangap	<i>-la</i>	‘go’
		<i>-sa-la</i>	(VF) ‘ascend away from speaker’
NNG:	Sio	<i>lɔ</i>	‘go’
NNG:	Takia	<i>la</i>	‘move away from speaker’, ‘go round the island’

NNG:	Manam	<i>laʔo</i>	(DIR) 'away from speaker'
		<i>-la[ʔo]</i>	'move away'
PT:	Kiriwina	<i>-la</i>	'go (to some place away from here)'
PT:	Tawala	<i>-nae</i>	'go away'
PT:	Gumawana	<i>-na</i>	(DIR) 'away from speaker and addressee'
PT:	Saliba	<i>lao</i>	'go across'
PT:	Sinaugoro	<i>iayo</i>	'go'
		<i>-a</i>	(preverbal clitic) 'away from speaker and addressee' ³⁰
PT:	Motu	<i>la</i>	'go away'
MM:	Tigak	<i>inaŋ</i>	'go away'
MM:	Notsi	<i>la</i>	'go'
MM:	Banoni	<i>nau</i>	(DIR) 'away from speaker'
MM:	Torau	<i>lao</i>	'go'
MM:	Babatana	<i>ka</i>	(DIR) 'away from speaker'
MM:	Hoava	<i>la</i>	'go away from speaker and addressee'
MM:	Zabana	<i>lao</i>	'go'
MM:	Kokota	<i>lao</i>	'go'
SES:	Bauro	<i>rayo</i>	'go'
NCV:	Mota	<i>lago</i>	'step, stretch the legs'
NCV:	Raga	<i>lago</i>	'walk, travel'
NCV:	Sakao	<i>la(m)</i>	'come' (from POC <i>*lako</i> + <i>*mai</i>)
SV:	Sye	<i>(ve)lay</i>	'go ahead' (ve 'go')
NCal:	Cèmuhî	<i>-le</i>	(DIR) 'away from speaker'
Mic:	Kiribati	<i>nako</i>	'go'
Mic:	Kosraean	<i>-læ</i>	(DIR) 'away from speaker'
Mic:	Marshallese	<i>l^wpk</i>	(DIR) 'away from speaker'
Mic:	Mokilese	<i>-la</i>	(DIR) 'away from speaker'
Mic:	Puluwatese	<i>-lo</i>	(DIR) 'away, south'
Mic:	Woleaian	<i>rax</i>	(DIR) 'away from speaker'
Mic:	Ulithian	<i>loxo</i>	(DIR) 'away from speaker'
Fij:	Bauan	<i>lako</i>	'go'
		<i>la(i)</i>	'go and ...'
Fij:	Wayan	<i>la(i)</i>	'go and ...'

It is reasonable to expect that the processes that have created prepositions and relators from the deictic direction verbs **mai/*ma* '[come] towards speaker' and **ua* '[go] towards addressee' may also have created them from **lako/*la* 'go (to)', (DIR) 'away from speaker'. Although there are a good many prepositional reflexes, many of them are problematic because they have more than one possible source. In the set below, it is probable that some items reflect POC **lalo-*, **lo-*, **la-* (N LOC) 'inside' rather than POC **lako*, **la* 'go (to)', (DIR) 'away from speaker'.

³⁰ This is an enclitic to the preverbal tense/aspect/mood marker. It marks the location of the action relative to the speaker and addressee. To reflects the use of **la* with the sense 'go and ...' in the initial slot of a sequential serial verb construction.

1. POc **lako*, **la* ‘go (to)’, (DIR) ‘away from speaker’ (p.287)

2. POc **lalo-*, **lo-*, **la-* (N LOC) ‘inside’ (p.246)

Adm:	Loni	<i>lɔ</i>	(PREP) ‘in’
NNG:	Arawe	<i>lu-O</i> ; <i>li-O</i> :	(PREP w N PERS, PRO PERS) locative, allative
NNG:	Mamusi	<i>la</i>	(PREP) general
PT:	Motu	<i>lalo</i>	‘the inside, the mind’
MM:	Tigak	<i>lo</i>	(PREP w N COM, N LOC) locative, temporal
MM:	Tiang	<i>lə</i>	(PREP) locative, temporal
MM:	Kara	<i>la</i>	(PREP) locative
MM:	Nalik	<i>la</i>	(PREP w N LOC) locative, temporal
MM:	Notsi	<i>la(n)</i>	(PREP) locative
MM:	Tangga	<i>lo</i>	(PREP w N PERS, PRO PERS) locative
MM:	Konomala	<i>lə</i>	(PREP w PLC, N LOC) locative, temporal
MM:	Label	<i>la</i>	(PREP w N LOC) locative, temporal
MM:	Bilur	<i>la</i>	(PREP w N LOC) locative
NCV:	Mota	<i>lo</i>	(PREP) ‘in, inside’
NCV:	Tasiko	<i>lo</i>	(PREP) ‘in, inside’
NCV:	Mwotlap	<i>lv-</i>	(PREP prefixed to N LOC) locative, allative
NCV:	NE Ambae	<i>lo</i>	(PREP w N LOC) locative
NCV:	Maewo	<i>le</i>	(PREP) ‘in, inside’
SV:	Lenakel	<i>le</i>	(PREP) locative, allative
Mic:	Marshallese	<i>(i)lɔ</i>	(PREP) locative
Mic:	Puluwat	<i>le-</i>	(PREP) ‘in, because of’

Formally, items reflecting **lo* presumably reflect **lo-*, one of the short forms of **lalo-*. It is tempting to attribute all forms reflecting **la* to the short form of **lako*, but there is evidence against this. In Lihir (MM), *la* is a short form of *lilie-* ‘inside’ (reflecting **lalo-*), as we find phrases like the one below where *la* must be a (relational) noun:

i la liom
 PREP inside house
 ‘in the house’

Semantically, all the reflexes listed above are locative, which sits better with a derivation from **lalo-* ‘inside’ than one from **lako* ‘go (to)’, from which one would expect an allative. But it is possible that some reflexes represent a conflation of the two etyma.

3.4.6 ‘Go away’

POc **pano*, reconstructed below, perhaps had two uses. Firstly, it was a deictic directional verb meaning ‘go away (from speaker), depart’. Evidence for this meaning is also widespread in non-Oceanic languages (Blust, ACD). Reflexes of both **lako*/**la* and **pano* occur as directional enclitics with the meaning ‘away from speaker’. However, there is evidence that as verbs they had different meanings. Most verbal reflexes of **lako* ‘go (to)’ have a valency which implies or requires a destination (expressed, for example, as a prepositional phrase), whilst those of **pano* are intransitive.

As noted in §3.3, some reflexes of POC **pano* indicate that it was also a geographic directional verb meaning ‘move in a transverse direction’, contrasting with ‘go up, go inland’ and ‘go down, go seawards’. However, it is not entirely clear whether this usage occurred in POC. On one hand, there is a non-Oceanic reflex with this meaning, namely Aralle-Tabulahan (South Sulawesi) *pano* (DIR) ‘along the level’ (McKenzie 1997). On the other hand, within Oceanic the meaning ‘move in a transverse direction’ is reflected only in North–Central Vanuatu and New Caledonian languages. There are two interpretations of these data: either there were independent parallel innovations in South Sulawesi and Remote Oceanic, or this usage was inherited into POC but happens to have been lost in Western Oceanic and Southeast Solomonic.

PMP **panaw* ‘go away, depart, leave on a journey’ (ACD)

POC **pano* ‘go away’, (DIR) ‘away from speaker’; ? ‘move in a transverse direction’

MM:	Vitu	<i>vano</i>	‘go (away)’
MM:	Harua	<i>mano</i>	‘go away’ (see text below)
SES:	Bugotu	<i>vano</i>	‘go, come’; (DIR) ‘thither’; (used in comparisons:) ‘beyond, more’
SES:	Gela	<i>vano</i>	‘away, further off; to go’
SES:	Arosi	<i>hano</i>	‘make a journey, set out; go’
NCV:	Mota	<i>van(o)</i>	‘go, come’
NCV:	Mwotlap	<i>van</i>	(DIR) ‘thither’
NCV:	NE Ambae	<i>vano</i>	‘move in transverse direction’
NCV:	Merei	<i>va, van(a)</i>	‘move in transverse direction’
NCV:	Tamambo	<i>vano</i>	‘go away from speaker’
NCV:	Lonwolwol	<i>van</i>	‘go, pass (and so also of time); continue (to do s.t.)’; (DIR) ‘away’
NCV:	SE Ambrym	<i>haen</i>	(N) ‘going, departure’
SV:	Lenakel	<i>-pən</i> <i>vən, (a)vən</i>	(DIR) ‘distant’ ‘go, walk’
SV:	Anejom	<i>-pan</i> <i>han, (a)pan</i>	(DIR) ‘away from speaker’ ‘go’
NCal:	Nêlêmwa	<i>ve</i> <i>o</i>	(DIR) ‘in a transverse direction’ ‘go’
NCal:	Nyelâyü	<i>-van</i> <i>van</i>	(DIR) ‘in a transverse direction’ ‘go’
NCal:	Nemi	<i>en</i> <i>hen</i>	(DIR) ‘in a transverse direction’ ‘go’
NCal:	Tinrin	<i>(ã)va</i>	‘there, the other side of stream’
NCal:	Xârâcùù	<i>fɛ</i>	(DEM) ‘away from speaker’
NCal:	Iaai	<i>hããŋ</i>	(DIR) ‘away from speaker crosswise’ ³¹
Pn:	Niuean	<i>fano</i>	‘go’
Pn:	Samoan	<i>fano</i>	‘(of time) be gone, past; perish’

³¹ It is possible that Iaai *hããŋ* does not belong here but is cognate with PPn **aŋe* ‘along; away from speaker and addressee’

Pn:	Nanumean	<i>fano</i>	‘go’
Pn:	Rennellese	<i>hano</i>	‘go; depending on, according to; on and on; little by little; one by one’
Pn:	Maori	<i>φano</i>	‘go, proceed; lead, of a road; verge towards; be on the point of; act, behave’

The Harua form *mano* appears to reflect the application of the PMP Actor focus morpheme *⟨um⟩ to the root **panaw* (vol. 1, p.29), suggesting that an alternation between **pano* and **mano* may have survived in POc.

POc **pano* evidently had a short form **pa*, giving a pair analogous to **mai*/**ma* and **lako*/**la* (pp.281, 287).

POc **pa* ‘go away; move in a transverse direction’; (V AUX) ‘go and ...’

NNG:	Lukep (Pono)	<i>pa</i>	‘go’
NNG:	Adzera	<i>fa</i>	‘go’
PT:	Sinaugoro	<i>va(riyo)</i>	‘go down’
PT:	Motu	<i>ha</i>	(V AUX) ‘go and ...’
SES:	Gela	<i>va</i>	(V AUX) ‘be going to ...’
NCV:	Mota	<i>va</i>	‘go, come’; (V AUX) ‘go on ...-ing’
NCV:	Araki	<i>vā</i>	‘go; go in a direction other than north or south’
NCV:	Lonwolwol	<i>va</i>	‘go’
NCV:	SE Ambrym	<i>ha</i>	‘go, leave, depart’
NCV:	Paamese	<i>vā</i>	‘go’
NCV:	Nguna	<i>vā</i>	‘go’ (short form of <i>vano</i> , Clark 1996)
SV:	Sye	<i>-mpe</i>	(DIR) ‘away from speaker’
		<i>-ve</i>	‘go’

The meanings of reflexes of **pa* agree with those of **pano*, and the function of the Motu, Sinaugoro,³² Gela, and Mota reflexes of **pa* (in three different subgroups) as a preverbal auxiliary is similar to that of the Sinaugoro reflexes of **ma* and **la* above. Clark (1996) notes that Nguna *vā* ‘go’ is also described as a short form of *vano*. Paton (1973) describes Lonwolwol *va* as a short form of *van* ‘go, pass’, and therefore as a reflex of POc **pano*, but Blust (ACD) argues that his inference is unjustified since original medial nasals are otherwise retained in Lonwolwol. If, however, *va* reflects POc **pa*, the objection disappears.

This leaves a loose end. Blust (ACD) takes the cognate set above to reflect PCEMP **ba* ‘go, go away, walk’. Clark (1996), on the other hand, infers that the set above and PCEMP **ba* are etymologically separate. It is true that the forms attributed to POc **pa* above *could* reflect PCEMP **ba*: there is no phonological objection to this. But there are just a few Oceanic forms which reflect a POc locomotion verb **ba* ‘go’ (Tolai [MM] *ba* ‘tread, go’, Talise [SES] *ba* ‘go’), and it seems likely that this **ba* reflects PCEMP **ba*, whilst POc **pa* is the short form of **pano*.

There are a number of apparent prepositional reflexes of **pano*/**pa* ‘go away’, but most are very problematic, as there are two other possible sources of the items listed.

³² Unlike Sinaugoro *-ma* ‘towards speaker’ and *-a* ‘away from speaker’, which still survive as preverbal auxiliaries, Sinaugoro *va* occurs only in lexicalised compounds.

These are POc **pani* ‘give’, (PREPV) ‘benefactive’ and PWOC **p^wa* (PREP) ‘instrumental, comitative’.³³ There is also evidence of conflation.

The clearest piece of evidence that **pano/*pa* played a role in the history of some of the items in the set below is that Hoava *pa* behaves as a relator, i.e. it occurs before a preposition.

ria pu tata mae pa tani sa gato
 D:3PL REL close come R PREP:3SG ART:SG tree
 ‘they who come close to the tree’

Relators reflect erstwhile deictic directional verbs (Ross 2003), and so **pano/*pa* is the most likely candidate for the ancestor of Hoava *pa*. Other probable straightforward reflexes of **pano/*pa* are the Kiriwina, Roviana and Nguna forms, and perhaps the Label locative preposition *ha*, as it contrasts with instrumental *pa* (from PWOC **p^wa*).

The NNG items below, all from the Vitiaz Strait area, probably reflect conflation of the POc benefactive prepositional verb **pani* and a PWOC instrumental preposition **p^wa* (Ross 1988:106–108, 112–115).

Bound items below are shown with the suffix paradigm that they take, one of object (O:), disjunctive (D:) or possessor (P:). The gloss of each item is formulated as carefully as the data allow, but should not be treated too seriously, as there are likely to be gaps in the glosses.

1. POc **pano, *pa* ‘go away; move in a transverse direction’ (p.289)
2. POc **pani* ‘give’, (PREPV) benefactive (Pawley 1973, Lichtenberk 1985)
3. PWOC **p^wa* (PREP) instrumental, comitative

NNG:	Kove	<i>pa, pa-O:</i>	(PREP) locative, temporal, allative, ablative
NNG:	Bariai	<i>pa-O:</i>	(PREP) locative, allative, ablative, benefactive
NNG:	Malai	<i>pa-D:</i>	(PREP) allative, instrumental
NNG:	Gitua	<i>pa-O:</i>	(PREP) temporal, allative, benefactive, ablative, instrument
NNG:	Malalamai	<i>pa-O:</i>	(PREP) allative, benefactive
NNG:	Lukep	<i>pa-O:</i>	(PREP) allative, benefactive
NNG:	Malasanga	<i>pa-O:</i>	(PREP) benefactive, comitative
NNG:	Roinji	<i>pa-P:/O:</i>	(PREP) allative, benefactive
NNG:	Sio	<i>pa-O:</i>	(PREP) allative, benefactive
NNG:	Tami	<i>pa, pa-D:</i>	(PREP) temporal, benefactive
NNG:	Mangap	<i>pa, pa-O:</i>	(PREP) locative, benefactive, ablative, instrument
NNG:	Rauto	<i>pa</i> <i>pe</i>	(PREP w N PERS) locative, allative (PREP w N COM, PRO PERS) locative, allative, instrumental
PT:	Kiriwina	<i>va</i>	(PREP) ‘in the direction of’
MM:	Tiang	<i>pa-P:</i>	(PREP) locative, instrumental, comitative

³³ As well as the data given here, the reconstruction of **p^wa* is supported by three Meso-Melanesian reflexes from New Ireland which only have instrumental and comitative uses: Tigak *pe, pa-P:*; Kara *pa-P:* (both instrumental, comitative), and Label *pa* (comitative). The PWOC instrumental preposition **p^wa* was reconstructed for some interstage later than POc as **pa* by Ross (1988:106).

MM:	Nalik	<i>pana</i>	(PREP) locative, instrumental, comitative
MM:	Label	<i>ha</i>	(PREP) locative
MM:	Roviana	<i>pa</i>	(PREP) locative, allative
MM:	Hoava	<i>pa</i>	(R, PREP w PLC, non-human N) locative, allative
NCV:	Nguna	<i>pa(ki)</i>	(PREP w PLC) allative

Functionally and semantically the members of the small cognate set below resemble reflexes of POc **lako*, but phonologically they do not reflect it. The medial consonant is reconstructed on the basis of Yabem low tone, which reflects the loss of a Proto Huon Gulf voiced obstruent, probably either **v* or **ɣ*, lenis reflexes of POc **p* or **k*. Of these, both are lost intervocalically in Takia, but only **k* is lost in the Admiralties languages.

POc **[y]aku* ‘go (to)’, (DIR) ‘away from speaker’

Adm:	Loniu	<i>yaw</i>	(DIR) ‘away’
Adm:	Kele	<i>aw</i>	‘go away’
Adm:	Titan	<i>aw</i>	‘go away, leave’
NNG:	Yabem	<i>-yà</i>	‘go (to her/him/them)’
NNG:	Takia	<i>-au</i>	‘go (from the speaker)’

3.4.7 ‘Away from a specified point’

POc **tani* was a prepositional verb, reconstructed by Pawley (1973). It was not deictic, i.e. not oriented with regard to speaker or hearer, and so strictly does not belong here. It was transitive, and the object of the verb was the point of orientation from which movement takes place. I include it because its reflexes have become deictic directional adverbs in a few languages.

POc **tani* (PREPV) ‘(go) away from’

PT:	Motu	<i>tani</i>	(PREPV) ‘away from’
PT:	Mekeo (East)	<i>-ani</i>	‘away from’ (in compounds: fossilised DIR)
NCV:	Merlav	<i>dani-</i>	(PREPV) ‘away from’
NCV:	NE Ambae	<i>dene</i>	(PREPV) ‘away from’
NCV:	Sesake	<i>deni-</i>	(PREPV) ‘away from’
Fij:	Bauan	<i>tani</i>	(DIR) ‘away, elsewhere’
Fij:	Boumaa	<i>tani</i>	(DIR) ‘away’

A note on sources

In addition to the sources of lexical items listed in Appendix 1, a number of grammars and other grammatical sources were consulted during the research on which this chapter is based. Other than my fieldnotes, these are: NE Ambae (Hyslop 2001), Anejom (Lynch 2000b), Araki (François 2002), Arosi (Lynch & Horoi 2002), Awad Bing (Bennett & Bennett 1998), Bali-Vitu (Ross 2002a), Banoni (Lynch & Ross 2002), Bariai (Gallagher 1998), Bauan Fijian (Churchward 1973, Schütz 1985), Boumaa Fijian (Dixon 1988), Bugotu (Ivens 1933, author’s fieldnotes), Cèmuhî (Lynch 2002a), Drehu (Moyse-Faurie 1993), Erromangan (Sye) (Crowley 1998), Gapapaiwa (McGuckin 2002), Gela (Crowley 2002a), Gumawana (Olson 1992), Halia (Allen 1987), Hoava (Davis 1997), Iaaï (Ozanne-

Rivierre 2004), Ifira-Mele (Clark 2002), Kairiru (Wivell 1981, Ross 2002e), Kele (Ross 2002f), Kiriwina (Senft 1986), Kiribati (Groves, Groves & Jacobs 1985), Kokota (Palmer 1999), Kosraean (Lee 1975), Kwaio (Keesing 1985), Kwamera (Lindstrom 1986), Label (Peekel 1930), Lenakel (Lynch 1978c), Lewo (Early 1994a), Longgu (Hill 1992, 1997), Loni (Hamel 1994), Lukep (Pono) (D'Jernes & D'Jernes n.d.), Lusi (Counts 1969), Manam (Lichtenberk 1983), Mangap-Mbula (Bugenhagen 1995), Marquesan (Lynch 2002b), Mekeo (Jones 1998), Merei (Chung 1998), Minaveha (Lovell 1994), Mokilese (Harrison 1976), Motu (Lister-Turner & Clark 1954b), Mussau (Ross 2002b), Mwotlap (Crowley 2002b), Nadrogaa Fijian (Geraghty 2002), Nakanai (Johnston 1980), Nalik (Volker 1998), Nêlêmwa (Bril 1994), Nguna (Schütz 1969), Niuafo'ou (Early 2002), Notsi (Erickson & Erickson 1992), Nyelâyu (Ozanne-Rivierre 1998), Paamese (Crowley 1982), Pileni (Næss, forthcoming), Puluwatense (Lynch 2002c), Ramoaaina (Davies & Fritzell 1992), Roviana (Corston-Oliver 2002), Saliba (Margetts, forthcoming), Samoan (Mosel & Hovdaugen 1992), Siar (Ross 2002c), Sinaugoro (Tauberschmidt 1999), Sio (Clark & Clark 1987), Sobei (Sternier & Ross 2002), Sudest (Anderson & Ross 2002), Tamambo (Jauncey 1997), Tawala (Ezard 1997), Tigak (Beaumont 1979), Tinrin (Osumi 1995), Tobati (Donohue 2002), Tolai (Mosel 1982, 1984, Rinderknecht 1987), Tongan (Churchward 1953), Ulithian (Lynch 2002d), Wailevu Fijian (Ritsuko Kikusawa pers. comm.), Wayan (Pawley & Sayaba, forthcoming), Woleaian (Sohn 1975), Xârâcùù (Moyse-Faurie 1995), Yabem (Dempwolff 1939, Zahn 1940, Ross 2002d), Zabana (Fitzsimons 1989).

9 *Time*

MALCOLM ROSS

1 Introduction

The kinds of time and duration expressions that we might expect to find in a language are listed below. This categorisation could probably be applied to any language, Oceanic or otherwise, as it appears to have its basis in human cognition and universal experience rather than in the vagaries of English. Part 1 also indicates the structure of this chapter. Why part 2 is not part of that structure is explained below.

1. Times

a. Undirected:

- (i) times within cycles: ‘at midnight’, ‘at dawn’, ‘at midday’, ‘at full moon’, ‘at yam harvest’, ‘in daylight’, ‘in the morning’/‘in the afternoon’/‘in the evening’/‘in the night’;
- (ii) labelled sets of times within cycles: names of seasons or lunar months in a year, names of periods or days in a lunar month.

b. Directed:

- (iii) purely deictic: ‘now’, ‘today’;
- (iv) vague distance: ‘in the past’/‘in the future’, ‘earlier’/‘later’, ‘long ago’;
- (v) specified distance within a cycle or measured by cycles: ‘last night’/‘tonight’, ‘today’/‘yesterday’/‘tomorrow’, ‘two days ago’/‘two days hence’.

2. Durations

c. from one time to another:

- (vi) one time specified: ‘since yesterday’, ‘until tomorrow’;
- (vii) both times specified: ‘from yam harvest to taro harvest’;

d. length of time: ‘for a long time’.

The rest of this introduction explains this categorisation. The reader is asked to forgive the immediate introduction of two pieces of syntactic jargon, as they are indispensable to this explanation. Times and durations can be expressed in most (if not all) languages as syntactic time **adjuncts**, e.g. *He came **last week** and stayed **for two days*** or *He was sick **yesterday***. In many languages these adjuncts interact with the semantics of the **predicate**, e.g. ***came**, **stayed*** or ***was sick*** to produce the temporal meaning of the sentence.

One such interaction is illustrated in English sentences with the time adjunct *yesterday*. In *He worked **yesterday*** or *He was sick **yesterday***, the event lasts for a period of time—for all or part of *yesterday*. But in *He came **yesterday***, the event is to all intents and purposes punctiliar and *yesterday* is construed as a point in time.¹ Because many time expressions can be construed as denoting either a point of time or a period of time, no attempt is made under 1 to distinguish between points and periods: both are treated simply as ‘times’.

There is a clear distinction, however, between the time expressions in 1 and the duration expressions in 2. A duration expression denotes a period which begins at one point in time and ends at another. Thus I can say *He worked **from midday until midnight*** or *He was sick **from midday until midnight*** but not **He arrived **from midday until midnight***. Some predicates of punctiliar meaning do co-occur with a duration expression, but the duration enforces a durative or an iterative construal of the predicate. Thus if I say *He came **from midday until midnight***, this is nonsensical as a punctiliar event, but may mean *He came and stayed **from midday until midnight***. If I say *The light flashed **at midnight*** or *The light flashed **until dawn***, it is the adjunct which determines how the predicate is construed. *Flash* is semantically punctiliar and *at midnight* is a time which can be read as punctiliar, so the light flashed only once. But *until dawn* denotes a duration, so *The light flashed* is construed as being iterative: the light flashed repeatedly (Jackendoff 1991:40–42).

The duration expressions in the previous paragraph all entail, explicitly or implicitly (for *until dawn*, see below), a beginning point and an end point, but other duration expressions, are specified as a length of time: *for six nights* or *for a long time*.

In English, times—and the beginnings and ends of durations—may be absolute or they may be deictic. Absolute expressions are, for example, *in 1999* or *on 3rd May 2001*. In terms of token frequency, however, the vast majority of English time expressions are deictic, i.e., relative to the time of speaking or to some other point of time internal to the discourse which is readily recognised by the addressee.² Thus *recently*, *this morning*, *tomorrow*, *two days ago* and *last year* are construed relative to the time of speaking, whilst *earlier*, *that morning*, *the next day*, *two days before* and *the previous year* are construed relative to some point of time internal to the discourse. *Now* can be construed either way. Either the beginning or the end point of a duration may be deictically specified: *since Monday* and *until tomorrow* mean that ‘now’ is respectively the end point and the beginning point of the time period.

¹ The meaning of *yesterday* as a period of time can be preserved by a semantic analysis which interprets it in this context as *at some point of time during yesterday*, but I have not come across a language where the period-of-time and point-of-time uses of ‘yesterday’ are distinguished in the form of the adjunct, and so the assumption here, that the difference between them is one of contextually determined construal, not of polysemy, appears legitimate.

² If we think of time as analogous with space, then deictic temporal expressions like ‘recently’ (= ‘a short distance in the direction of the past’) are analogous with deictic-geographic expressions like ‘seawards’ (= ‘in the direction of the coast’), not with ‘pure’ deictics like ‘there’ or ‘yonder’.

English also has generic time expressions like *in the mornings* and *on weekdays*. Many undirected expressions (1a) which at first sight appear to be absolute are in fact either deictic or generic, according to context. Expressions like *at midnight*, *on Tuesday* or *at six o'clock* may specify a point of time, but, as I noted above, their temporal direction—past or future—is specified by the predicate tense. And such expressions may also be used generically: *The bell rings at midnight*.

Implicit in the previous two paragraphs is the fact that some lexical items used in time expressions denote parts of cycles. In English, at least, *midnight*, *morning* and *six o'clock* are parts of the cycle represented by a day, *day* or *Tuesday* a part of the cycle represented by a week, *Autumn* or *September* a part of the cycle represented by a year. Such cycles are the basis of calendars. However, it is important to distinguish between arbitrary and natural calendrical units. Although the western (Gregorian) calendar grew out of a nature-based calendar, its units today are arbitrary in that they have boundaries which bear, at best, a quite indirect relationship to natural cycles. Thus *midnight*, *six o'clock*, *day* (as a unit stretching from midnight to midnight), *Tuesday* and *September* are all arbitrary points or units. Thus a calendrical year begins (arbitrarily) on 1st January and ends on 31st December and is made up of arbitrarily named calendrical months that occur in a fixed order. A calendrical month is made up (in the Gregorian calendar) of a predetermined number of sequentially numbered calendrical days.

The only natural units observed on a day-to-day basis by western English-speaking societies in the temperate zones are the seasons. *Autumn* is a natural unit (for most English-speakers it does not even have clear natural boundaries, but this is a different matter: a natural unit may have a defined boundary, as we will see below). The natural calendrical units that concern us in connection with Oceanic languages are essentially based on four kinds of cycle: horticultural, floral/faunal, meteorological and astronomical. A cyclic unit, incidentally, does not necessarily have defined boundaries. There is a distinction in English between *last year*, where *year* is a calendrical unit, and *a year ago*, where *year* is a length of time (Leech 1969:113–114). The same can be true of months and days.

Absolute time expressions in European languages involve a calendrical unit: *in 1999* or *on 3rd May 2001*. Traditional Oceanic systems offered no equivalent to these, firstly because there was no labelling of years like 1999 and secondly because there appears to have been no use of units within units like *on 3rd May 2001*, a day of a month within a month of a labelled year. Traditional labels for months and days were used deictically as described above like *in May* or *on Tuesday*. This means that pre-contact Oceanic systems had no absolute time expressions.

Some Oceanic speaking communities, especially in Melanesia, apparently had nothing resembling a calendrical system. Others, in Micronesia and Polynesia, had naming systems based on lunar months, with names for the months of the year and sometimes names for every day of a lunar month. These systems, however, had not proceeded far along the path towards the arbitrariness of the Gregorian calendar. In some systems all or most of the month names have a recognisable meaning; in others the origins of the names seem to have been lost.³

The implications of this discussion can be a little difficult for a western-trained mind to grasp: the fact that, e.g., a month was a cycle, not a unit, means that months were

³ A discussion of Oceanic month names will appear in a future volume.

conceptualised as the passing of cycles, not as collections of countable units. Whorf (1956:139) says that *ten days* in English is ‘an “imaginary”, mentally constructed group’—“imaginary” because it ‘cannot be objectively experienced’ like ‘ten men on a street corner’. Foley (1997:205) comments on Whorf’s formulation that the use of a plural category to express the repetition of temporal cycles is a metaphorical extension from plural groupings of physical objects. Whorf says that the Hopi do not make this extension: if they count cycles at all, they do it with ordinal numbers: “first day”, “second day”, and so on.⁴ The situation in traditional Oceanic societies seems to have been similar. This extract from an oral account of Takia (Karkar Island, NNG) marriage practices as they were explained by an elderly man in 1987 contains similar insights:⁵

All right, and so they waited—in the old times they didn’t know about years. They always kept time by the moon. Thus when they wanted to set a time—when they wanted to set a time, they mentioned the month. But they also didn’t know the names of the months. The moon waned and waxed, that’s all. They would say the months in this way: they would count the months with their hands, they would count them with their fingers. And then they would say, the month of the little finger will come and will die, the next finger will die, and the next and in the fourth month the man and woman will get married. They said this—well—with regard to their saying that they would marry in four months ...

An English time adjunct may interact with the the tense of the predicate. In the sentences *He came **last night*** and *He will come **tonight*** the temporal direction (1b)—past or future—of the adjunct ‘agrees’ with the tense of the predicate. In *He came **at midnight*** and *He will come **at midnight***, however, temporal direction is expressed only by the predicate tense: *at midnight* says nothing about temporal direction. If a language expresses the difference between past and future through the predicate, it will not necessarily be expressed in the adjunct. Conversely, if there is no tense difference in the predicate, then the adjunct may well express temporal direction.

Aspect and mood categories are more widely distributed across major Oceanic subgroups than tense categories, and it is therefore probable that POc lacked tense but made extensive use of aspect and mood. Aspect included continuative/habitual, probably marked by reduplication of the verb stem, and completive (perhaps expressed by a serial verb construction ending in the verb ‘finish’). Mood distinguished realis and irrealis. Realis was used for past and present events considered to have occurred or to be occurring, irrealis for future events and all events considered not to have actually occurred (e.g. conditionals). From the lack of tense, we might expect temporal direction to be marked more often on time expressions than it is in English, and this is true in that the temporal prefix **na-* marks an expression as past (p.324).

Much play has been made in the linguistic literature of the idea that by metaphorical extension spatial relations form the model for other grammatical patterns (Gruber 1965, Anderson 1971, Jackendoff 1976, 1983, 1991, 1992). This has often been emphasised with regard to time (H. Clark 1973, Jackendoff 1983:189–193, Jackendoff 1992). However, when we examine the parallels between space and time in English (*at the corner/at six*

⁴ Foley (1997:207) is careful to point out that Whorf is not talking about thought *per se* but about the kinds of conceptual systems that people use to construe experience.

⁵ The text was recorded, transcribed and translated by Mait Kilil and myself.

o'clock, in Canberra/in 1999, from Sydney to Canberra/from Tuesday to Thursday), then look for them in Oceanic languages, we find that they do not loom nearly as large in Oceania because so many English parallels depend on the use of calendrical units. Even so, there *are* some parallels between space and time in Oceanic languages.

Semantically, there is an analogy between the spatial domain and the temporal domain, if we take it that time is a line running from past to future through a deictic point, usually the time of speaking. However, the analogy is limited: space is three-dimensional, but time is only a single dimension. In this analogy, there are parallels between a specific location and a specific time, between generic location ('at home') and generic time ('at night'), and between a path ('from Sydney to Canberra') and a duration ('from midday until midnight'). These parallels are realised in Oceanic languages by the use of similar grammar for both domains (pp.320–321). More specifically, there is a deictic parallel between 'here' and 'now', but other deictic parallels are less obvious, especially in Oceania, where spatial deixis tends to be person-oriented (Ch. 8, §3.4.1).⁶ There is also a parallel between temporal directionality (past vs future) and geographic (e.g. 'seawards' vs 'inland', 'up' vs 'down') or intrinsic directionality (e.g. 'to the back' vs 'to the front'), as well as between temporal distance ('long ago') and spatial distance ('far away'). However, the distance parallels are limited, as expressions of spatial distance do not also involve direction, whereas expressions of temporal distance typically include past or future denotation ('earlier'/'later'). The spatial domain typically lacks anything analogous to the lexicalisation of temporal distances or times within natural cycles ('today' vs 'yesterday' vs 'tomorrow', 'midnight' vs 'morning' vs 'midday').

The remainder of this chapter is devoted to reconstructing temporal expressions. It is organised on the basis of the listing under 'Time', part A, of the list above. Part B of that list deals with duration. One would expect most duration expressions to be expressed grammatically, and at most a few like 'for a little while' and 'for a long time' to be lexicalised. However, I have been unable to reconstruct any lexicalised POC duration expressions. I have attempted to find a term for 'time' in the sense of duration (as in 'for a long time'). Oceanic languages clearly have terms with this meanings, but they do not form a cognate set. A number of languages, however, use the reflex of POC **boŋi* (p.305) in this sense, and it is possible that this was a POC usage too.

2 Undirected times: times within cycles

Cyclic times recognised in Oceanic languages are all natural, as noted above. They include times of day, phases of the moon and seasons of the year marked by a variety of natural events. Some languages also have more detailed naming systems for lunar months and for the days within a lunar month.

2.1 The day and times of day: synchronic overview

In most Oceanic languages, the times of the day form a rough taxonomy, with the primary and secondary taxa as follows:

⁶ Note that the parallel between 'then' and 'there' is anaphoric, not deictic, and so does not belong here.

1. night
2. daytime
 - (a) early morning, from dawn to 9 or 10 a.m.
 - (b) middle of the day, from 9 or 10 a.m. to about 3 p.m.
 - (c) late afternoon and evening, from 3 p.m. to sunset

The first-order division is, as we might expect, into night and daytime. I have opted to put 'night' first, as POc **boŋi* 'night' also served as the word for the twenty-four hour period. In Fijian, for example, certain feasts have names like *boŋi-lima*, literally 'five nights', denoting the fact that they last five days. In Hawaiian (Pn), the day began at sunset, and this is perhaps the case elsewhere in Oceania. The Motu (PT) expression *varani hanuaboi* ('yesterday' + 'night') is interesting in this regard, as it means 'two nights ago'. That is, the night belonging to yesterday is the one that precedes it rather than the one that follows it.

The second-order division only affects daytime, which has three parts. The periods 2(a) and 2(c) are roughly the first and the last three hours of daylight respectively and are usually denoted by single-word terms. Curiously, there is often no word for the middle six hours of daylight, and it could be argued that 2(b) should be omitted from the taxonomy above. However, there is often a term glossed 'midday' in the sources, and this seems to refer to a period of time rather than to noon as a point of time.

The clock times given above are of course vague. The salient feature of 2(a) and 2(c) is that the sun is not high in the sky during these periods (sunrise is shortly before 6 a.m., sunset shortly after 6 p.m. in areas close to the equator). One of the difficulties in setting up the illustrative taxonomies below, however, is that most sources are even vaguer. In fact I have found no source which sets out a taxonomy of times of night and day, and those below are culled from dictionaries, most of which use the terms 'morning', 'afternoon' and 'evening' without much further specification. The term for 2(a) is often glossed 'morning', but so, often, are terms for the period immediately before dawn, which is part of 'night'. 'Afternoon' and 'evening' are both used for 2(b) and 2(c), and, as I mentioned above, 'midday' sometimes seems to denote 2(b).

The sources give a plethora of third-order terms for parts of the day, and a few corresponding terms for parts of the night (which I also treat as third-order terms, despite the lack of second-order terms here). Generally, these terms denote periods of time clustered around the boundaries between the first-order terms. Thus commonly occurring terms for parts of the night denote 'cockcrow' and the period between cockcrow and dawn (sometimes divided into two, the second denoting the time of pre-dawn light). There are sometimes terms for the immediate post-dawn period, and at the other end of the day for twilight and dusk. Typically, third-order terms are phrasal.

Below I give taxonomies drawn from Drehet (Adm), Takia (NNG), Gapapaiwa (PT), Kiriwina (PT), Motu (PT), Gela (SES), Marshallese (Mic), Wayan (Fij) and Niuean (Pn). Their distribution is a little skewed, a fact determined by the available sources. They probably vary considerably in terms of completeness and accuracy. The grammatical category of each term is given where it is available, and where I can identify the meanings of the parts of a compound, I have done so. Sources are given in Appendix 1.

Drehet (Adm)**night**

midnight
pre-dawn

[kom]piŋ N

kxikilie-piŋ ADV (*kxikilie* ‘middle’, *piŋ* ‘night’)
hep^wehe-laŋ ADV (*laŋ* ‘daytime’)

daytime

morning
dawn
early morning
(at) sunrise

laŋ N

kxepiŋ N (*piŋ* ‘night’)
koŋ-tupurip ADV (*koŋ* ‘place’)
kxekxepiŋ N (*kxepiŋ* ‘morning’)
aŋ imi liki ADVP (*aŋ* ‘sun’, *imi* ‘come’, *liki* ‘up top’)
aŋ ya?aŋ ADVP (*aŋ* ‘sun’, *ya?aŋ* ‘go through’)

middle of day
(at) mid-morning
(at) noon

—
aŋ tikimiŋ m^walaŋ ADVP (*aŋ* ‘sun’, *tikimiŋ* ‘be present’, *m^walaŋ* ‘hill’)
aŋ imi kxikilie koŋ ADVP (*aŋ* ‘sun’, *imi* ‘come’, *kxikilie* ‘middle’, *koŋ* ‘place’)

afternoon/evening
(at) sunset

piyih N
aŋ ilie p^winiek ADV (*aŋ* ‘sun’, *ilie* ‘go’, *p^winiek* ‘down below’)
upayah V

Takia (NNG)**night****tidom N****daylight/daytime
sunrise to sunset****ad, adad N (ad ‘sun’)
nal N**

morning⁷
dawn

tidomlom ADV (*tidom* ‘night’, *lo* ‘in’, *mi* ‘only’)
salso, sasulo

midday
noon

ad uyan, adian NP (*ad* ‘sun’, *uyan* ‘good’)
ad biben NP (*ad* ‘sun’, *biben* ‘its heart’)

afternoon/evening⁸

gurai, guraian (? < *gurai uyan* ‘evening’ + ‘good’) N, NP

Gapapaiwa (PT)**night****didibara N**

midnight
just before sunrise

pom baso NP (*pom* apparently archaic ‘night’)
mara didibara ADVP (*mara* ‘time’, *didibara* ‘night’, *-i* POSTP)

daylight**gabudara (archaic: ‘sun, day, time’) N, madeya N**

morning, sunrise to 10 a.m.

sunrise, dawn
just after sunrise

boiboi N
mara tomtom (*mara* ‘time’, *tomtom* ‘k.o. seaweed’)
mara boiboi (*mara* ‘time’, *boiboi* ‘morning’)

midday

madeya pu NP (*madeya* ‘daylight’, *pu* ‘middle’)

⁷ From sunrise until about 10 a.m. when the sun is high.

⁸ From about 2 p.m. when the sun is no longer directly overhead until sunset.

afternoon/evening, about 3 to 7 p.m.

ravi ADV

about 3 to 5 p.m.

ravi madeyinai ADVP (*ravi* ‘evening’, *madeyina* ‘its light’, -i POSTP)

about 5 to 7 p.m.

ravi didibarai ADVP (*ravi* ‘evening’, *didibara* ‘night’, -i POSTP)

sundown

ravi pikana NP (*ravi* ‘evening’)

sunset

madeya ivokutuvi (*madeya* ‘daylight’)

Kiriwina (PT)

night

midnight

***bogi/[b]ibog* N/ADV**

first streak of dawn

lubulotoula/elubulotoula N/ADV

halfnight

bulubuvigisa ADV

about 5 a.m.

dudubali

kikivigisa

daytime

***yam/iyam* N/ADV**

morning, 6–9am

kaukwau, gabogi (*bogi* ‘night’)

early morning

o-lile-yam ADV

dawn

isiga ADV

sunrise

iyuwola kalasia VP (-*yuwola* ‘rise’, *kalasia* ‘sun’)

about 9 a.m.

ipokala valu (-*pokala* ‘present, give’, *valu* ‘land’)

midday

lalavi/ilalavi N/ADV

noon

itowota kalasia VP (*kalasia* ‘sun’)

afternoon/evening

kwayavi/ikwayavi N/ADV

about 3 p.m.

itobalia kalasia VP (*kalasia* ‘sun’)

sunset

isalili kalasia VP (-*salilia* ‘drown’, *kalasia* ‘sun’)

Motu (PT)

night

***hanuaboi* N, *boi* N**

middle of the night

malo N

midnight

malokihi, malo hevani

morning twilight

daba vaburana NP (*vabura* ‘twilight’)

daylight

***rani* N, V**

morning

daba N

peep of dawn

daba e kinia VP (*kinia* ‘nip’)

first shafts of light

daba e rotoa VP (*rotoa* ‘cut in strips’)

light in the east

daba e daria VP (*daria* ‘husk, tear’)

light before sunrise

daba mamana NP (*mama* ‘light from lamp’)

dawn

daba e mamaia VP (*mamaia* ‘chew’)

daybreak

daba matana NP (*mata* ‘eye’)

early morning

galuna

dawn ‘spreads’

daba e tataia VP (*tataia* ‘strike, hit’)

daylight

daba e rere VP, *daba rere* NP (*rere* ‘(go) from place to place’)

daytime, sun

dina N

about 9 a.m.

dina e taolara VP

9 a.m.–noon

dina e tubua VP (*tubua* ‘grow’)

midday about 3 p.m.	<i>adoata</i> N (<i>ado</i> ‘sun’ [not used independently], <i>ata</i> ‘up above’) <i>dina gelona</i> NP
afternoon/evening (just before) sunset	<i>adorahi</i> N (<i>ado</i> ‘sun’ [not used independently]) <i>dina kerekere</i> VP, <i>dina kerekere</i> NP (<i>kerena</i> ‘light reflected in the sea’)
evening twilight 7–8 p.m.	<i>mairu</i> <i>adorahi gamagamana</i> NP

Gela (SES)

night	<i>boji</i> N
all night, until morning	<i>dai-dani-hagi</i>
midnight	<i>kutu ni boji</i> NP (<i>kutu</i> ‘stomach, womb’, <i>boji</i> ‘night’), <i>boji hau</i> (<i>hau</i> ‘raise, lift’)
cockcrow, 4 a.m.	<i>danimarao</i>
after cockcrow	<i>labota</i>
morning twilight	<i>labota mulemule</i> (<i>mulemule</i> ‘be nauseated’)
just before dawn	<i>marao</i>
daytime	<i>dani</i> N, <i>daidani</i>
morning	<i>puipui</i> N
sunrise	<i>soga ni aho</i> NP (<i>soga</i> ‘jump’)
dawn	<i>na dani te vavala</i> VP
break, of dawn	<i>lavahi</i> V
middle of the day	<i>kutu ni dani</i> NP (<i>kutu</i> ‘stomach, womb’, <i>dani</i> ‘daytime’), <i>danikama</i> (<i>kama</i> ‘big’)
noon	<i>hinagota</i> (<i>hina</i> ‘sunlight’), <i>turinunu</i> (<i>turi</i> ‘walk’, <i>nunu</i> ‘shadow’)
latter part of the day	<i>levu ni dani</i> (<i>levu</i> ‘side’)
afternoon/evening	<i>nulavi</i>
dusk	<i>liolihahi</i>

Marshallse (Mic)

night	<i>p^{uu}oŋ^w</i> V
midnight	<i>luk^wən p^{uu}oŋ^w</i> N (<i>luk^wə-</i> ‘middle’, <i>p^{uu}oŋ^w</i> ‘night’)
day	<i>r^{uu}ān</i> N
morning	<i>cipp^{uu}oŋ^w</i> V (<i>cip</i> ‘rise’, <i>p^{uu}oŋ^w</i> ‘night’)
sunrise	<i>takinal^{uu}</i> (<i>al^{uu}</i> ‘sun’)
daybreak, dawn	<i>ək^{r^{uu}}ān</i> V (<i>ək^{r^{uu}}</i> ‘root’, <i>r^{uu}ān</i> ‘day’), <i>r^{uu}āntak</i> V (<i>r^{uu}ān</i> ‘day’, <i>tak</i> ‘upward’), <i>cir^{uu}ān</i> (<i>r^{uu}ān</i> ‘day’), <i>cor^{uu}āntak</i> V (<i>co</i> ‘appear’, <i>r^{uu}āntak</i> ‘daybreak’), <i>m^{uu}əcawənene</i> N, V
noon	<i>raɛləp</i> V
hottest time of day	<i>p^wiltəŋtəŋ</i> N (<i>p^wil</i> ‘hot’, <i>təŋtəŋ</i> ‘most’)
evening	<i>cota</i> V
sunset	<i>tuləkun al^{uu}</i> (<i>tulək</i> ‘go down’, <i>al^{uu}</i> ‘sun’)

Wayan (Fij)**night**

just after dark

midnight

before sunrise

boŋi N, V*aviavi boŋi N* (*aviavi* ‘evening’, *boŋi* ‘night’)*boŋilevu V* (*boŋi* ‘night’, *levu* ‘big’)*g^watag^wata boŋibōŋi N, V* (*g^watag^wata* ‘morning’, *boŋi* ‘night’)**daytime****siŋa V**

morning

g^watag^wata V (*g^wata* ‘go out before dawn’)

be nearly morning

mata g^watag^wata

just before and around dawn

g^watag^wata ḍakaḍā

dawn

g^watag^wata tūtū V (*g^watag^wata* ‘morning’, *tūtū* ‘exactly’)

dawn, daylight

ḍēḍē N, V (= ‘be light’)

midday

siŋa-levu V (*siŋa* ‘day’, *levu* ‘big’)

late afternoon, evening

aviavi V

mid-afternoon

aviavi tūtū N (*aviavi* ‘afternoon’, *tūtū* ‘exactly’)

almost twilight

sī-aviavi ḍēḍē V (*sī-aviavi* ‘twilight’, *ḍēḍē* ‘be light’)

afternoon twilight

sī-aviavi V

just before dusk

karati-avi V

be almost dusk

mata boŋi

dusk

sī-aviavi karawa V (*sī-aviavi* ‘twilight’, *karawa* ‘blue-green’)**Niuean (Pn)**Note: *maŋa-aho*, *moŋo* ‘part of day’**night****pō N/V**

midnight

maŋa-aho tulotopō NP (*pō* ‘night’)**daylight****aho N**

morning

poŋi-poŋi N

dawn

maŋa-aho mahēŋiheŋi NP (*mahēŋiheŋi* ‘be twilight’)

sunrise

moŋo hake laā NP (*hake* ‘rise’, *laā* ‘sun’)

early morning

maŋa-aho kō moa NP (*kō* ‘crow’, *moa* ‘chicken’)

middle of the day

—

broad daylight

aho-teka NP (*aho* ‘daylight’, *-teka* ‘very’), *aho-tea*

midday

moŋo/maŋa-aho tūpou laā NP (*tūpou* ‘be directly above’, *laā* ‘sun’)

afternoon

moŋo/maŋa-aho pale laā NP (*pale* ‘turn’, *laā* ‘sun’)

late afternoon, evening

afi-afi N

sunset

moŋo/maŋa-aho tō laā NP (*tō* ‘fall’, *laā* ‘sun’)**2.2 The day and times of day: reconstructions**

A reconstructable taxonomy for POC is given below (the word-class labels are none too certain). The primary terms for ‘night’ and ‘daylight’ were evidently **boŋi* and **raqani*. No third-order terms are reconstructable.

night****boŋi* N, V ‘night, day of twenty-four hours’******rodrom* V ‘be dark, be night’******marom* V ‘be dark’**

daylight	*raqani N, V ‘daytime, daylight’ *qaco N ‘sun, daylight’ *sinaR N, V ‘shine, sun’
morning	*boŋi-boŋi N, ADV ‘early morning from dawn to perhaps about 10 a.m.’
middle of the day	—
late afternoon, evening	*Rapi N, *Rapi-Rapi ADV ‘late afternoon and evening, from about 3 p.m. to sunset’

Pawley (n.d.) notes an idiomatic construction in which at least some of these terms co-occurred with POC **panua* which, among other things, meant ‘the visible world, land and sky’ (vol. 1, p.62). The combination of **panua* and **boŋi*, probably as a verb, is reflected in:

Motu (PT)	<i>hanua-boi</i> ‘night’
Wayan, Bauan (Fij)	<i>boŋi na vanua</i> ‘be night’
Rotuman (Fij)	<i>hanua he poŋ</i> ‘it is getting late, night is coming on’
Rennellese (Pn)	<i>henua pō</i> ‘night time’

Presumably the combination meant something like ‘the world is becoming dark’. The expressions below reflect the same construction, with ‘night’ replaced by ‘daylight’:

Lau (SES)	<i>fanua sato</i> ‘sunny weather’ (< POC <i>*qaco</i>)
Wayan (Fij)	<i>siŋa na vanua</i> ‘be daylight’ (< POC <i>*sinaR</i>) <i>siŋa-levu na vanua</i> ‘be midday’ (<i>levu</i> ‘big’)
Rotuman (Fij)	<i>hanua ran</i> ‘daylight, dawn’ (< POC <i>*raqani</i>)

2.2.1 Night

POC **boŋi* ‘night’ also meant ‘day of twenty-four hours’, to judge from the widely scattered reflexes with this meaning (see below NNG: Manam, Poeng; MM: Tolai; SES: Gela, Lau; NCV: Tamambo, Nokuku, Uripiv, Port Sandwich, Lonwolwol; Mic: Kiribatese; Pn: Samoan, Tuvalu, Nanumean, Rennellese, Hawaiian, Marquesan). Blust (ACD) notes that PMP **beRŋi* is also reconstructable with both senses. The dual sense is not surprising: in European languages ‘day’ serves in the same way.

All Polynesian reflexes point back to PPn **pō* (for expected **poŋi*, which survived in **poŋi-poŋi* ‘be or become morning’ (p.16 and certain other expressions, e.g. Samoan *poŋi-sā* ‘be dark’ V., ADJ., ‘darkness’ N., *po-poŋi* ‘(night) be full’ V., ADJ.). Ross Clark (pers. comm.) attributes the replacement of **poŋi* by **pō* to back-formation from **poŋi-a* ‘be overcome by night’, via reanalysis as **po-ŋia*, with automatic lengthening of the new monosyllabic content word **po-* to bimoraic **pō*.

PMP **beRŋi* ‘night’ (ACD)

POC **boŋi* ‘night, day of twenty-four hours’

Adm: Mussau	<i>bo</i>	‘night’
	<i>bo-boŋi(ena)</i>	‘black’
Adm: Loniū	<i>peŋ</i>	‘night’

Adm:	Drehet	<i>piŋ</i>	'night'
NNG:	Manam	<i>boŋ</i>	'day, time'
NNG:	Gedaged	<i>boŋ(anip)</i>	'at the end of night, tomorrow'
NNG:	Gitua	<i>boŋ</i>	'last night'
NNG:	Yabem	<i>-be?</i>	'be night'
NNG:	Mangga	<i>bus(in)</i>	'night, day of twenty-four hours'
NNG:	Mapos Buang	<i>buk</i>	'night, day of twenty-four hours'
NNG:	Poeng	<i>voŋ(a-lua)</i>	'day after tomorrow'
SJ:	Sobei	<i>pani</i>	'night'
SJ:	Kayupulau	<i>boni</i>	'night'
PT:	Motu	<i>(hanua)boi</i>	'night; till night'
PT:	Molima	<i>boi-boi</i>	'night'
PT:	Dobu	<i>boi-boi</i>	'night'
PT:	Bwaidoga	<i>boŋi</i>	'night'
PT:	Kiriwina	<i>bogi</i>	'night; darkness'
MM:	Tigak	<i>vuŋ</i>	'night'
MM:	Notsi	<i>biŋ</i>	'night'
MM:	Patpatar	<i>buŋ</i>	'night'
MM:	Tolai	<i>buŋ</i>	'a day, either of twelve or twenty-four hours'
MM:	Halia (Haku)	<i>buŋ</i>	'night'
MM:	Mono-Alu	<i>boi</i>	'night, day'
MM:	Simbo	<i>boŋi</i>	'night'
SES:	Bugotu	<i>boŋi</i>	'night' (<i>ke boŋi</i> 'by night, at night')
SES:	Gela	<i>boŋi</i>	'night' (<i>te mboŋi</i> 'by night'); a day, as a measure of time (<i>e rua na boŋi</i> 'two days'); yesterday; the weather
SES:	Lau	<i>boŋi</i>	'night; a day, in reckoning time'
SES:	Sa'a	<i>poŋi</i>	'a time, a season'
		<i>poŋi-ku</i>	'my appointed time' (<i>-ku</i> 'my')
SES:	'Are'are	<i>poni</i>	'evening, after sunset, night; an appointed day'
SES:	Arosi	<i>boŋi</i>	'a night, last night'
NCV:	Mota	<i>p^woŋ</i>	'night, darkness, to be dark'
NCV:	Raga	<i>boŋi</i>	'night, darkness'
NCV:	Tamambo	<i>boŋi</i>	'day of twenty-four hours'
NCV:	Nokuku	<i>pon</i>	'night, day of twenty-four hours'
NCV:	Uripiv	<i>(na)boŋ</i>	'day of twenty-four hours'
NCV:	Port Sandwich	<i>(na)boŋ</i>	'day of twenty-four hours'
NCV:	Lonwolwol	<i>buŋ</i>	'darkness, blackness; night; dark, black'
		<i>(wo)buŋ</i>	'day of twenty-four hours'
NCV:	Paamese	<i>voŋi(ene)</i>	'night'
NCV:	Lewo	<i>(yo)poŋi</i>	'night'
		<i>poŋi</i>	'time, period'
NCV:	Namakir	<i>(e)boŋ</i>	'night'
NCV:	Nguna	<i>p^wōŋi</i>	'night'

SV:	Lenakel	(la)pən	‘night, at night’
SV:	Kwamera	(nə)pən	‘night; a day of twenty-four hours’
SV:	Anejom	(ne)peñ	‘night’
Mic:	Kiribati	boŋ	‘night; a day of twenty-four hours, period, season’ ⁹
Mic:	Marshallese	p ^u oŋ ^w	‘night, last night’
Mic:	Ponapean	p ^w ōŋ	‘night’
		p ^w oŋ	‘numeral classifier used in counting nights’ (p ^w oŋ sili-p ^w oŋ ‘three nights’)
Mic:	Kosraean	foŋ	‘night’
Mic:	Chuukese	p ^w ōŋ	‘night’ (mostly in compounds)
Mic:	Puluwatese	-p ^w oŋ	‘counting classifier for nights’
		p ^w ōŋ	‘night; day of the month; be night’
Fij:	Rotuman	poŋi	‘night, night-time; be night or evening or late in the day’
Fij:	Wayan	boŋi	‘night’
PPn *pō ‘night, day of twenty-four hours’			
Pn:	Tongan	pō	‘night’
Pn:	Samoa	pō	‘night, day of twenty-four hours (especially in certain expressions), dark, blind’
Pn:	Tuvalu	pō	‘night, day of twenty-four hours’
Pn:	Nanumean	pō	‘night, day of twenty-four hours’
Pn:	Rennellese	pō	‘night, become night, day of twenty-four hours’
Pn:	Hawaiian	pō	‘night, formerly the period of twenty-four hours beginning at nightfall’ (the Hawaiian day began at nightfall)
Pn:	Maori	pō	‘night’
Pn:	Marquesan	pō	‘night; day of twenty-four hours’
Pn:	Rapanui	pō	‘night’

The reflexes from Huon Gulf languages (NNG: Yabem, Mangga, Mapos Buang) all reflect a verb Proto Huon Gulf *bok(-) ‘be night’ (Mangga *bus(in)* is a nominalisation): I am assuming that this is an irregular reflex of *boŋi. There are other fragments of evidence above (Puluwatese, Rotuman, Rennellese) that POc *boŋi also served as a verb ‘be/become night’.

The word for ‘night’ in a number of Oceanic languages reflects POc *rodrom. It is reasonably evident, however, that this term meant ‘be dark’, and did not in POc refer to a period of time.

⁹ Each of the two seasons which make up the Gilbertese year, *Nei Auti* (Pleiades) and *Rim^wimāta* (Antares) is divided into eight shorter periods called *boŋ*, each separately named (see Grimble 1931:201).

PMP **dem-dem* ‘be dark’¹⁰POc **rodrom* ‘be dark, be night’ (Blust 1984)

NNG:	Kis	<i>doma</i>	‘night’
NNG:	Terebu	<i>(bu)lom</i>	‘night’
MM:	Bola	<i>rodo</i>	‘night’
MM:	Nakanai	<i>logo</i>	‘night’ (regular reflex)
MM:	Meramera	<i>na-lodo</i>	‘night’
MM:	Barok	<i>dom(on)</i>	‘night’
SES:	Talise	<i>rodo</i>	‘night’
SES:	Lau	<i>rodo</i>	‘night’
		<i>ro-rodo(a)</i>	‘dark, dark in color’
SES:	‘Are’are	<i>roto</i>	‘be dark, night; night darkness’
SES:	Sa’a	<i>roto</i>	‘night’
SES:	Arosi	<i>rodo</i>	‘dark, black, night’
NCV:	Raga	<i>dodo</i>	‘rain cloud’
NCV:	NE Ambae	<i>dodo</i>	‘be dark; dark cloud’
NCV:	Tamambo	<i>dodo</i>	‘night’
Mic:	Kiribati	<i>roro</i>	‘black, dark color’
Mic:	Kosraean	<i>lɔʃ</i>	‘dark’
Mic:	Mokilese	<i>ros</i>	‘dark’
Mic:	Ponapean	<i>roç</i>	‘dark’
Mic:	Puluwatese	<i>rōr</i>	‘dark’
Mic:	Carolinian	<i>roʃ</i>	‘dark’
Pn:	Tongan	<i>lōlō</i>	‘absolutely dark, pitch dark’
Pn:	Samoaan	<i>lōlō</i>	‘absolutely dark, pitch dark’
Pn:	Marquesan	<i>lōlō</i>	‘absolutely dark, pitch dark’

The two sets below probably do not reflect POc **rodrom*. Rather, **rodrom* and the sets below all reflect a PAN monosyllabic root **-dem* (see vol. 1, pp.24–25, 27–28). That is, several items reflecting this root were separately inherited into POc.

PMP **ma-edem* ‘be dark’ (ACD: ‘Proto Western Malayo-Polynesian’ **ma-edem* ‘overcast, dull lustre’)

POc **marom* ‘be dark’

NNG:	Wampur	<i>maroʔ</i>	‘night’
MM:	Minigir	<i>marumu</i>	‘night’
MM:	Tolai	<i>marum</i>	‘night’
MM:	Ramoaaina	<i>marum</i>	‘night’
MM:	Kandas	<i>mirun</i>	‘night’
MM:	Bilur	<i>morom</i>	‘night’

¹⁰ Reconstructed on the basis of Proto Minahasan **dmídmí* ‘dark’ (Sneddon 1978) and the Oceanic reflexes shown here.

2.2.2 Daytime

The POC term which specifically denoted daylight was **raqani*, reconstructed in Chapter 6 (p.161), to which the reader is referred for further detail.

PAn **daqani* ‘day’ (ACD)

POc **raqani* ‘daytime, daylight’

Adm:	Nauna	<i>lin</i>	‘day’
Adm:	Ponam	<i>ran</i>	‘day’
NNG:	Yabem	<i>-leŋ</i>	‘be daytime’
PT:	Kiriwina	<i>yam</i>	‘daytime’
PT:	Sinaugoro	<i>layani</i>	‘daytime’
PT:	Motu	<i>rani</i>	‘daytime’
MM:	Nalik	<i>ran</i>	‘daytime’
MM:	Haku	<i>lan</i>	‘daytime’
MM:	Uruava	<i>rani</i>	‘daytime’
MM:	Roviana	<i>rane</i>	‘day’
MM:	Maringe	<i>na-rane</i>	‘day’
SES:	Bugotu	<i>dani</i>	‘morning, daylight’
SES:	Kwaio	<i>dani</i>	‘day’
SES:	‘Are’are	<i>tani</i>	‘daylight’
NCV:	Mota	<i>(ma)ran</i>	‘light, daylight, morning, day; be light; tomorrow’s light; the morrow’
NCV:	Tamambo	<i>rani</i>	‘daylight’
NCV:	Paamese	<i>lani</i>	‘daybreak’
SV:	Lenakel	<i>n-ian</i>	‘day’
SV:	Kwamera	<i>ia-ran</i>	‘day’
Mic:	Marshallese	<i>r^uān</i>	‘day, date’
Mic:	Ponapean	<i>rān</i>	‘day’

The primary meaning of POc **qaco* was ‘sun’, but it was also used for ‘daylight, daytime’. Indeed, in Polynesia reflexes of POC **qaco* are restricted to the sense of ‘period of a day, daylight’ and do not refer directly to the sun. This item, along with **sinaR* ‘shine, sun’, is also reconstructed in Chapter 6 (p.160), where more detail is provided.

PAn **qajaw*, **qalejaw* ‘sun, daylight’ (ACD)¹¹

POc **qaco* ‘sun, daytime’

Adm:	Ponam	<i>al</i>	‘sun’
Adm:	Mondropolon	<i>al</i>	‘sun’
NNG:	Bariai	<i>ado</i>	‘day, sun’
NNG:	Takia	<i>ad</i>	‘sun’
		<i>ad-ad</i>	‘daytime’
NNG:	Kaiwa	<i>as</i>	‘daytime’

¹¹ Blust (ACD) glosses this ‘day’, but the gloss given here appears more consonant with the data.

PT:	Molima	<i>ʔasu</i>	‘sun’
MM:	Nakanai	<i>haro</i>	‘sun, day’
MM:	Tigak	<i>ias</i>	‘sun’
MM:	Nalik	<i>ias</i>	‘sun’
SES:	Bugotu	<i>aho</i>	‘sun’
SES:	Gela	<i>aho</i>	‘sun; good weather; put in the sun; experience good weather’
SES:	Sa’a	<i>sato</i>	‘sun, sunshine, fine weather’
NCV:	Mota	<i>loa</i>	‘sun’
NCV:	Namakura	<i>ʔal</i>	‘sun’
Mic:	Marshallese	<i>al^u</i>	‘sun’
Mic:	Woleaian	<i>yaro</i>	‘sun’
Mic:	Puluwatese	<i>yælet</i>	‘sun’
Pn:	Tongan	<i>ʔaho</i>	‘day’
Pn:	Samoaan	<i>aso</i>	‘day’
Pn:	Tuvalu	<i>aho</i>	‘day (as time span)’
Pn:	Tikopia	<i>aso</i>	‘day (as time span)’

PMP **sinaR* ‘ray of light’ (Dempwolff 1938)

POc **sinaR* ‘shine, sun’

Adm:	Mussau	<i>sinaka</i>	‘sun’
Adm:	Lou	<i>sinsin</i>	‘sun’
PT:	Motu	<i>dina</i>	‘sun; day’
MM:	Lavongai	<i>sinaŋ</i>	‘sun; (sun) shine’
MM:	Tigak	<i>siŋan</i>	‘(sun) shine’ (metathesis)
SES:	Lau	<i>sina</i>	‘shine, give light’
SES:	‘Are’are	<i>sina</i>	‘shine, brighten; light, brightness’
SES:	Sa’a	<i>sineli</i>	‘shine’
NCV:	Mota	<i>siŋa</i>	‘shine’
Mic:	Chuukese	<i>ttira</i>	‘shine, ray, brightness, beam’
Mic:	Puluwatese	<i>tin</i>	‘shine, as the sun’
Fij:	Rotuman	<i>sina</i>	‘light, lamp, star’
Fij:	Wayan	<i>siŋa</i>	‘day, daylight, sun’
Fij:	Bauan	<i>ðina</i>	‘lamp, torch’

2.2.3 *Early morning: from dawn to 9 or 10 a.m.*

The POc term for the first few hours of daylight was **boŋi-boŋi*, self-evidently a reduplicated form of POc **boŋi* ‘night’.

POc **boŋi-boŋi* ‘early morning from dawn to 9 or 10 a.m.’

PT:	Gapapaiwa	<i>boi-boi</i>	‘morning; from sunrise to about 10 a.m.’
PT:	Dawawa	<i>boi-boi</i>	‘morning, tomorrow’
PT:	Sinaugoro	<i>boyi-boyi</i>	‘morning’
MM:	Sursurunga	<i>(kə)buŋ-buŋ</i>	‘morning’
MM:	Mono-Alu	<i>boi-boi(uana)</i>	‘in the morning (early?)’

SES:	Talise	<i>boŋi-boŋi</i>	‘morning’
SES:	Birao	<i>(bo)boŋi(hana)</i>	‘morning’
SES:	Lau	<i>bo-boŋi</i>	‘tomorrow’
SV:	SW Tanna	<i>(ie)n-pəŋe-n-pəŋ</i>	‘morning’
SV:	Kwamera	<i>nə-pnə-pən</i>	‘morning’
Mic:	Kiribati	<i>boŋi-boŋ</i>	‘twilight’

PPn **poŋi-poŋi* ‘(N, V) morning’

Pn:	Tongan	<i>poŋi-poŋi</i>	‘be or become morning; by morning, early in the day’
Pn:	Niuean	<i>poŋi-poŋi</i>	‘tomorrow, this morning’
Pn:	E Uvean	<i>poŋi-poŋi</i>	‘morning’
Pn:	Samoa	<i>poŋi-poŋi</i>	‘be dusky, twilight’
Pn:	Tikopia	<i>poŋi-poŋi</i>	‘morning’
Pn:	Nanumean	<i>poŋi-poŋi</i>	‘morning (6–8 a.m.)’
Pn:	Tuvalu	<i>poŋi-poŋi</i>	‘morning (6–8 a.m.)’
Pn:	Anutan	<i>poŋi-poŋi</i>	‘morning (5–11 a.m.)’

Interestingly, terms for ‘early morning’ in some Oceanic languages that do not reflect **boŋi-boŋi* nonetheless include that language’s root for ‘night’:

	night	early morning
Drehet (Adm)	<i>piŋ</i>	<i>kxe-piŋ</i>
Lou (Adm)	<i>keli-peŋ</i>	<i>pai-peŋ</i>
Loniu (Adm)	<i>peŋ</i>	<i>ma-peŋ</i>
Bing (NNG)	<i>boŋan</i> ‘last night’	<i>boŋ-sag</i> (<i>sag</i> ‘only’)
Takia (NNG)	<i>tidom</i>	<i>tidom-lom</i> (<i>lo</i> ‘in’, <i>mi</i> ‘only’)
Mapos Buang (NNG)	<i>buk</i>	<i>mon-buk</i>
Kiriwina (PT)	<i>bogi</i>	<i>ga-bogi</i>
Marshallese (Mic)	<i>p^woŋ</i>	<i>cip-p^woŋ</i> (<i>cip</i> ‘rise’)

POc **puko* ‘morning’ is only distributed over a certain area of Oceania—from New Britain to central Vanuatu—but this is enough to meet our criteria for POc reconstruction. To judge from the verbal morphology that occurs on a number of reflexes, **puko* often occurred as a verb. Unfortunately none of the reflexes occurs with a gloss which would confirm that this referred to the same time period as POc **boŋi-boŋi* ‘early morning’.

POc **puko* ‘(N, V) morning’

MM:	Bilur	<i>(la)puko</i>	‘tomorrow’
MM:	Lungga	<i>vuka</i>	‘tomorrow’
		<i>vu-vuye(i)</i>	‘morning’
MM:	Nduke	<i>vuye</i>	‘tomorrow’
MM:	Roviana	<i>vuyo</i>	‘tomorrow’
MM:	Vangunu	<i>(pana)vuho</i>	‘tomorrow’
MM:	Kia	<i>(fu)fuyo</i>	‘morning’
		<i>fuyo</i>	‘tomorrow’

MM:	Kokota	(fu)fu	‘tomorrow’
		fugo(nare)	‘morning’
SES:	Bugotu	vuo-vuʔo(i)	‘morning’
SES:	Oroha	hoʔo(a)	‘morning’
SES:	Sa’a	(ma-hu)huʔo	‘morning’
SES:	Arosi	(hā)hoʔo(a)	‘morning’
SES:	Fagani	(tei)hoyo(a)	‘morning’
SES:	Bauro	(ma)hoyo	‘morning’
SES:	Kahua	(haya)hoyo	‘morning’
NCV:	Raga	(vai)go-ugo	‘tomorrow’
NCV:	Tamambo	(a)vuho	‘tomorrow’
NCV:	Tangoa	vuho	‘tomorrow’
NCV:	Uripiv	(me)vi	‘tomorrow’
NCV:	Burmbar	(ma)vuk	‘morning’
NCV:	Labo	(mitu) ^m buko	‘morning’

2.2.4 *Middle of the day: from 9 or 10 a.m. to about 3 p.m.*

Outside Polynesia, very few languages have a dedicated word for this part of the day, and those that do show no sign of cognation. Most languages have a phrasal expression, sometimes meaning ‘the middle of the day’:

Loniu (Adm)	<i>tiko aŋ</i> (<i>tiko</i> ‘middle’, <i>aŋ</i> ‘day, sun’)
Gapapaiwa (PT)	<i>madeya pu</i> (<i>madeya</i> ‘daylight’, <i>pu</i> ‘middle’)
Roviana (MM)	<i>korapa rane</i> (<i>korapa</i> ‘middle’, <i>rane</i> ‘daylight’)
Gela (SES)	<i>kutu ni dani</i> (<i>kutu</i> ‘stomach, womb’, <i>dani</i> ‘daytime’)

Others have a noun phrase whose head is ‘sun, daylight’, modified by ‘big’ or ‘good’:

Takia (NNG)	<i>ad uyan, adian</i> (<i>ad</i> ‘sun’, <i>uyan</i> ‘good’)
Gela (SES)	<i>dani-kama</i> (<i>dani</i> ‘daylight’, <i>kama</i> ‘big’)
Wayan (Fij)	<i>siŋa-levu</i> (<i>siŋa</i> ‘day’, <i>levu</i> ‘big’)

Biggs and Clark (1993) reconstruct PPn **qaho-atea* ‘late morning and early afternoon’, from PPn **qaho* ‘daylight’ and **qātea* ‘clear, unobstructed’. The addition of Anejom reflexes raises the reconstruction to PROc **qaso-qatea* (Lynch pers. comm.).

PROc **qaso-qatea* ‘late morning and early afternoon’¹²

SV:	Anejom	<i>afiat</i>	‘become day’
		<i>n-afiat</i>	‘day, daytime’
		<i>n-afiat-iat</i>	‘midday’
Pn:	Niuean	<i>ahotea</i>	‘broad daylight’
Pn:	Samoan	<i>aoatea</i>	‘midday’

¹² Tongan *ʔahoʔataa* ‘at noon today’ seems at first sight to belong here, but, as Churchward (1959) shows, it reflects a probably unrelated base *-hoʔatā*.

Pn:	Anutan	<i>avatea</i>	‘midday’
Pn:	Tikopia	<i>avatea</i>	‘midday’
Pn:	Rennellese	<i>ʔaoʔatea</i>	(N, V) ‘(be) early afternoon’
Pn:	Hawaiian	<i>awakea</i>	‘noon’
Pn:	Maori	<i>awatea</i>	‘broad daylight’
Pn:	Rarotongan	<i>avatea</i>	‘forenoon nine to twelve’
Pn:	Tahitian	<i>avatea</i>	‘late morning to early afternoon’

2.2.5 Late afternoon and evening, from about 3 p.m. to sunset

Just one term is reconstructable for this period of the day, POc **Rapi*.

PAn **Rabi* ‘evening’ (Dempwolff 1938, ACD)

POc **Rapi*, **Rapi-Rapi* ‘(N, V) late afternoon and evening, from about 3 p.m. to sunset’

Adm:	Mussau	<i>(eloa)lai</i>	‘evening’
Adm:	Nyindrou	<i>(be)yeh</i>	‘afternoon’
NNG:	Tuam	<i>rav-rav</i>	‘evening’
NNG:	Lukep (Pono)	<i>rai</i>	(N) ‘afternoon from about 2 p.m. to darkness’
NNG:	Sio	<i>la-la</i>	‘afternoon’
NNG:	Tami	<i>la-la</i>	‘evening’
NNG:	Takia	<i>(g)rai(an)</i>	‘evening’
NNG:	Kela	<i>(guru)rap</i>	‘evening’
NNG:	Sukurum	<i>(fi)raf</i>	‘evening’
NNG:	Manam	<i>rai-rai</i>	‘evening’
PT:	Kiriwina	<i>kwayavi</i>	‘evening’
PT:	Gapapaiwa	<i>ravi</i>	(ADV) ‘afternoon; evening, from about 3 to 7 p.m.’
PT:	Gumawana	<i>lavi-lavi</i>	(ADV) ‘evening/late afternoon’
PT:	Iduna	<i>lavi-lavi</i>	‘afternoon’
PT:	Sinaugoro	<i>lavi-lavi</i>	(N) ‘afternoon’
PT:	Motu	<i>(ado)rahi</i>	(N) ‘late afternoon/evening’ (<i>ado</i> ‘sun’ [not used independently])
MM:	Bali	<i>(ga)ravi</i>	‘evening’
MM:	Meramera	<i>lavi-lavi</i>	‘evening’
MM:	Kara (East)	<i>(la)iaf</i>	‘evening’
MM:	Lihir	<i>(le)leh</i>	‘evening’
MM:	Sursurunga	<i>rah-rah</i>	(N) ‘afternoon’
MM:	Label	<i>rah</i>	‘evening’
MM:	Ramoaina	<i>(malu)rap</i>	(V) ‘evening’
MM:	Tolai	<i>ravi(an)</i>	‘afternoon, evening’
MM:	Siar	<i>raf</i>	‘evening’
MM:	Taiof	<i>(tou)raf</i>	‘evening’
MM:	Banoni	<i>(nē)navi</i>	‘evening’
MM:	Torau	<i>rai</i>	‘evening’
MM:	Maringe	<i>grafi</i>	‘evening’

SES:	Gela	(<i>nu</i>)lavi	‘evening’
SES:	Longgu	(<i>zao</i>)lavi	(N) ‘evening’
SES:	Lau	(<i>sau</i>)lafi	‘evening’
SES:	Kwaio	(<i>lau</i>)lafi	‘late afternoon’
SES:	Sa’a	(<i>sau</i>)lehi	‘evening, dusk, from 4 p.m. to dark’
NCV:	Mota	rav-rav	‘evening, the dusk of evening’
NCV:	Raga	rav-ravi	‘late’
		(<i>ute</i>)rav-ravi	‘evening’
NCV:	Tamambo	ravi-ravi	‘late afternoon/evening’
NCV:	Uripiv	riv-riv	‘afternoon’
NCV:	Paamese	(<i>medī</i>)lahi	‘afternoon, evening’
NCV:	Namakir	d(<i>a</i>)ravi(<i>h</i>)	‘evening’
SV:	Sye	(<i>p^wa</i>)rap	‘evening’
		(<i>a</i>)rap	‘begin to get dark in late afternoon’
SV:	Anejom	(<i>inju</i> p-u)ra	‘evening’
NCal:	Nemi	(<i>bate</i>)ap	‘evening’
Fij:	Wayan	avi-avi	‘late afternoon/evening’
Pn:	Tongan	afi-afi	‘evening’
Pn:	Samoa	afi-afi	‘evening’
Pn:	Niuean	afi-afi	‘late afternoon/evening’
Pn:	Hawaiian	ahi-ahi	‘late afternoon, evening’

There are also Micronesian reflexes. These are not listed above because they show hefty phonological reduction. The Proto Micronesian term was **faka-afi*, reflecting a combination of the POc prefix **paka-* (which among other things derived adverbs) and POc **Rapi*, reconstructed above.

Proto Micronesian **fakāfi* ‘evening, in the evening’

Mic:	Mortlockese	(<i>lɛ</i>)fæf	‘evening’
Mic:	Chuukese	fæf	‘evening meal, main meal’
Mic:	Puluwatese	(<i>lɛ</i>)fæf	‘evening meal’
Mic:	Carolinian	(<i>lɛ</i>)fæf	‘evening, dusk’
Mic:	Woleaian	fexāfi	‘last night’

2.2.6 *Third-order terms for parts of the day*

I have not been able to reconstruct any third-order terms for parts of the day. As the taxonomies above (pp.301–304) show, in modern Oceanic languages parts of the day smaller than ‘night’, ‘early morning’ and ‘late afternoon/evening’ are usually described by phrasal expressions. The only generalisation to be made is an obvious one—that ‘sunrise’ and ‘sunset’ are denoted by expressions meaning ‘the sun rises’ and ‘the sun sets’. Among the verbs for ‘rise’ and ‘set’ here were almost certainly **sake* and **sipo* respectively (see Ch. 6, pp.181–182 and Ch. 8, pp.271, 273).

2.3 The moon and its phases

POc **pulan* ‘moon’ also meant ‘month’. The reconstruction here is repeated from Chapter 6 (p.164).

PAn **bulaN* ‘moon, month, menstruation’ (ACD)

PMP **bulan* ‘moon, month; menstruation’ (Dempwolff 1938)

POc **pulan* ‘moon, month’ (ACD)

Adm:	Lou	<i>pulan</i>	‘moon’
Adm:	Mussau	<i>ulana</i>	‘moon’
PT:	Motu	<i>hua</i>	‘moon, month’
MM:	Tigak	<i>ulan</i>	‘moon’
SES:	Bugotu	<i>vula</i>	‘moon, month’
SES:	Lau	<i>fula</i>	‘the moon (but only in naming a month)’
SES:	Kwaio	<i>fula</i>	‘moon (mainly in compounds)’
SES:	Sa’a	<i>hule</i>	‘phases of the moon; full moon’
		<i>hule i lade</i>	‘name of a month, July’
SES:	Arosi	<i>hura</i>	‘moon, month’
NCV:	Mota	<i>vula</i>	‘moon, month, season marked by moon’
Fij:	Bauan	<i>vula</i>	‘moon, month’

As a verb, POc **sinaR* ‘sun, shine’ (Ch. 6, p.163; above, p.310) has given rise to a number of Polynesian terms which, with the addition of the stativising prefix *mā-* (Ch. 6, p.164), refer to the moon:

PPn **mā-sina* ‘moon, month’

Pn:	Rennellese	<i>māsina</i>
Pn:	Tongan	<i>māhina</i>
Pn:	Samoa	<i>māsina</i>
Pn:	E Futunan	<i>māsina</i>
Pn:	E Uvean	<i>māhina</i>
Pn:	Maori	<i>māhina</i>

Phases of the moon are probably named in every Oceanic language. However, there are differences in how many phases are named. In most languages for which information is available, the month seems to begin with the appearance of the narrowest crescent moon after the three days of darkness. In western astronomical terminology, the ‘new moon’ refers to the days of darkness, but in many of the sources terms glossed ‘new moon’ appear to denote the first appearance after the days of darkness.¹³ Minimal systems have terms glossed ‘new moon’ in the latter sense, for the first quarter (half-moon, roughly 7th day), the full moon (roughly 15th day), the last quarter (half-moon, roughly 22nd day) and the period of darkness. However, it is clear that in some systems these terms may denote a period of two or more nights, whilst in others the sources do not allow us to determine whether they are used for more than a single night. There are also numerous confusions in the English glosses of moon phase terms. Some of these simply reflect the mismatch

¹³ ‘New moon’ is also used in this sense in everyday English.

between 24-hour days and the lunar month of 29.53 days, so that phases do not exactly match days. Others are the result of different uses of terms and perhaps from failures to recognise that phases recognised by Oceanic speakers do not match with those recognised by westerners.

Maximal systems, like those found in Micronesia and in Central Eastern Polynesian languages, have thirty names, one for each day of a lunar month.¹⁴ Between the minimal and the maximal systems are systems that divide the month into phases of two or three nights each (e.g. Sa'a as reported by Ivens 1927, 1929). Some Oceanic communities, like Mwotlap (NCV), seem to divide the lunar month into phases based on sixths rather than quarters. That is, they have terms for the new moon and (roughly) the 5th, 10th, 15th, 20th and 25th days (François 2001). From White, Kokhonigita and Pulomana's (1988) dictionary definitions it seems that Maringe may also be such a language. Kiriwina apparently names days only from the 10th to the 20th day. The Lamotrek days, as listed by Christian (1899) are divided into two sections of respectively ten and twenty days.

Proto Micronesian and Proto Central–Eastern Polynesian sets of day names could probably be reconstructed, but the two sets would not be cognate and, unlike the month names, it is not possible to attribute literal meanings to most of their members (although some of the Polynesian sets apparently name supernatural beings). Hence for POc purposes there is little point in reconstructing them. In fact, there is not a great deal that can be reconstructed of the way that POc speakers talked about moon phases.

The first phase is strictly speaking the days of darkness. Interestingly, the sources vary as to how many of these there are, and Grimble (1931) claims that the Kiribati did not know.

The denotation of the first visible phase often makes reference to the moon's thin crescent shape. A number of languages compare it to a crescent-shaped pearlshell ornament, and it is possible that this image was also used in POc. Such artefacts have not appeared in the archaeological record, but they are fairly common ethnographically and a term for them, POc **japi* was reconstructed in vol. 1 (p.104). It is reflected in the Arosi term below.

PT:	Motu	<i>hua doɣayi</i>	'new moon' (<i>doɣayi</i> 'crescent shaped pearl shell ornament')
MM:	Nakanai	<i>mapa-le-Gileme</i>	'moon when it is small' (lit. 'payment for Gileme': the reference is to a goldlip shell used in brideprice)
		<i>kalisu</i>	'noseplug of mother-of pearl; new moon'
SES:	Arosi	<i>siʔe-dahi</i>	'a phase of the moon' (<i>siʔe</i> 'rub fire' or 'stripes', <i>dahi</i> 'crescent shaped ornament made from gold-lipped pearlshell')

Other descriptive terms also occur:

¹⁴ Sources listing days of the moon's age are Christian (1899:387–395) for Yapese, Ponapean, Lamotrek, Mortlockese and Woleaian, Jackson and Marck (1991) for Carolinian, Lee (1976) for Kosraean, Tregear (n.d.) for Hawai'ian, Tahitian, Marquesan, Rarotongan, Māori and Moriori, Stimson (1928) for Tahitian, Williams (1928) for Hawai'ian, Mangareva, Tahitian, Marquesan, Rarotongan, and Māori.

PT:	Kiriwina	<i>kapatu</i>	‘new moon’ (- <i>kapatu</i> ‘close, become small’)
SES:	Gela	<i>rau ni lei</i>	‘thin sickle of young moon, new moon’ (‘blade of grass, <i>Imperata cylindrica</i> ’)
		<i>vula taŋeu</i>	‘crescent moon’ (<i>vula</i> ‘moon’, <i>taŋeu</i> ‘split’)
Fij:	Wayan	<i>tāgaga ni vula</i>	‘horns of the moon’ (<i>tāgaga</i> ‘forked top piece of mast of traditional canoe’)

Other languages refer to what was apparently the same phase as ‘the young moon’, and here a reconstruction is perhaps possible: POc **pulan paqoRu*, where **pulan* is ‘moon’ (p.315) and **paqoRu* is ‘new, young’ (Ch. 7, p.210). Note, however, that I have also treated terms in which lexical replacement has occurred as reflexes of this item.

POc **pulan paqoRu* ‘new moon, young moon’

MM:	Roviana	<i>sidara vaqura</i>	‘new moon’ (<i>sidara</i> ‘moon’, <i>vaqura</i> ‘new, young’)
NCV:	Mwotlap	<i>no-wol wehey</i>	‘new moon’ (<i>no</i> ART, <i>wol</i> ‘moon’, <i>wehey</i> ‘new, young’)
SV:	Lenakel	<i>mouk vi</i>	‘new moon’ (<i>mouk</i> ‘moon’, <i>vi</i> ‘new’)
Fij:	Wayan	<i>vula vou</i>	‘new moon’ (<i>vula</i> ‘moon’, <i>vou</i> ‘new’)
Pn:	Tongan	<i>māhina foʻou</i>	‘new moon’ (<i>māhina</i> ‘moon’, <i>foʻou</i> ‘new’)
Pn:	Niuean	<i>mahina pula fōu</i>	‘new moon’ (<i>mahina</i> ‘moon’, <i>pula</i> ‘rise’, <i>fōu</i> ‘new’)

Some languages have a term which means, literally, ‘unripe moon’. This evidently refers to a phase between the new moon and the full moon, but exactly what part of the waxing half of the month it denotes is not clear.

PT:	Kiriwina	<i>tubukona tubu-geguda</i>	‘first quarter’ (<i>tubukona</i> ‘moon’, <i>tubu</i> ‘grow’, <i>geguda</i> ‘unripe’)
PT:	Motu	<i>hua karukaru</i>	‘young moon’ (<i>hua</i> ‘moon’, <i>karukaru</i> ‘undercooked, not fully ripe’)
Pn:	Niuean	<i>mahina pula mui</i>	‘new moon, first quarter’ (<i>mahina</i> ‘moon’, <i>pula</i> ‘rise’, <i>mui</i> ‘unripe’)

Mwotlap, where we know with reasonable certainty that the moon phases are roughly of five days apiece, has a term meaning ‘a piece of the moon’, which refers roughly to the 5th day after the moon’s appearance (whereas ‘the unripe moon’ seems to refer roughly to the 7th). One other language, Drehet, has a similar term:

Adm:	Drehet	<i>puŋ rexxek</i>	moon phases: 1st and 3rd quarters (<i>puŋ</i> ‘moon’, <i>rexxek</i> ‘a quarter, a piece’)
NCV:	Mwotlap	<i>no-wol ɣayte-ɣi</i>	‘one-third moon’ (<i>wol</i> ‘moon’, <i>ɣayte</i> ‘half, piece’)

Maringe has a term with an apparently similar meaning to Mwotlap:

MM:	Maringe	<i>k^hafa</i>	‘moon between new and half moon’

Curiously, this is about as far as we can go with reconstructing POc moon phases. Many languages have a term which is glossed in English as ‘half moon’, but I have found none that are cognate with each other, and none that agree on the metaphor they use. Every

language has a term for the full moon, but, again, I find no cognates and no agreement on metaphor. A good many languages also have terms for the night (or two nights) immediately before and/or immediately after the full moon.

2.4 The year and its seasons

Probably the main seasons for POC speakers living in northwest Melanesia were meteorological: the dry, when the southeast trades blew with reasonable consistency, and the wet, when there were sporadic northwesterly winds. The POC terms for these were respectively **raki* and **apaRat*, which seem to have referred centrally to the seasons, with typical weather and wind direction as inevitable components of their meanings. More details are given in Chapter 5, §4.2, whence the reconstructions below are repeated.

POC **raki* ‘dry season when the southeast trades blow’

Adm:	Lou	<i>ra</i>	‘northeast, northeast wind’
Adm:	Titan	<i>ⁿray</i>	‘wind from the mainland, mountain breeze, blows at night’
NNG:	Gitua	<i>rak</i>	‘southeast trade’
NNG:	Mangap	<i>rak-rak</i>	‘fresh morning (during windy season)’
NNG:	Tami	<i>lai</i>	‘southeast trade’
NNG:	Maleu	<i>(na)lai</i>	‘southeast trade’
NNG:	Ali	<i>rai</i>	‘southeast trade’
NNG:	Tumleo	<i>riei</i>	‘southeast trade’
MM:	Vitu	<i>rayi</i>	‘southeast trade’
MM:	Bulu	<i>layi</i>	‘southeast trade’
MM:	Tigak	<i>rei</i>	‘wind’
NCV:	Lewo	<i>lagi(pesoi)</i>	‘east wind’
Mic:	Marshallese	<i>ṛ^{uu}ak</i>	‘south, summer’
Mic:	Ponapean	<i>rāk</i>	‘breadfruit season, season of plenty’
Fij:	Wayan	<i>draki</i>	‘weather’
Fij:	Bauan	<i>draki</i>	‘weather’
Pn:	Niuean	<i>laki</i>	‘west’
Pn:	Tongan	<i>lak(oifie)</i>	‘fair, fine weather’
Pn:	E Uvean	<i>laki</i>	‘southeast or southwest wind’
Pn:	Pukapukan	<i>laki</i>	‘southwest wind’
Pn:	Samoaan	<i>laʔi</i>	‘southwest veering to northwest’
Pn:	Hawaiian	<i>laʔi</i>	‘calm, stillness, quiet, as of sea, sky, wind’

POC **apaRat* ‘wet season when northwesterlies blow and sea is rough’

Adm:	Mussau	<i>apae</i>	‘strong wind, storm wind’
Adm:	Wuvulu	<i>afā</i>	‘northwest wind’
Adm:	Drehet	<i>yaha</i>	‘stormy season, generally from November to March; strong wind and rough sea from the northwest’
NNG:	Kove	<i>awaha</i>	‘rain’
NNG:	Gitua	<i>yavara</i>	‘north wind’

NNG:	Tami	<i>yawal</i>	‘northwest wind’
NNG:	Kairiru	<i>yavar</i>	‘northwest wind, makes sea rough’
PT:	Iduna	<i>yavalata</i>	‘rains with wind from the northwest in February and March’
PT:	Tawala	<i>yawalata</i>	‘light rain from southwest during dry season’
PT:	Motu	<i>lahara</i>	‘northwest wind and season’
MM:	Bali	<i>vurata</i>	‘northwest wind’
MM:	Nakanai	<i>le-avala</i>	‘year, wet season’
MM:	Kara (East)	<i>yefet</i>	‘wet season’
MM:	Barok	<i>awat</i>	‘year’
MM:	Siar	<i>yahrat</i>	‘year’
MM:	Tinputz	<i>ivat</i>	‘strong wind’
Fij:	Wayan	<i>ḍavā</i>	‘storm, strong wind bringing rain’
Pn:	Tongan	<i>afā</i>	‘hurricane, gale or very severe storm’
Pn:	Samoa	<i>afā</i>	‘storm, hurricane.’

The terms I have reconstructed above refer to wind directions and to seasons. A further development is that one of the seasonal terms comes to mean ‘year’ (perhaps something like ‘the annual round’ would be more accurate). Reflexes of both POc **raki* ‘dry season’ and POc **apaRat* which are used in this way are listed below, but local seasonal/wind terms also tend to be used in this way.

NNG:	Kove	<i>hai</i>	‘southeast trade, year’
NNG:	Bariai	<i>rai</i>	‘year’
NNG:	Lukep	<i>rai</i>	‘year’
Mic:	Woleaian	<i>zaxi</i>	‘year, age, summer season’
MM:	Barok	<i>awat</i>	‘year’
MM:	Siar	<i>yahrat</i>	‘year’

In Ross (1995a) I wrote, ‘There is ... no doubt that POc had a separate (and widely reflected) word for year’, and followed it with the reconstruction of POc **taqun* below. This statement stands, but with a qualification. The Buang, Tongan and East Futunan reflexes indicate that **taqun* may have been used particularly to denote the yam-growing cycle. This would not be surprising: the greater yam, *Dioscorea alata* (POc **qupi*; Ross 1996c) is a highly prized—but not especially nutritious—crop throughout much of Oceania, with much ritual associated with its growth cycle, and so it is a highly salient marker of a year. It is likely that that it already had the meaning ‘yam season cycle’ in POc times.

PMP **taqun* ‘period of a year’ (Dempwolff 1938)

POc **taqun* ‘period of a year, yam season cycle (?), any cyclic period’

NNG:	Bariai	<i>taun</i>	‘the time when ...’
NNG:	Buang	<i>ta</i>	‘year; a complete cycle of yam growing’
NNG:	Ulau-Suain	<i>taun</i>	‘year’
MM:	Bola	<i>tahu(na)</i>	‘the time when ...’
MM:	Sursurunga	<i>taul</i>	‘season’

MM:	Patpatar	<i>t<in>ahon, t<in>ohon</i>	‘year’ (<in> marks a nominalisation: vol. 1. p.33)
MM:	Ramoaina	<i>t<in>əwon</i>	‘year’ (<in> marks a nominalisation: vol. 1. p.33)
NCV:	Mota	<i>tau</i>	‘season’
NCV:	Nguna	<i>(na)tau</i>	‘year’
Mic:	Kiribati	<i>tai</i>	‘time, season, harvest’
Mic:	Chuukese	<i>sowu-</i>	‘time, season’ (in compounds)
Pn:	Tongan	<i>taʔu</i>	‘yam season cycle, year’
Pn:	E Futunan	<i>taʔu</i>	‘yam season’
Pn:	Samoa	<i>tau</i>	‘season, year’
Pn:	Rennellese	<i>taʔu</i> <i>taʔu ika</i>	‘season’ ‘fish season (late July to early January)’ (<i>ika</i> ‘fish’)
Pn:	Tuvalu	<i>tau(naʔa)</i>	‘year’
Pn:	Rapanui	<i>taʔu</i>	‘year’
Pn:	Anutan	<i>tau</i>	‘year’
Pn:	Mangareva	<i>tau</i>	‘season, year’

Newell and Poligon (1993:486) define Batad Ifugao (Central Cordilleran, Philippines) *tawon* as follows: ‘a measure of the time between a major event such as planting or harvesting rice until it recurs. Traditionally, reference is not to a calendar year; a year does not have a fixed beginning and end.’ The rice harvest was evidently replaced by the yam harvest in POc. Glosses in other languages suggest that **taqun* was perhaps originally the name of a particular season, the dry season when food did not grow. We find Isneg (North Cordilleran) *mag-d<in>axun* ‘the hot, dry season’, derived from *taxun* ‘year’ (Vanoverbergh 1972), and Binukid (Manobo) *taun* ‘hunger season’ (Post 1992).

In Polynesian languages, there is a tendency, stronger in the east than in the west, for the reflex of POc **taqun*/PPn **taqu* to denote a ‘season’, in the sense of the dry season or the wet season. Kirch and Green (2001:261, 265) believe that the use of these reflexes to mean ‘year’ postdates western contact, but it does seem that the annual cycle of planting and harvesting was a major element of the meaning of both POc **taqun* and PPn **taqu* (Kirch & Green 2001:267). The presence of the nominaliser <in> in the Patpatar and Ramoaina reflexes above suggests that POc **taqun* was also a verb meaning ‘last a year’.

2.5 Lunar month names

Throughout much of Oceania there were calendars based on lunar months. However, discussion of these lies beyond the scope of this chapter, which is concerned with the labelling of time units whose connection to nature is fairly transparent. Calendrical names have complex associations with their users’ culture, both material and non-material, and will receive a chapter to themselves in a later volume.

3 Directed times: present, past and future

As noted in the introduction to this chapter (p.295), directed times—adjuncts expressing past, present and future—may be purely deictic (‘now’, ‘today’), may express vague

distance ('in the past', 'in the future'), or may express a specified distance within a cycle (e.g. 'this morning', 'this evening') or measured by cycles (e.g. 'yesterday', 'tomorrow', 'the day before yesterday').

There is strong evidence that most of the temporal terms that are reconstructable in this semantic category belong to the same class as the local nouns reconstructed in Chapter 8 (p.233), and that like those nouns, they occurred in a local construction with the POc preposition **i* or formed adverbs with the prefix **qa-* (p.322). Some temporal members of the class, however, also formed adverbs by reduplicating the disyllabic root.

3.1 Deictic time: 'now', 'today'

No POc form which uniquely means 'now' or 'today' is reconstructable. In many languages the same term is used for both meanings. Insofar as etymologising is possible (and more often than not it isn't), the term for 'now' or 'today' is formed by one of two strategies. In the first, the proximal demonstrative is used. Thus Lou (Adm) *tapoŋ*, Drehet (Adm) *iⁿdah*, Kaulong (NNG) *ai*, Bing (NNG) *nien*, Takia (NNG) *ete*, Gumawana (PT) *ame*, Patpatar (MM) *kaiken*, Longgu (SES) *nene* are each both 'here' and 'now'. Nêlêmwa (NCal) *l^heny* is both 'this' and 'today'.

The second strategy is an extension of the first: a phrase corresponding to 'this day' is used. Hence Drehet (Adm) *laŋ nane*, Nguna *raŋi waia*, Niuean (Pn) *aho nei*, all 'day' + 'this'. Nehan (MM) *ene dān* once meant 'this day' (*dān* < POc **raqani* 'daytime') but now means only 'today'.

The claim is sometimes made that Oceanic systems of spatial deixis are also used for temporal purposes. There are very few well documented cases of this beyond the use of the proximal demonstrative 'here' for 'now'. Such cases are Nêlêmwa (Bril 2002), Iai (Ozanne-Rivierre 2004), Kosraean (Lee 1975:129), Mokilese (Harrison 1976:77–81, 85) and Samoan (Mosel 2004). However, as Anderson and Keenan (1985:298–299) observe with regard to Kosraean and Mokilese, even in these two Micronesian languages the temporal applications of the spatial deictics are not parallel. The same observation is true of the other languages just listed, and so no precise reconstruction of a temporal usage of spatial deictics in POc is possible.

3.2 Vague temporal distance

There are relatively few lexical items in Oceanic languages denoting vague temporal distances. Lexical items for 'in the past' and 'in the future' used relative to the time of speaking are also used respectively for 'earlier' and 'later', i.e., for expressions relative to a time named by the speaker. Expressions for 'recently' and 'soon' are usually phrasal or clausal (e.g. 'a little time has passed/will pass ...'), not lexical.

3.2.1 'in the past'/'earlier' and 'in the future'/'later'

Curiously English and other European languages have two superficially contradictory ways of using the spatial analogy to express temporal direction. We say that the past is **behind** us and the future **lies before** us, yet when the deictic point is not the time of speaking we say that something in the past relative to that point is **beforehand** whilst

something in the future relative to it is *afterwards*. The Oceanic spatial metaphor for past and future is the second of these: ‘front’ is past, ‘back’ is future, presumably because that which is in front of one is visible, and so is, metaphorically speaking, the past.

The reconstructions below are repeated from Chapter 8, but only reflexes with a temporal meaning are listed here. The POC terms for ‘formerly’ were apparently **i muqa*, **qa-muqa* and **muqa-muqa*, for ‘later, afterwards’ **i muri*/**i buri* and **muri-muri*. In PWOC **muga* also occurred (p.258).

POC **muqa*- ‘front’, **muqa* ‘front; be in front’, **i muqa*, **qa-muqa*, **muqa-muqa* ‘in front, formerly’ (p.257)

Adm:	Mussau	<i>mu-mua</i>	‘first of all, formerly’
MM:	Tabar	<i>mu-mua</i>	‘formerly’
MM:	Lihir	<i>(i)mua</i>	‘formerly’
MM:	Taiof	<i>(i)mua(n)</i>	‘formerly’
NCV:	Mota	<i>(a)m^woa</i>	‘before, first’
NCV:	Raga	<i>(a)mua</i>	‘before, at first, first, in front of’
NCV:	Port Sandwich	<i>(a)mo</i>	(POSTVERBAL ADV) ‘before’
Mic:	Woleaian	<i>[i]m^wowa-</i> <i>m^w-m^wa-</i>	‘front, before’ ‘front, first, tip, before’
Pn:	Tongan	<i>(ʔi) muʔa [-atu]</i>	‘formerly’ (- <i>atu</i> DIR; p.279)
Pn:	Samoa	<i>(ana)mua</i>	‘formerly, in those days’

PWOC **muga* ‘front; be in front; formerly’

NNG:	Bariai	<i>muga(eai)</i>	‘formerly’ (- <i>eai</i> POSTP)
NNG:	Arop-Lokep	<i>mugu</i>	‘first of all, formerly’
NNG:	Mangap	<i>mu^ŋgu</i>	‘first of all, formerly, long ago’
NNG:	Bing	<i>mug</i>	‘formerly’
NNG:	Adzera	<i>moŋʔ</i>	‘prior’
MM:	Bali	<i>muga-</i>	‘front’
MM:	Ramoaina	<i>(nə)mugə</i>	‘in front; formerly’

PMP **ma-udehi* ‘be last; be after or behind; be late, be later; future’ (ACD)¹⁵

POC **muri[-]* ‘be behind, be after; back part, rear, behind, space to the rear of, time after; (canoe) stern; space outside’, **i muri*, **muri-muri* ‘at the back, later’ (p.261)

Adm:	Titan	<i>muri-n</i>	‘behind, afterwards’
NNG:	Bariai	<i>muri(ai)</i>	‘later, afterwards’
NNG:	Sio	<i>muri</i>	‘later’
NNG:	Gitua	<i>mur</i>	‘behind, afterwards’
NNG:	Bing	<i>mur(gam)</i>	‘later’
PT:	Dobu	<i>muri-na</i>	‘behind, afterwards’
PT:	Gapapaiwa	<i>muri</i>	‘back of s.t.; behind, afterwards’
PT:	Tawala	<i>muri</i>	‘back of s.t.; behind, afterwards’
PT:	Sinaugoro	<i>muri-na(i)</i>	‘behind, afterwards’

¹⁵ Blust (ACD) does not provide a gloss for **ma-udehi*. The gloss here is based on that for **udehi*.

MM:	Meramera	(muli)muli	‘later’
MM:	Nakanai	(muli)muli	‘later’
MM:	Tigak	(ai)muk	‘later’
MM:	Ramoaaina	(na)mur	‘later, afterwards’
MM:	Mono-Alu	(muri)muri	‘later’
MM:	Vangunu	(tara)meji-na	‘after’
MM:	Varisi	(tara)muzi-na	‘after’
SES:	Gela	muri	‘behind, afterwards; back; outside of s.t.; afterbirth; posterity’
SES:	Lengo	(i)muri(a)	‘after’
SES:	Arosi	muri	‘follow; behind, back; outside of s.t.; afterwards; left hand when facing an object’
Fij:	Bauan	(e) muri	‘behind, later’
Pn:	Tongan	(ʔa)mui	‘later on, at some future time’
Pn:	Maori	muri	‘rear, hind part; sequel, time to come; behind, afterwards, backwards; youngest child’
		(i) muri	‘afterwards’

PMP *burit ‘hind part, rear, back’ (ACD)

POc *burit ‘be behind, be after; back part, rear, behind, space to the rear of, time after; (canoe) stern’, *i burit ‘behind, afterwards’ (p.262)

SES:	Lau	(i) buri	‘afterwards’
SES:	’Are’are	puri-na	‘after’

3.2.2 ‘long ago’

It is hard to avoid the conclusion that *tuqaRi ‘(be) long ago, old (of inanimates)’ is historically related to *[ma]tuqa ‘ripe, mature, adult, old’. POc *tuqaRi appears to be both verb and temporal adverb. The full cognate set is given on p.212, with a discussion of the form of the reconstruction.

POc *tuqaRi ‘(be) long ago; take a long time, old (of inanimates)’

NCV:	Mota	tuai	‘of long duration, old’
NCV:	Tamambo	tuai	‘of old’
NCV:	Nguna	tuai	‘long ago, (thing) old’
SV:	Sye	(e)twai	‘recently’
		(it-e)twai	‘long time ago’
SV:	Kwamera	tui	‘old, previous, of the past, long ago’
SV:	Anejom	(i)tuwu	‘long ago’
Fij:	Wayan	tuei	(V, ADJ) ‘take a long time; be slow, late’

Pn:	Tongan	<i>tuai</i>	(V) ‘be slow, late’
		<i>(mai) tuai</i>	(PP) ‘from of old, since very early times’
Pn:	Samoan	<i>tuai</i>	(V) ‘be late, be delayed’

3.3 Distances within a day or measured by days

POc temporal bases themselves were in general directionless, i.e. neutral between past and future. The exception to this was **ñoRap* ‘yesterday’. There is no clearly reconstructable term for ‘tomorrow’, and both ‘yesterday’ and ‘tomorrow’ are often denoted by terms which reflect as their base either POc **boŋi* ‘night, day of twenty-four hours’ (p.305) or POc **raqani* ‘daytime, daylight’ (p.309). ‘The day before yesterday’ and ‘the day after tomorrow’ both had as their base the directionless **waRisa* ‘two days from today’ (p.332).

Pawley (1972:32–33, 82) reconstructed the PEOc prefixes **qa-* and **qana-* as formatives of future and past temporal expressions respectively. In the light of wider evidence, it seems that **qana-* was originally two prefixes: **qa-* and **na-*. In both formatives **qa-* is the POc adverbialising prefix described in Chapter 8 (p.235), whilst **na-* was a prefix forming temporal bases situated in the past. Sometimes, it seems, it was attached to a base which had past meaning, but often it formed a past term from a base which did not express temporal direction. This **na-* may well be of PMP antiquity, as it is reflected with the same function in (Western Malayo-Polynesian) languages of the Kaili-Pamona, Wotu-Wolio and SE Celebic families on the island of Sulawesi (Mead 2001).

3.3.1 Distances within a day

By distances within a day, I mean expressions corresponding to English ‘last night’, ‘tonight’, ‘this morning’, ‘this evening’. Oceanic data relating to these are very thin indeed. I suspect the main reason for this is that expressions consisting of ‘today’ or ‘yesterday’ plus ‘morning’ or ‘evening’ are often used, and they are simply not noted in dictionaries. For example:

Adm:	Drehet	<i>kum^wiŋ</i> ‘now, today’	<i>piŋ</i> ‘night’	<i>piŋ kum^wiŋ</i> ‘tonight’
PT:	Ubir	<i>ari</i> ‘now, today’	<i>fom</i> ‘night’	<i>ari-fom</i> ‘tonight’
PT:	Kiriwina	<i>lagaila</i> ‘today’	<i>bogi</i> ‘night’	<i>lagaila bogi</i> ‘tonight’

There are a few languages where **qa-* is prefixed to a part of the day to form a future expression, **[qa]na-* to form a past expression, but it is not clear whether these expressions are reconstructable for POc or are simply independent innovations resulting from the productivity of the prefixes. Thus we find Nakanai (MM) *ala-logo* ‘last night’ vs *ga-logo* ‘tonight’ (*-logo* < **rodrom* ‘night’), Nehan (MM) *na-boung* ‘last night’, *na-liwo* ‘this morning (past)’ vs *ro-liwo* ‘tomorrow’ (the origin of *ro-* is unknown), and Tongan (Pn) *ʔane-pō* ‘last night’ vs *ʔa-pō* ‘tonight’. Niuean (Pn) has terms reflecting **[qa]na-*: *ne-poŋi-poŋi* ‘this morning (past)’, *ne-pō* ‘last night’, and *ne-afi-afi* ‘yesterday evening’. Biggs and Clark (1993) reconstruct PPn **qana-pō* ‘last night’:

PPn **qana-pō* ‘last night’

Pn:	Tongan	<i>ʔanepō</i>	‘last night’
Pn:	Niuean	<i>ne-pō</i>	‘last night’
Pn:	Samoan	<i>anapō</i>	‘last night’

Pn:	Anutan	<i>anapo</i>	‘last night’
Pn:	E Futunan	<i>nāpō</i>	‘last night’
Pn:	E Uvean	<i>ʔana pō</i>	‘last night’
Pn:	Nukuria	<i>anabō</i>	‘last night’
Pn:	Tahitian	<i>napo</i>	‘last night’

3.3.2 ‘yesterday’

The POc base for ‘yesterday’ was **ñoRap*. A few reflexes reflect accretion of the preposition **i*, and just two reflect **qa-*. Whether **qa-ñoRap* occurred in POc or whether **qa-* continued to be productive and came later to be attached to reflexes of **ñoRap* is unclear. This question is compounded by an interesting distributional phenomenon. We can also reconstruct POc **na-ñoRap*, with past formative **na-* (p.324). This is reflected largely, but not exclusively, in Eastern Oceanic languages, whilst unprefixes **ñoRap* is reflected mainly in Western Oceanic languages. There is an overlap zone in the southeast Solomons and northern Vanuatu.

PMP **ñeRab* ‘yesterday’

POc **ñoRap* ‘yesterday’, *i ñoRap*, **qa-ñoRap* (?)

NNG:	Kove	<i>noha</i>	‘yesterday’
NNG:	Gitua	<i>nora</i>	‘yesterday’
NNG:	Mangap	<i>nēri</i>	(ADV) ‘yesterday, subjectively recent time, just recently’
NNG:	Sio	<i>nola</i>	(ADV) ‘yesterday; any unspecified prior time or day’
NNG:	Kilenge	<i>nola</i>	‘yesterday’
NNG:	Amara	<i>noru</i>	‘yesterday’
NNG:	Aria	<i>narep</i>	‘yesterday’
NNG:	Poeng	<i>ŋalla</i>	‘yesterday’
NNG:	Kakuna	<i>ŋala-na</i>	‘yesterday’
NNG:	Roinji	<i>nola</i>	‘yesterday’
NNG:	Takia	<i>nor</i>	(ADV) ‘yesterday, recently’
NNG:	Numbami	<i>nolowa</i>	‘yesterday’
NNG:	Yabem	<i>no(geŋ)</i>	‘yesterday’
NNG:	Kaiwa	<i>nolik</i>	‘yesterday’
NNG:	Medebur	<i>nora</i>	‘yesterday’
NNG:	Manam	<i>nora</i>	‘yesterday’
NNG:	Ulau-Suain	<i>nira-ñ</i>	‘yesterday’
NNG:	Ali	<i>nari</i>	‘yesterday’
PT:	Misima	<i>noru</i>	‘yesterday’
MM:	Bali	<i>ŋorapa</i>	‘yesterday’
MM:	Bulu	<i>nola</i>	‘yesterday’
MM:	Lavongai	<i>(a)noŋo</i>	‘yesterday’
MM:	Tigak	<i>nogo</i>	‘yesterday’
MM:	Ramoaina	<i>narap</i>	‘before, formerly’

MM:	Nehan	<i>nerau</i>	‘yesterday’
MM:	Solos	<i>nonoh</i>	‘yesterday’
MM:	Halia (Haku)	<i>(i) nolaha</i>	‘yesterday’
MM:	Halia (Selau)	<i>narowa</i>	‘yesterday’
MM:	Taiof	<i>nanaf</i>	‘yesterday’
MM:	Teop	<i>nanava</i>	‘yesterday’
MM:	Banoni	<i>(ya)nanava</i>	‘yesterday’
MM:	Roviana	<i>norae</i>	‘yesterday’
MM:	Kia	<i>norao</i>	‘yesterday’
MM:	Maringe	<i>ñora</i>	‘yesterday’
SES:	Gela	<i>nola</i>	‘yesterday’
SES:	Bugotu	<i>(i)ñođa</i>	‘yesterday’
SES:	W Guad.	<i>(i)noa</i>	‘yesterday’
NCV:	Motlav	<i>a-nor</i>	‘yesterday’
Mic:	Kiribati	<i>noa</i>	‘yesterday’

The Southern Vanuatu members of the set below reflect a Proto South Vanuatu form reconstructed by Lynch (2001:211) as **na-yan(a,u)v*. POC **R* is sporadically lost in Proto South Vanuatu, and these forms seem to reflect a metathesis of a reflex of *na-ñoRap* to **na-Raño*.

POC **na-ñoRap* ‘yesterday’, *i na-ñoRap*, **qa-na-ñoRap* (?)

NNG:	Lamogai	<i>narnop</i>	‘yesterday’ (< <i>*na-norap</i> : metathesis)
MM:	Tabar	<i>nenora</i>	‘yesterday’
MM:	Nduke	<i>nonoro</i>	‘yesterday’
SES:	’Are’are	<i>nonora</i>	‘yesterday’
SES:	Sa’a	<i>nonola</i>	‘yesterday’
SES:	Arosi	<i>nanora</i>	‘yesterday’
SES:	Fagani	<i>nanora</i>	‘yesterday’
SES:	Bauro	<i>ananora</i>	‘yesterday’
SES:	Kahua	<i>nanora</i>	‘yesterday’
NCV:	Mota	<i>ananora</i>	‘yesterday’
NCV:	Motlav	<i>(n)ananoa</i>	‘yesterday’
NCV:	NE Ambae	<i>nainoa</i>	‘yesterday’
SV:	Sye	<i>ninu</i>	‘yesterday’
SV:	Whitesands	<i>neniəv</i>	‘yesterday’
SV:	Lenakel	<i>nenav</i>	‘yesterday’
SV:	Kwamera	<i>neiv</i>	‘yesterday’
SV:	Anejom	<i>(i)yenev</i>	‘yesterday’
Mic:	Kiribati	<i>nanoa</i>	‘yesterday’
Mic:	Mortlockese	<i>nanaw</i>	‘yesterday’
Mic:	Puluwatese	<i>nænewi</i>	‘yesterday’
Mic:	Woleaian	<i>rarowa</i>	‘yesterday’
Fij:	Bauan	<i>(e) nanoa</i>	‘yesterday’

There seem to be at least two other variants on this form. Certain Papuan Tip languages reflect **Ropa*:

PT:	Tawala	<i>lolowa</i>	‘before, (a few) days back’
PT:	Dobu	<i>lowa</i>	‘day before yesterday’
PT:	Kiriwina	<i>lova</i>	‘yesterday’

This seems to be the outcome of a three-step process. First, the vowels of **ñoRap* metathesised to **ñaRop* (as they have done in Selau *narowa* in the first **ñoRap* set above). Then, **ñ* became **n* and a paragogic *-a* was added, both regular changes, giving **naRopa*. Finally, **na-* was reinterpreted as the past formative, leaving the base **Ropa* reflected above.

The forms below reflect Proto NCV **na-novi* ‘yesterday’. This contrasts with Proto NCV **novi* ‘tomorrow’ (Nokuku *p^{wa}-novi*, Kiai *i-novi*, Tolomako *i novi*) and so may have nothing to do with **na-ñoRap*. Clark (1996) thinks it reflects a conflation of POc **na-ñoRap* and **na-Rapi* (below), however, and he may be right.

NCV:	Raga	<i>ninovi</i>	‘yesterday’
NCV:	Nokuku	<i>nonovi</i>	‘yesterday’
NCV:	Kiai	<i>nanovi</i>	‘yesterday’
NCV:	Tamambo	<i>(na)nanovi</i>	‘yesterday’
NCV:	Lonwolwol	<i>nono</i>	‘yesterday’
NCV:	Namakir	<i>nanov</i>	‘yesterday’
NCV:	Nguna	<i>nanova</i>	‘yesterday’
NCV:	Tolomako	<i>na novi</i>	‘yesterday’

The term below reflects POc **boŋi* ‘night, day of twenty-four hours’ prefixed with the past formative **na-*. The reconstruction of **na-boŋi* ‘yesterday’ as far back as POc is questionable, as it is not well attested outside Meso-Melanesian languages.

POc (?) **na-boŋi* ‘yesterday’

NNG:	Kairiru	<i>nubuoŋ(nai)</i>	‘yesterday’
MM:	Sursurunga	<i>nabuŋ</i>	‘yesterday’
MM:	Tangga	<i>nabiŋ</i>	‘yesterday’
MM:	Konomala	<i>nabuŋ</i>	‘yesterday’
MM:	Patpatar	<i>nabuŋ</i>	‘yesterday’
MM:	Tolai	<i>nabuŋ</i>	‘yesterday’
MM:	Ramoaaina	<i>nabuŋ</i>	(ADV) ‘yesterday’
MM:	Kandas	<i>nubuŋ</i>	‘yesterday’
MM:	Bilur	<i>naboŋ</i>	‘yesterday’
MM:	Label	<i>naboŋ</i>	‘yesterday’
MM:	Tinputz	<i>noboŋ</i>	‘yesterday’
MM:	Kwaio	<i>nāboni</i>	‘yesterday’

cf. also

NNG:	Kairiru	<i>(ra)buŋ</i>	‘yesterday’
NNG:	Hote	<i>(wak)buk</i>	‘yesterday’ (<i>wak</i> < POc <i>*qaco</i> ‘sun’)
PT:	Tawala	<i>pom</i>	‘yesterday’
MM:	Siar	<i>(la)buŋ</i>	‘yesterday’

MM:	Hahon	(ro)bon	‘yesterday’
SES:	Gela	(i)boŋi	‘yesterday’
NCV:	Port Sandwich	(xi) ^m boŋ	‘yesterday’
NCV:	Labo	(lo) ^m bun	‘yesterday’

A few Western Oceanic terms for ‘yesterday’ reflect POc **raqani* ‘daytime, daylight’ (p.309). Reflexes in Sio (NNG) and in the Central Papuan subgroup of Papuan Tip languages have a prefix which appears to reflect a preposition reflex of POc **ua* (VF) ‘go towards addressee’, (DIR) ‘towards addressee’ (Ch. 8, §3.4.4).

NNG:	Sio	<i>wa-lani</i>	(ADV) ‘day before yesterday’
NNG:	Wogeo	<i>ra-ran</i>	‘yesterday’
PT:	Sinaugoro	<i>ɣwa-layani</i>	‘yesterday’
PT:	Keapara	<i>va-rayani</i>	‘yesterday’
PT:	Motu	<i>va-rani</i>	‘yesterday’
PT:	Roro	<i>ua-rani</i>	‘yesterday’
PT:	Kuni	<i>ua-nani</i>	‘yesterday’
PT:	E. Mekeo	<i>a-ŋani</i>	‘yesterday’

The term below is clearly the same root as **Rapi*/**Rapi-Rapi* ‘late afternoon and evening, from about 3 p.m. to sunset’ (p.313). I have placed a question mark against the reconstructed gloss below, as it is not attested in the data. However, the gloss ‘yesterday’ is presumably the result of extension of meanings denoting ‘last evening’. Nuclear Polynesian languages reflect an unexplained innovation whereby **qa-na-api* became **qa-na-napi*.

POc **i Rapi* ‘(?) in the evening’, **na-Rapi* ‘yesterday’, **qa-na-Rapi* ‘yesterday’

PT:	Gapapaiwa	<i>ravi-ravi</i>	(ADV) ‘yesterday’
MM:	Bola	<i>ravi</i>	(ADV) ‘yesterday’
MM:	Meramera	<i>lavi</i>	‘yesterday’
MM:	Nakanai	(<i>ala</i>) <i>lavi</i>	‘yesterday’
MM:	Kara (East)	(<i>la</i>) <i>nef</i>	‘yesterday’ (metathesis)
MM:	Kara (West)	(<i>ne</i>) <i>ief</i>	‘yesterday’
MM:	Nalik	(<i>la</i>) <i>raf</i>	‘yesterday’
MM:	Lihir	(<i>la</i>) <i>leh</i>	‘yesterday’
MM:	Barok	<i>la</i>	‘yesterday’
MM:	Minigir	(<i>na</i>) <i>ravi</i>	‘yesterday’
MM:	Nehan	(<i>ne</i>) <i>rau</i>	‘yesterday’
MM:	Mono-Alu	<i>lahi</i>	‘yesterday’
Pn:	Tongan	(<i>?ane</i>) <i>afi</i>	‘yesterday’
Pn:	Niuean	(<i>ne</i>) <i>afi</i>	‘yesterday’
Pn:	Samoa	(<i>ana</i>) <i>nafi</i>	‘yesterday’
Pn:	Ifira-Mele	(<i>nā</i>) <i>nafi</i>	‘yesterday’

cf. also:

SES:	Longgu	(<i>ŋa</i>) <i>lavi</i>	‘yesterday’
Fij:	Wayan	(<i>ni</i>) <i>avi</i>	‘yesterday’

3.3.3 ‘tomorrow’

There is no POC term for ‘tomorrow’ that is as unambiguously reconstructable as **ñoRap* is for ‘yesterday’.

We might expect that just as POC **na-boŋi* (p.327), with the past formative, was perhaps used for ‘yesterday’, so **boŋi* ‘night, day of twenty-four hours’, without a formative, might also have served for ‘tomorrow’. But this would have been ambiguous in at least some contexts, so we would expect some disambiguating marker. We do indeed find reflexes of **boŋi* used for ‘tomorrow’, and some of these are listed below, but they do not form a cognate set, and their disambiguating markers vary from demonstratives (Iduna, Sinaugoro) through an adposition (Dawawa) to irrealis enclitics (Mindiri, Bilibil, Matukar).

Adm: Drehet	(<i>neke</i>) <i>piŋ</i>	(ADV) ‘tomorrow’
Adm: Lou	(<i>ti</i>) <i>peŋ</i>	‘tomorrow’
Adm: Nyindrou	(<i>na</i>) <i>biŋi</i>	‘tomorrow’
NNG: Malalamai	<i>boŋ(o)</i>	‘tomorrow’
NNG: Bing	<i>boŋ(sag)</i>	‘tomorrow’
NNG: Mindiri	<i>bum(pɔ)</i>	‘tomorrow’
NNG: Bilibil	<i>boi(lap)</i>	‘tomorrow’
NNG: Gedaged	<i>boŋ(anip)</i>	‘tomorrow’
NNG: Takia	<i>boŋ</i>	‘tomorrow’
NNG: Matukar	<i>bo(ip)</i>	‘tomorrow’
NNG: Sera	<i>puiŋ(eteik)</i>	‘tomorrow’
PT: Iduna	<i>bogi(yadi)</i>	‘tomorrow’
PT: Muyuw	(<i>nu</i>) <i>bweig</i>	‘tomorrow’
PT: Sinaugoro	<i>boi(nani)</i>	(ADV) ‘tomorrow’
NCV: Paamese	(<i>visu</i>) <i>voŋ</i>	‘tomorrow’
NCV: Namakir	(<i>paʔa</i>) <i>bog</i>	‘tomorrow’
Mic: Kiribatese	(<i>niŋā</i>) <i>boŋ</i>	‘tomorrow’

We also find reduplicated reflexes of **boŋi*, but I take these to be reflexes of POC **boŋi-boŋi* ‘early morning from dawn to 9 or 10 a.m.’ (p.310). I doubt whether the sense ‘tomorrow’ is also reconstructable for **boŋi-boŋi* and assume that these are the outcomes of parallel innovations, similar to those via which reflexes of **Rapi* ‘evening’ came to mean ‘yesterday’.

POC **i boŋi-boŋi* ‘(?) in the morning’, **qa-boŋi-boŋi* ‘(?) in the morning’

NNG: Barim	<i>buŋ-buŋ</i>	‘tomorrow’
NNG: Arop-Lokep	<i>boŋ-boŋ</i>	‘tomorrow’
NNG: Malasanga	<i>buŋ-boŋ</i>	‘tomorrow’
PT: Dawawa	<i>boi-boi</i>	‘morning, tomorrow’
PT: Tangga	(<i>na</i>) <i>biŋ-biŋ</i>	‘tomorrow’
SES: Lau	<i>bo-boŋi</i>	‘tomorrow’
Pn: Tongan	(<i>ʔa</i>) <i>poŋi-poŋi</i>	‘tomorrow’
Pn: Niuean	<i>poŋi-poŋi</i>	‘tomorrow, this morning’
Pn: E Futunan	(<i>ā</i>) <i>poŋi-poŋi</i>	‘tomorrow’
Pn: E Uvean	(<i>a</i>) <i>poŋi-poŋi</i>	‘tomorrow’

Pn:	Tikopia	(a)poŋi-poŋi	‘tomorrow’
Pn:	Maori	(ā)pō-pō	‘tomorrow’

Reflexes of POC **puko* ‘morning’ (p.311) have also come to mean ‘tomorrow’ in a number of languages.

POC **ma-pua* ‘tomorrow’ is reconstructable from the rather skewed cognate set below. Data from Sulawesi languages and Balinese cited by Mead (2001) point to the reconstruction of PMP **i-pu(h)a-n* ‘day after tomorrow, day before yesterday’, and the POC root **-pua* here apparently reflects PMP **-pu(h)a-*. However, the apparent shift in meaning is unexplained.

POC **ma-pua* ‘tomorrow’

Adm:	Loniu	<i>mahu</i>	‘tomorrow’
PT:	Kukuya	<i>mapu(tua)</i>	‘tomorrow’
MM:	Tigak	(a) <i>mau(a)</i>	‘tomorrow’
MM:	Tiang	<i>məu(ə)</i>	‘tomorrow’
MM:	Kara (East)	<i>mofu</i>	‘tomorrow’
MM:	Kara (West)	<i>mofu</i>	‘tomorrow’
MM:	Nalik	(la) <i>maf</i>	‘tomorrow’
MM:	Solos	<i>mahu</i>	‘tomorrow’
MM:	Petats	<i>mahu</i>	‘tomorrow’
MM:	Halia (Haku)	<i>mahu</i>	‘tomorrow’
MM:	Halia (Selau)	<i>mawu</i>	‘tomorrow’

POC **ma-raqani* was presumably originally a verb meaning ‘become light’, derived from **raqani* ‘daytime, daylight’ (p.309). Its reflexes in a number of languages mean ‘tomorrow’, as do several other reflexes of **raqani* listed below. If it is the case, as suggested on p.300, that the POC day began at sunset, then, once sunset had passed, **i raqani* ‘in the daylight’ (reflected directly in Sa’a and ’Are’are) would have referred to the daylight of the present day—‘tomorrow’ in an English-speaker’s terms.

POC **ma-raqani* ‘become light’

PT:	Gapapaiwa	<i>maram</i>	‘tomorrow, in the future’
PT:	Kandas	<i>markan</i>	‘tomorrow’
MM:	Patpatar	<i>marakan</i>	‘tomorrow’
NCV:	Mota	<i>maran</i>	‘light, daylight, morning, day; be light; tomorrow’s light; the morrow’
NCV:	Raga	<i>maran</i>	‘morning light, morning’
NCV:	Labo	<i>maxan</i>	‘tomorrow, morning’
SV:	Sye	<i>mran</i>	‘tomorrow’
SV:	Anejom	(i) <i>mrañ</i>	‘tomorrow’
cf. also:			
SES:	Longgu	<i>dañi</i>	(V) ‘tomorrow; daylight’
SES:	Sa’a	<i>i deni</i>	‘tomorrow’
SES:	’Are’are	<i>itani</i>	‘tomorrow’
NCV:	Sakao	(lak) <i>ren</i>	‘tomorrow’
NCV:	Port Sandwich	(pe) <i>an</i>	‘tomorrow’

There is also a variety of forms that seem to reflect a root **tuqu* ‘tomorrow’.

POc **la-tuqu* ‘tomorrow’

MM:	Label	<i>latu</i>	‘tomorrow’
MM:	Sursurunga	<i>latiu</i>	‘tomorrow’
MM:	Siar	<i>latu</i>	‘tomorrow’
Mic:	Marshallese	<i>(i)lcu</i>	‘tomorrow’
Mic:	Kosraean	<i>lutu</i>	‘tomorrow, morning’
Mic:	Chuukese	<i>ɾəwɨ</i>	‘tomorrow’
Mic:	Puluwatese	<i>layɨ</i>	‘tomorrow’
Mic:	Woleaian	<i>raɨ</i>	‘tomorrow’

PNS: **na-tuqu* ‘tomorrow’

MM:	Papapana	<i>natui</i>	‘tomorrow’
MM:	Ghove	<i>natui</i>	‘tomorrow’
MM:	Maringe	<i>natuʔu</i>	‘tomorrow’

PPn: **a(r,l)etuqu* ‘tomorrow’

Pn:	Mae	<i>aretū</i>	‘tomorrow, day after’
Pn:	Nukuria	<i>(bō)aledū</i>	‘tomorrow night’ (<i>bō</i> ‘night’)
Pn:	W Futunan	<i>aratu</i>	‘tomorrow’

3.3.4 A note on the derivations of ‘yesterday’ and ‘tomorrow’

The derivational relationships (i) between POc **na-Rapi* ‘yesterday’, **qa-na-Rapi* ‘yesterday’ and POc **Rapi* ‘evening’ and (ii) between POc **raqani* ‘(become) daylight’ and POc **ma-raqani* ‘tomorrow’ reflect a tendency across the world’s languages whereby terms for ‘yesterday’ and ‘tomorrow’ are derived from terms for ‘evening’ and ‘morning’ respectively. Terms meaning ‘in the evening’ and ‘in the morning’ lack temporal direction, but this is filled in by the presence of tense or (in some Oceanic languages) mood markers in the verb phrase, i.e. ‘in the evening’ is interpreted as ‘yesterday evening’, then comes by semantic extension to mean simply ‘yesterday’. A similar observation can be made for ‘tomorrow’. This interpretation is proposed by Buck (1949:999–1000) for the similar derivations that are found for ‘tomorrow’ across much of the Indo-European family and for ‘yesterday’ in Modern Greek, and the Baltic and Slavonic languages. Parallel derivations have also occurred in Finnish and Estonian, in Turkic languages, in Arabic, in Pama-Nyungan and non-Pama-Nyungan Australian languages, in Siouan, in Chinese and in Japanese (Ross 2001c).

It seems possible that the one directed lexical root above, PMP **ñeRab*, POc **ñoRap* ‘yesterday’ is itself derivationally related to PMP **Rabi* ‘evening’.

3.3.5 ‘the day before yesterday’ and ‘the day after tomorrow’

As I noted earlier, both ‘the day before yesterday’ and ‘the day after tomorrow’ were denoted by the inherently directionless temporal term POc **waRisa* ‘two days from today’. Past direction, i.e. ‘the day before yesterday’, was specified by the past formative **na-*, but, as with **na-ñoRap* and **na-boŋi* above, **na-* is reflected only (patchily) among Meso-

Melanesian languages and more widely in Eastern Oceanic languages. Hence unprefixes of **waRisa* in Western Oceanic languages often denote ‘the day before yesterday’.

Note that reflexes in Bing, Takia and Yabem which lack a reflex of final **-sa* have lost it as a result of regular sound changes.

The Proto Tanna (SV) and Proto Polynesian reflexes of **qa-na-* lost the past-marking function. Tanna languages add a prefix for future direction, and PPn **qanoisa* came to mean ‘the day after tomorrow’.

POc **[i] waRisa* ‘two days from today’

NNG: Gitua	<i>wariza</i>	‘day before yesterday’
NNG: Lukep	<i>airi</i>	‘day before yesterday’
NNG: Mangap	<i>urizi</i>	‘day before yesterday’
NNG: Kilenge	<i>olia</i>	‘day before yesterday’
NNG: Amara	<i>ueri(o)</i>	‘day before yesterday’
NNG: Uvol	<i>alia</i>	‘day before yesterday’
NNG: Roinji	<i>walia</i>	‘day before yesterday’
NNG: Bing	<i>wari(nan)</i>	‘day before yesterday’
NNG: Takia	<i>wari</i>	‘day before yesterday, in the past’
NNG: Medebur	<i>waijira</i>	‘day before yesterday’
NNG: Numbami	<i>walisawa</i>	‘day before yesterday’
NNG: Yabem	<i>wali(geŋ)</i>	‘day before yesterday’
PT: Misima	<i>varira</i>	‘before (in time)’
PT: Kiriwina	<i>(silo)valela</i>	‘a few days ago’
PT: Sudest	<i>vaiya</i>	‘day before yesterday’
MM: Bali	<i>varira</i>	‘day before yesterday’
MM: Bola	<i>rira</i>	‘day before yesterday’ (for expected <i>**arira</i>)
	<i>(gi)rira</i>	‘day after tomorrow’
MM: Meramera	<i>lisa</i>	‘day before yesterday; formerly’ (for expected <i>**walisa</i>)
MM: Nakanai	<i>uaisa</i>	‘the day after tomorrow’ (for expected <i>**ualisa</i>)
MM: Patpatar	<i>uaris</i>	‘day after tomorrow’
MM: Tolai	<i>oari</i>	‘day after tomorrow’
MM: Siar	<i>urisa(i)</i>	‘day after tomorrow’
MM: Nehan	<i>iorih</i>	‘day after tomorrow’
MM: Halia (Haku)	<i>ialisa</i>	‘day after tomorrow’
	<i>alisa</i>	‘day before yesterday’
MM: Banoni	<i>(d)onisa</i>	‘day after tomorrow’
MM: Mono-Alu	<i>elila</i>	‘day after tomorrow’
MM: Maringe	<i>(na)uriha</i>	‘day after tomorrow’ (<i>na</i> ART)
SES: Gela	<i>valiha</i>	‘day before yesterday, day after tomorrow, some time ago, by and by, some day’
SES: Kwaio	<i>kwalita</i>	‘three days ago’
SES: ’Are’are	<i>warita</i>	‘former, previous, past’
	<i>i warita</i>	‘formerly, in the old days’

SES: Ulawa	<i>i welita</i>	‘two days hence’
SES: Sa’a	<i>i waite</i>	‘two days ago’
NCV: Mota	<i>arisa</i>	‘day before yesterday, day after tomorrow’
NCV: Raga	<i>(vai)wehe</i>	‘day after tomorrow’
NCV: Port Sandwich	<i>(x)ois</i>	‘day after tomorrow’
NCV: Lonwolwol	<i>wuh</i>	‘day after tomorrow’
NCV: Lewo	<i>vewo</i>	‘day after tomorrow’
NCV: Namakir	<i>(pa)waih</i>	‘day after tomorrow’
NCV: Nguna	<i>wāsa</i>	‘day after tomorrow’
NCV: S. Efate	<i>uāsa</i>	‘day after tomorrow’
SV: Sye	<i>wisas</i>	‘five days hence’
SV: Anejom	<i>(ho)viθ</i>	‘three days from today’

POc *[qa-]na-waRisa ‘day before yesterday’

MM: Patpatar	<i>nauaris</i>	‘day before yesterday’
MM: Tolai (Nodup)	<i>nari(a)</i>	‘day before yesterday’
MM: Solos	<i>nanis</i>	‘day before yesterday’
MM: Petats	<i>nalis</i>	‘day before yesterday’
NCV: Mota	<i>anarisa</i>	‘day before yesterday’
NCV: Port Sandwich	<i>(xi)nois</i>	‘day before yesterday’
NCV: Paamese	<i>noeise</i>	‘day before yesterday’
NCV: Nguna	<i>(n)anoasa</i>	‘day before yesterday’
SV: Sye	<i>nowisas</i>	‘five days ago’
SV: Lenakel	<i>nihin</i>	‘day before yesterday’
	<i>(to)nhi</i>	‘day after tomorrow’
SV: Kwamera	<i>neis</i>	‘day before yesterday’
	<i>(tə)neis</i>	‘day after tomorrow’
SV: Anejom	<i>nviθ</i>	‘day before yesterday, day after tomorrow’
Pn: Tongan	<i>[ʔa]ʔanoiha</i>	‘day after tomorrow’
Pn: Niuean	<i>[a]noiha</i>	‘day after tomorrow’
Pn: E Uvean	<i>anoia</i>	‘day after tomorrow’
Pn: Mae	<i>anoisa</i>	‘day after tomorrow’

The contrast between *waRisa with and without *na- is reflected in the following pairs:

	*waRisa	*[qa-]na-waRisa
	‘day after tomorrow’	‘day before yesterday’
MM: Patpatar	<i>uaris</i>	<i>nauaris</i>
MM: Tolai (Nodup)	<i>oari(a)</i>	<i>nari(a)</i>
NCV: Mota	<i>arisa</i>	<i>anarisa</i>
NCV: Port Sandwich	<i>(x)ois</i>	<i>(xi)nois</i>
SV: Sye	<i>wisas</i> ‘five days hence’	<i>nowisas</i> ‘five days ago’
SV: Anejom	<i>(ho)viθ</i> ‘three days from today’	<i>nviθ</i> ‘day before yesterday, day after tomorrow’

Apparently an alternative way of expressing ‘the day after tomorrow’ in POc was **boŋi rua* ‘day of twenty-four hours’ + ‘two’ (in a few languages the opposite order of elements is reflected, in line with syntactic change). This was perhaps a way of avoiding the ambiguity of temporally directionless **waRisa*. However, in a few modern languages this expression can also mean ‘day before yesterday’ (in Wayan a preposed particle indicates temporal direction). In two widely separated languages, Tami and Mono-Alu, the reflex apparently means ‘tomorrow’: one can imagine several ways in which this meaning change might have occurred, but none is especially convincing.

POc **boŋi rua* literally ‘two days’, apparently by default ‘the day after tomorrow’

Adm: Lou	<i>ru-peŋ</i>	‘day after tomorrow’
Adm: Titan	<i>lu-poŋ</i>	‘day after tomorrow’
NNG: Kove	<i>voŋo-hua</i>	‘day after tomorrow’
NNG: Bariai	<i>boŋ-rua</i>	‘day after tomorrow’
NNG: Tami	<i>boŋ-lu</i>	‘tomorrow’
NNG: Kilenge	<i>voŋ-a</i>	‘day after tomorrow’
NNG: Maleu	<i>vuŋ-ua</i>	‘day after tomorrow’
NNG: Amara	<i>voŋo-ruo</i>	‘day after tomorrow’
NNG: Poeng	<i>(ŋa)voŋa-lua</i>	(ADV) ‘day after tomorrow’
MM: Kandas	<i>ura-buŋ</i>	‘day after tomorrow’
MM: Mono-Alu	<i>boi-ua</i>	‘tomorrow’
NCV: Nokuku	<i>pon rua</i>	‘two days hence’
NCV: Kiai	<i>pon-rua</i>	‘the day after tomorrow’
NCV: Uripiv	<i>bon eru</i>	‘day before yesterday’
Fij: Bauan	<i>boŋi-rua</i>	‘day before yesterday’
Fij: Wayan	<i>ei boŋi-rua</i>	‘day after tomorrow’
	<i>a boŋi-rua</i>	‘day before yesterday’

3.3.6 *More than two days from now*

A number of languages have terms meaning ‘in three days time’ (i.e. ‘the day after the day after tomorrow’) and ‘three days ago’, and some have similar terms for up to five days. However, there is no sign of cognacy among them, and it is difficult to reconstruct terms in lower-order proto languages, let alone POc.

3.4 Distances within a month/years or measured by months/years

As far as I can tell, only temporal distances within a day and those measured in days were lexicalised in POc. Distances related to the longer periods of months, seasons or years were not lexicalised.

3.5 The interrogative local noun ‘when?’

Blust (ACD) reconstructs PAN **ijan* ‘when?’, and we would expect the POc form to be **ican*. This is indeed attested, always with a prefix, but only in a few languages. What we find more widely are reflexes of POc **ŋaican* or **ŋican*, sometimes prefixed with **qa-* or

*[qa]na-. The added **η[a]*- of **ηa-ican* or **η-ican* seems to be a fossilised reflex of the POc prefix **ηa-*, an occasionally reflected alternant of POc **qa-* (p.237). This prefix is also reflected in Nakanai *ga-isa*, shown as a reflex of **ican* below. The reason Nakanai *ga-isa* is treated as a reflex of **ican*, and not of **ηaican*, is that in Nakanai *ga-* remains as a productive adverbial formative on temporal bases, alternating with the past formative *ala-* (reflecting POc *[qa]na-).

From the distributions of their reflexes, it seems that **ηaican* or **ηican* were already alternants to **ican* by the time POc broke up.

PAn **ijan* ‘when?’ (ACD)

POc **ican* ‘when?’, **qa-ican* ‘when?’

NNG: Manam	<i>aira</i>	‘when?’
MM: Nakanai	(<i>ga</i>) <i>isa</i>	‘when?’
MM: Meramera	<i>aisa</i>	‘when?’
MM: Tabar	(<i>si</i>) <i>sa</i>	‘when?’
MM: Mono-Alu	(<i>ro</i>) <i>isa</i>	‘when?’

POc **[i] ηaican* ‘when?’, **qa-ηaican* ‘when?’

NNG: Malai	<i>ηez</i>	‘when?’
NNG: Gitua	<i>ηeza</i>	‘when?’
NNG: Arop-Lokep	<i>ηe(lo)</i>	‘when?’
MM: Sursurunga	<i>aηes</i>	‘when?’
MM: Tolai	(<i>vi</i>) <i>ηaia</i>	‘when?’
MM: Ramoaaina	(<i>na</i>) <i>ηaian</i>	‘when?’
MM: Label	(<i>na</i>) <i>ηse</i>	‘when?’
MM: Siar	(<i>la</i>) <i>ηsiη</i>	‘when?’
SES: Arosi	<i>ηaita</i>	‘when (future)?’
SES: Fagani	<i>kaitā</i>	‘when?’
SES: Kahua	<i>keta</i>	‘when?’
NCV: Mota	<i>aηaisa</i>	‘when (future)?’
NCV: Nokuku	(<i>p^wa</i>) <i>nes</i>	‘when (future)?’
NCV: Port Sandwich	<i>ηais</i>	‘when?’
Mic: Kosraean	<i>ηε</i>	‘when?’
Mic: Mokilese	<i>ηēt</i>	‘when?’
Mic: Mortlockese	<i>iηēt</i>	‘when?’
Mic: Puluwatese	<i>yīηet</i>	‘when?’
Mic: Satawalese	<i>ilēt</i>	‘when?’
Mic: Carolinian	<i>inēta</i>	‘when?’
Mic: Woleaian	<i>irēta</i>	‘when?’

POc **[i] ηican* ‘when?’, **qa-ηican* ‘when?’

MM: Bali	<i>ηizana</i>	‘when?’
MM: Lavongai	<i>aηisan</i>	‘when?’
MM: Notsi	(<i>la</i>) <i>ηisa</i>	‘when?’
MM: Madak	(<i>na</i>) <i>ηisa</i>	‘when?’

MM:	Barok	(la)ŋis	‘when?’
MM:	Tangga	(na)ŋis	‘when?’
MM:	Bilur	iŋian	‘when?’
MM:	Nehan	(ma)ŋiha	‘when?’
MM:	Solos	(ha)ŋis	‘when?’
MM:	Halia (Haku)	(iha)ŋisa	‘when?’
MM:	Teop	(tobo)nihi	‘when?’
MM:	Kia	niha	‘when?’
MM:	Kokota	niha(o)	‘when?’
MM:	Maringe	(a)ñiha	‘when?’
MM:	Gela	ŋiha	‘how many?’ ‘how much?’ ‘when?’
SES:	Bugotu	ñiha	‘when?’
SES:	Lengo	iŋiða	‘when?’
SES:	Talise	(ka)ŋisa	‘when?’
SES:	Malango	iŋisa	‘when?’
SES:	Birao	(daka)ŋisa	‘when?’
SES:	Longgu	aŋita	‘when?’
SES:	Lau	aŋita	‘when?’
SES:	Kwaio	aŋita	‘when?’ (also <i>nānita</i> ‘when?’)
NCV:	Kiai	nisa	‘when (future)?’
NCV:	Tolomako	i ŋisa	‘when (future)?’
SV:	Anejom	iñiθ	‘when?’
Fij:	Wayan	ei ŋiða	‘when (future)?’
		a ŋiða	‘when (past)?’

A scattering of languages reflect the past formative with either **ŋaican* or **ŋican*.

POc **[qa]na-ŋaican*, **[qa]na-ŋican* ‘when (past)’

MM:	Nakanai	alaisa, alisa	‘when (past)?’
MM:	Halia (Selau)	naŋsa	‘when?’
MM:	Papapana	noŋovita	‘when?’
SES:	Kwaio	nānita	‘when?’ (also <i>aŋita</i> ‘when?’)
SES:	’Are’are	nanita	‘when?’
SES:	Arosi	nageita	‘when (past)?’
SES:	Oroha	nanita	‘when?’
SES:	Sa’a	ŋanite	‘when?’
SES:	Fagani	anakaita	‘when?’
SES:	Bauro	anakaita	‘when?’
NCV:	Mota	anaŋaisa	‘when (past)?’
NCV:	Nokuku	nenesa	‘when (past)?’
NCV:	Kiai	nanisa	‘when (past)?’
NCV:	Tolomako	naŋisa	‘when (past)?’
NCV:	Lonwolwol	neŋeh	‘when (past)?’
NCV:	Paamese	neŋeise	‘when (past)?’
NCV:	Nguna	naŋasa	‘when?’

SV:	Sye	<i>niŋoi</i>	‘when?’
Mic:	Kiribatese	<i>niŋaira</i>	‘when?’

In Proto Polynesian, reflexes of POc **ican* and its derivatives had been lost. Instead, the PPn local root **fea* ‘where’ (Ch. 8, p.265) was used. The local and temporal uses remained distinct, since ‘where’ was expressed by the preposition **i* + root, whereas ‘when’ was expressed by prefixing PPn **qā-* for the future and **[qa]na-* for the past.

PPn **qā-fea* ‘when (future)’

Pn:	Tongan	<i>ʔafē</i>	‘when (future)?’
Pn:	Niuean	<i>fē</i>	‘when (future)?’
Pn:	Samoa	<i>āfea</i>	‘when (future)?’
Pn:	Nanumean	<i>āfea</i>	‘when (future)?’
Pn:	Ifira-Mele	<i>āfea</i>	‘when (future)?’
Pn:	Hawaiian	<i>āhea</i>	‘when (future)?’
Pn:	Tahitian	<i>āfea</i>	‘when (future)?’

PPn **[qa]na-fea* ‘when (past)’

Pn:	Tongan	<i>ʔanefē</i>	‘when (past)?’
Pn:	Niuean	<i>nefē</i>	‘when (past)?’
Pn:	Samoa	<i>anafea</i>	‘when (past)?’
Pn:	Nanumean	<i>nāfea</i>	‘when (past)?’
Pn:	Rennellese	<i>anafea</i>	‘when (past)?’
Pn:	Ifira-Mele	<i>nafea</i>	‘when (past)?’
Pn:	Hawaiian	<i>ināhea</i>	‘when (past)?’

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:

Anejom	Lynch (2001)
Araki	François (2002)
'Are'are	Geertz (1970)
Arosi	Fox (1978)
Bareke	Tryon and Hackman (1983)
Bugotu	Ivens (1940)
Carolinian	Jackson and Marck (1991)
Cèmuhî	Rivierre (1994)
Chuukese (= Trukese)	Goodenough and Sugita (1990)
Maringe (= Cheke Holo = Hograno)	White, Kokhonigita and Pulomana (1988)
Bauan Fijian (= Standard Fijian)	Capell (1941)
Boumaa Fijian	Dixon (1988)
Dobu	Grant (1953)
Gapapaiwa	McGuckin and McGuckin (1992)
Gedaged	Mager (1952)
Gela (= Nggela)	Fox (1955)
Ghanongga	Tryon and Hackman (1983)
Hawaiian	Pukui and Elbert (1971)
Kairiru	Wivell (1981)
Katazi	Tryon and Hackman (1983)
Kilivila	Senft (1986)
Kiribatese (= Gilbertese)	Sabatier (1971)
Kosraean (= Kusaiean)	Lee (1976)
Kove	Chowning (1996)
Kwaio	Keesing (1975)
Lau	Fox (1974)

Lenakel	Lynch (1977)
Lewo	Early (1994)
Loniu	Hamel (1994)
Lou	Blust (1998)
Makura	Tryon and Hackman (1983)
Malagheti	Tryon and Hackman (1983)
Maori	Williams (1975)
Marovo	Hviding (1995)
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)
Nakanai	Chowning (1996)
Niuean	Sperlich (1997)
Nokuku	Tryon (1976)
Paamese	Crowley (1992)
Ponapean	Rehg and Sohl (1979)
Puluwatense	Elbert (1972)
Rennell and Bellona	Elbert (1975)
Roviana	Waterhouse, revised Jones (1949)
Sa'a and Ulawa	Ivens (1918)
Samoan	Milner (1966)
Sengseng	Chowning (1996)
Sesake	Tryon (1976)
Sudest	Anderson (1990)
Tikopia	Firth (1985)
Tolai = Kuanua = Raluana	Rickard (1888), Lanyon-Orgill (1962)
Tolo	Smith Crowley (1986)
Tolomako	Tryon (1976)
Tongan	Churchward (1959)
Ughele	Tryon and Hackman (1983)
Wayan Fijian	Pawley and Sayaba (f.c.)
Wedau	Jennings (1956)
Woleaian	Sohn and Tawerilmang (1976)
Yabem (= Jabêm)	Streicher (1982)

Unpublished sources consisted of manuscript word lists for NE Ambae by Catriona Hyslop, Babatana by Lucy Money, Kiriwina (= Kilivila) by Ralph Lawton, Mekeo by Alan Jones, Molima and Nakanai by Ann Chowning, Mutu by Alice Pomonio, Mwotlap by Alexandre François, Nduke by Ian Scales, Ninigo (= Seimat) by W. Smythe, Tamambo (= Malo) by Dorothy Jauncey, and Zabana (= Kia) by D. Ama and M. Fitzsimons. Computer files were 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 1998.
- The computer files of Biggs and Clark's *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 1996), and Micronesian (Bender et al. 1983).
- Computer files of dictionaries in progress provided by Joel Bradshaw (for Numbami), Deborah 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: Arop-Lokep (Jeffrey and Lucille D'Jernes), Bariai (Steve Gallagher), Bing (Doug Bennett), Bola (Brent Wiebe), Mapos Buang (Bruce Hooley), Iduna (Joyce Hockett), Dami (George Elliott), Dawawa (Martin and Beate Knauber), 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), Mussau (John Brownie), Nakanai (Ray Johnston), Nehan (John Glennon), Nochi (Leland and Laurinda Erickson), Patpatar (Ed Condra), Ramoaaina [= Duke of York] (Lisbeth Fritzell and Robyn Davies), Siar (Larry Erdman), Sinaugoro (Gerhard Tauberschmidt), Sio (Stephen and Dawn Clark), 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 data base of vocabulary materials in a defined set of semantic domains from Oceanic languages for which data were already available (see §1). This data base 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, 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

In §2 we list in their putative subgroups all the Oceanic languages to which we refer in this volume. The higher-order subgroups are those described in Chapter 1, §3.2. Lower-order groups, except where indicated, are drawn from the classification in Lynch, Ross and Crowley (2002), and also, for Western Oceanic, from Ross (1988). In §3 we provide an index to §2. Polynesian subgrouping is based on Marck (2000).

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

Tench (=Tenis)

2.2 *Admiralties proper*

2.2.1 *Western Admiralties*

Aua

Kaniet

Seimat (= Ninigo)

Wuvulu

2.2.2 *Eastern Admiralties*

2.2.2.1 *Manus*

Andra

Bipi

Bohuai

Drehet (= Ndrehet, Khehek, Levei-Tulu)

Ere

Kele

Koro

Lele

Likum

Loniu

Mondropolon
Nali
Nyindrou
Pak
Ponam
Sori-Harengan
Titan

2.2.2.2 *South-East Admiralties*
Baluan
Lou
Nauna
Penchal

3 *Western Oceanic*

3.1 *Sarmi/Jayapura [SJ]*

3.2.1 *Sarmi*
Bongo
Kayupulau
Ormu
Sobei

3.2 *North New Guinea [NNG]*

3.2.1 *Schouten*

3.2.1.1 *Manam/Kairiru*
Bam
Kaiep
Kairiru
Kis
Manam
Medebur
Sepa
Sera
Terebu
Wogeo

3.2.1.2 *Siau*
Ali
Sissano
Tumleo
Ulau-Suain

3.2.2 *Huon Gulf*

3.2.2.1 *North Huon Gulf*
Bukawa
Kela
Yabem

3.2.2.2 *Markham*
Adzera
Dangal
Duwet
Labu
Silisili
Sukurum

- Wampar
- Wampur
- Yalu
- 3.2.2.3 *South Huon Gulf*
 - Buang
 - Hote
 - Kaiwa
 - Kapin
 - Mangga (= dialect of Buang)
 - Mapos Buang
 - Misim (= dialect of Hote)
 - Mumeng (Patep, Zenang, Kumaru)
 - Vehes
- 3.2.2.4 Numbami
- 3.2.3 *Ngero/Vitiaz*
 - 3.2.3.1 *Ngero*
 - Bariai
 - Gitua
 - Kove
 - Lusi
 - Malai
 - Malalamai
 - Mandok
 - Mutu
 - Tuam
 - 3.2.3.2 *Bel*
 - Bilibil (= Bilbil)
 - Bing (= Biliau)
 - Dami (= Ham)
 - Gedaged
 - Matukar
 - Megiar
 - Mindiri
 - Takia
 - Wab
 - 3.2.3.3 *Vitiaz Strait (areal grouping only)*
 - Amara
 - Barim
 - Kilenge
 - Lukep (Pono) (= Arop-Lokep)
 - Lukep
 - Malasanga
 - Maleu
 - Mangap (= Mangap-Mbula, Kaimanga)
 - Roinji
 - Singorakai
 - Sio
 - Tami

3.2.3.4 *Southwest New Britain*

Akolet
 Apalik
 Arawe (= Arove)
 Aria
 Atui
 Avau
 Bebeli
 Kaulong
 Lamogai
 Mangseng
 Psohoh
 Rauto
 Sengseng

3.2.3.5 *Mengen family*

Kakuna (= dialect of Mamusi)
 Maeng
 Mamusi
 Poeng
 Uvol

3.3 *Papuan Tip* [PT]

3.3.1 *Nuclear Papuan Tip*

3.3.1.1 *Suaucic*

Suau (Kwato Suau, Sariba)
 Tubetube
 Wagawaga

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/Dawawa*

Kakabai
 Dawawa

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)
 - Muyuww
 - 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)
 - Mekeo
 - Motu
 - Roro
 - Sinaugoro
 - Taboro (= dialect of Sinaugoro)
- 3.4 *Meso-Melanesian [MM]*
 - 3.4.1 *Bali-Vitu*
 - Bali
 - Vitu
 - 3.4.2 *Willaumez*
 - Bola
 - Bola Harua
 - Bulu
 - Meramera
 - Nakanai (= Lakalai)
 - 3.4.3 *New Ireland/Northwest Solomonian*
 - 3.4.3.1 *Tungag/Nalik family*
 - Kara (East)
 - Kara (West)
 - Lavongai (= Tungak, Tungag)
 - 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 Tomoip
 - 3.4.3.5 *St George linkage*

3.4.3.5.1 *South New Ireland*

Bilur
Kandas
Konomala
Label
Minigir
Patpatar
Ramoaaaina (= Duke of York)
Siar
Sursurunga
Tangga (= Tanga)
Tolai (= Kuanua, Raluana, Tuna)

3.4.3.5.2 *Northwest Solomonik linkage*

3.4.3.5.2.1 *Nehan/North Bougainville*

Hahon
Halia (= Hanahan), Halia (Haku), Halia (Selau)
Nehan
Papapana
Petats
Solos
Taiof
Teop
Tinputz

3.4.3.5.2.2 *Piva/Banoni*

Banoni
Piva

3.4.3.5.2.3 *Mono-Alu/Torau*

Mono-Alu
Torau
Uruava

3.4.3.5.2.4 *Choiseul*

Babatana
Katazi
Ririo
Sisiqa (= Sengga)
Vaghua
Varisi

3.4.3.5.2.5 *New Georgia*

Bareke
Ghanongga
Hoava
Lungga
Marovo
Nduke
Roviana
Simbo
Ughele
Vangunu

3.4.3.5.2.6 *Ysabel*

Kia (= Zabana)
 Kilokaka
 Kokota
 Gho ve
 Laghu
 Maringe (= Cheke Holo, Hograno)
 Samasodu

4 *Eastern Oceanic*

4.1 *Southeast Solomonian* [SES]

4.1.1 *Bugotu/Gela/Guadalcanal*

4.1.1.1 Bugotu

4.1.1.2 *Gela/Guadalcanal*

Baegu
 Birao
 Gela
 Lengo
 Ghari
 Malagheti
 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
 Baelelea
 Bauro
 Fagani
 Kahua
 Kwai
 Kwaio
 Kwara'ae
 Langalanga
 Lau
 Oroha
 Sa'a
 To'aba'ita
 Ulawa

4.2 *North/Central Vanuatu* [NCV] (groupings are areal, based on Clark 1996)

4.2.1 *Banks and Torres, Maewo, Ambae, North Pentecost*

Araki
 Hiw
 Maewo
 Merlav
 Mota
 Mwotlap

- Nduindui
- North-East Ambae (= NE Aoba)
- Raga
- 4.2.2 *Espiritu Santo*
- Fortsenal
- Kiai
- Nokuku
- Sakao
- Tamambo (= Malo)
- Tangoa
- Tasmate
- Tasiriki
- Tolomako
- Wusi
- 4.2.3 *Malekula*
- Atchin
- Axamb
- Big Nambas
- Burmbar
- Labo
- Mae
- Port Sandwich
- Uripiv
- 4.2.4 *South Pentecost, Ambrym, Paama, Epi*
- Lewo
- Lonwolwol
- Paamese
- S.E. Ambrym
- 4.2.5 *Efate-Shepherds*
- Makura
- Namakir (= Namakura)
- Nguna
- Sesake
- South Efate
- 4.3 *South Vanuatu* [SV]
- Anejom (= Aneityum)
- Kwamera
- Lenakel
- North Tanna
- South-west Tanna
- Sye (= Sie, Eromango)
- Ura
- Whitesands
- 4.4 *New Caledonia* [NCal]
- 4.4.1 *New Caledonia proper*
- Ajië
- Cèmuhî
- Fwâi
- Pije
- Pwapwâ

- Nemi
- Nyelâyu
- Xârâcùù
- Yuanga
- 4.4.2 *Loyalties*
 - Dehu
 - Iaai
 - Nengone
- 4.5 *Nuclear Micronesian* [Mic]
 - Carolinian
 - Chuukese (= Trukese)
 - Kiribatese (= Kiribati, Gilbertese)
 - Kosraean (= Kusaeian)
 - Lamotrek
 - Marshallese
 - Mokilese
 - Mortlockese
 - Ponapean
 - Puluwatese
 - Satawalese
 - Sonsorolese
 - Ulithian
 - Woleaian
- 4.6 *Central Pacific* [Fij and Pn]
 - 4.6.1 Rotuman
 - 4.6.2 *Western Fijian*
 - Nadrogaa
 - Wayan
 - Yasawa
 - 4.6.3 *Eastern Fijian*
 - Bauan (= Standard Fijian)
 - Boumaa
 - Nabukelevu
 - Wailevu
 - 4.6.4 *Polynesian* (subgrouping based on Marck (2000))
 - 4.6.4.1 *Tongic*
 - Niuatoputapu (dialect of Tongan)
 - Niuean
 - Tongan
 - 4.6.4.2 *Nuclear Polynesian*
 - Anutan
 - East Uvean
 - East Futunan
 - Pileni
 - Pukapukan
 - Rennellese
 - Tikopia
 - West Futunan (= Futuna-Aniwa)
 - West Uvean

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

Sikaiana

Takuu

Tokelauan

Tuvalu (= Ellicean)

(B) *Eastern Polynesian*

(a) Rapanui (= Easter Island)

(b) *Central Eastern Polynesian*

(i) *Marquesic*

Hawaiian

Mangareva

Marquesan

(ii) *Tahitic*

Mangaia

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.

A

Adzera 3.2.2.2
 Ajië 4.4.1
 Akolet 3.2.3.4
 'Ala'ala (*see* Lala)
 Ali 3.2.1.2
 Alu (*see* Mono-Alu)
 Amara 3.2.3.3
 Ambae (*see* North-east Ambae)
 Andra 2.2.2.1
 Aneityum (*see* Anejom)
 Anejom 4.3
 Anuki 3.3.1.2.4
 Anutan 4.6.4.2
 Aoba (*see* North-east Ambae)
 Apalik 3.2.3.4
 Araki 4.2.1
 Arawe 3.2.3.4
 Are 3.3.1.2.6
 'Are'are 4.1.1.3.2
 Aria 3.2.3.4
 Arifama 3.3.1.2.6
 Arop-Lokep (*see* Lukep (Pono))
 Arosi 4.1.1.3.2
 Arove (*see* Arawe)
 Atchin 4.2.3
 Atui 3.2.3.4
 Aua 2.2.1
 Avau 3.2.3.4
 Awad Bing (*see* Bing)
 Axamb 4.2.3

B

Babatana 3.4.3.5.2.4
 Baegu 4.1.1.2
 Baelelea 4.1.1.3.2
 Balawaia 3.3.4
 Bali 3.4.1
 Baluan 2.2.2.2

Bam 3.2.1.1
 Banoni 3.4.3.5.2.2
 Bareke 3.4.3.5.2.5
 Bariai 3.2.3.1
 Barim 3.2.3.3
 Barok 3.4.3.3
 Bauan 4.6.3
 Bauro 4.1.1.3.2
 Bebeli 3.2.3.4
 Big Nambas 4.2.3
 Bilbil (*see* Bilibil)
 Biliau (*see* Bing)
 Bilibil 3.2.3.2
 Bilur 3.4.3.5.1
 Bing 3.2.3.2
 Bipi 2.2.2.1
 Birao 4.1.1.2
 Bohuai 2.2.2.1
 Bola 3.4.2
 Bongo 3.1.1
 Boumaa 4.6.3
 Boumaa (*see* Boumaa)
 Buang 3.2.2.3
 Bugotu 4.1.1.1
 Bukawa 3.2.2.1
 Bulu 3.4.2
 Burmbar 4.2.3
 Bwaidoga 3.3.1.2.3

C

Carolinian 4.5
 Cèmuhî 4.4.1
 Cheke Holo (*see* Maringe)
 Chuukese 4.5

D

Dami 3.2.3.2
 Dangal 3.2.2.2
 Daui (*see* Suau)

Dawawa 3.3.1.2.5
 Dehu 4.4.2
 Dobu 3.3.1.2.2
 Drehet 2.2.2.1
 Duau 3.3.1.2.2
 Duke of York (*see* Ramoaaaina)
 Duwet 3.2.2.2

E

East Futunan 4.6.4.2
 East Uvean 4.6.4.2
 Easter Island (*see* Rapanui)
 Ellicean (*see* Tuvalu)
 Emae 4.6.4.2
 Emira 2.1
 Ere 2.2.2.1
 Eromangan (*see* Sye)

F

Fagani 4.1.1.3.2
 Fijian (*see* Bauan)
 Fortsenal 4.2.2
 Futuna-Aniwa (*see* West Futunan)
 Fwâi 4.4.1

G

Gabadi 3.3.4
 Gapapaiwa 3.3.1.2.6
 Gedaged 3.2.3.2
 Gela 4.1.1.2
 Ghanongga 3.4.3.5.2.5
 Ghari 4.1.1.2
 Ghohe 3.4.3.5.2.6
 Gilbertese (*see* Kiribatese)
 Gitua 3.2.3.1
 Gumasi (*see* Gumawana)
 Gumawana 3.3.1.2.1

H

Hahon 3.4.3.5.2.1
 Haku (*see* Halia)
 Halia 3.4.3.5.2.1
 Ham (*see* Dami)
 Hanahan (*see* Halia)

Harua (*see* Bola)
 Hawaiian 4.6.4.2.1.2.B.b.i
 Hiw 4.2.1
 Hoava 3.4.3.5.2.5
 Hograno (*see* Maringe)
 Hote 3.2.2.3
 Hula 3.3.4

I

Iaai 4.4.2
 Iduna 3.3.1.2.3
 Ifira-Mele 4.6.4.2

K

Kahua 4.1.1.3.2
 Kaiep 3.2.1.1
 Kaimanga (*see* Mangap)
 Kairiru 3.2.1.1
 Kaiwa 3.2.2.3
 Kakabai 3.3.1.2.5
 Kakuna (*see* Mamusi)
 Kalokalo 3.3.1.2.3
 Kandas 3.4.3.5.1
 Kaniet 2.2.1
 Kapin 3.2.2.3
 Kapingamarangi 4.6.4.2.1.2.A
 Kara (East) 3.4.3.1
 Kara (West) 3.4.3.1
 Katazi 3.4.3.5.2.4
 Kaulong 3.2.3.4
 Kayupulau 3.1.1
 Keapara (*see* Hula)
 Keapara (*see* Maopa)
 Kela 3.2.2.1
 Kele 2.2.2.1
 Khehek (*see* Drehet)
 Kia 3.4.3.5.2.6
 Kiai 4.2.2
 Kilenge 3.2.3.3
 Kilivila 3.3.2.1
 Kiliokaka 3.4.3.5.2.6
 Kiribati (*see* Kiribatese)
 Kiribatese 4.5
 Kiriwina (*see* Kilivila)

Kis 3.2.1.1
 Kokota 3.4.3.5.2.6
 Konomala 3.4.3.5.1
 Koro 2.2.2.1
 Kosraean 4.5
 Kove 3.2.3.1
 Kuanua (*see* Tolai)
 Kukuya (*see* Minaveha)
 Kumaru (*see* Mumeng)
 Kuni 3.3.4
 Kusaeian (*see* Kosraean)
 Kwai 4.1.1.3.2
 Kwaio 4.1.1.3.2
 Kwamera 4.3
 Kwara'ae 4.1.1.3.2
 Kwato (*see* Suau)

L

Label 3.4.3.5.1
 Labo 4.2.3
 Labu 3.2.2.2
 Laghu 3.4.3.5.2.6
 Lakalai (*see* Nakanai)
 Lala 3.3.4
 Lamasong 3.4.3.3
 Lamogai 3.2.3.4
 Lamotrek 4.5
 Langalanga 4.1.1.3.2
 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
 Loni 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

Lungga 3.4.3.5.2.5
 Lusi 3.2.3.1

M

Madak 3.4.3.3
 Mae 4.2.3
 Maeng 3.2.3.5
 Maewo 4.2.1
 Magori 3.3.4
 Makura 4.2.5
 Malagheti 4.1.1.2
 Malai 3.2.3.1
 Malalamai 3.2.3.1
 Malango 4.1.1.2
 Malasanga 3.2.3.3
 Maleu 3.2.3.3
 Malo (*see* Tamambo)
 Mamusi 3.2.3.5
 Manam 3.2.1.1
 Mandok 3.2.3.1
 Mangaia 4.6.4.2.1.2.B.b.ii
 Mangap 3.2.3.3
 Mangap-Mbula (*see* Mangap)
 Mangareva 4.6.4.2.1.2.B.b.i
 Mangga 3.2.2.3
 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 3.4.3.5.2.6
 Marovo 3.4.3.5.2.5
 Marquesan 4.6.4.2.1.2.B.b.i
 Marshallese 4.5
 Matukar 3.2.3.2
 Mbula (*see* Mangap)
 Medebur 3.2.1.1
 Megiar 3.2.3.2
 Mekeo 3.3.4
 Mele-Fila (*see* Ifira-Mele)
 Meramera 3.4.2
 Merlav 4.2.1
 Minaveha 3.3.1.2.6
 Mindiri 3.2.3.2

Minigir 3.4.3.5.1
 Misim (*see* Hote)
 Misima 3.3.2.2
 Mokilese 4.5
 Molima 3.3.1.2.3
 Mondropolon 2.2.2.1
 Mono (*see* Mono-Alu)
 Mono-Alu 3.4.3.5.2.3
 Mortlockese 4.5
 Mota 4.2.1
 Motu 3.3.4
 Mumeng 3.2.2.3
 Mussau 2.1
 Mutu 3.2.3.1
 Muyuw 3.3.2.1
 Mwotlap 4.2.1

N

Nabukelevu 4.6.3
 Nadrogaa 4.6.2
 Nakanai 3.4.2
 Nali 2.2.2.1
 Nalik 3.4.3.1
 Namakir 4.2.5
 Namakura (*see* Namakir)
 Nanumean 4.6.4.2.1.2.A
 Nara (*see* Lala)
 Nauna 2.2.2.2
 Ndrehet (*see* Drehet)
 Nduindui 4.2.1
 Nduke 3.4.3.5.2.5
 Nehan 3.4.3.5.2.1
 Nemi 4.4.1
 Nengone 4.4.2
 Nguna 4.2.5
 Nimoa 3.3.3
 Ninigo (*see* Seimat)
 Niuatoputapu (*see* Tonga)
 Niuean 4.6.4.1
 Nodup (*see* Tolai)
 Nokuku 4.2.2
 North-east Ambae 4.2.1
 North-east Aoba (*see* North-East Ambae)

North Tanna 4.3
 Notsi 3.4.3.2
 Nukuoro 4.6.4.2.1.2.A
 Nukuria 4.6.4.2.1.2.A
 Numbami 3.2.2.4
 Nyelâyu 4.4.1
 Nyindrou 2.2.2.1

O

Ormu 3.1.1
 Oroha 4.1.1.3.2

P

Paamese 4.2.4
 Paiwa (*see* Gapapaiwa)
 Pak 2.2.2.1
 Papapana 3.4.3.5.2.1
 Patep (*see* Mumeng)
 Patpatar 3.4.3.5.1
 Penchal 2.2.2.2
 Penrhyn (*see* Tongareva)
 Petats 3.4.3.5.2.1
 Pije 4.4.1
 Pileni 4.6.4.2
 Piva 3.4.3.5.2.2
 Poeng 3.2.3.5
 Pokau (*see* Lala)
 Ponam 2.2.2.1
 Ponapean 4.5
 Port Sandwich 4.2.3
 Psohoh 3.2.3.4
 Pukapukan 4.6.4.2
 Puluwatese 4.5
 Pwapwâ 4.4.1

R

Raga 4.2.1
 Raluana (*see* Tolai)
 Ramoaaaina 3.4.3.5.1
 Rapa 4.6.4.2.1.2.B.b.ii
 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 3.4.3.5.2.4
 Roinji 3.2.3.3
 Roro 3.3.4
 Rotuman 4.6.1
 Roviana 3.4.3.5.2.5

S

Sa'a 4.1.1.3.2
 Sakao 4.2.2
 Samasodu 3.4.3.5.2.6
 Samoan 4.6.4.2.1.1
 Sariba (see Suau)
 Satawalese 4.5
 Seimat 2.2.1
 Selau (see Halia)
 Sengga (see Sisiqa)
 Sengseng 3.2.3.4
 Sepa 3.2.1.1
 Sera 3.2.1.1
 Sesake 4.2.5
 Sewa Bay 3.3.1.2.2
 Siar 3.4.3.5.1
 Sie (see Sye)
 Sikaiana 4.6.4.2.1.2
 Silisili 3.2.2.2
 Simbo 3.4.3.5.2.5
 Sinaugoro 3.3.4
 Singorakai 3.2.3.3
 Sio 3.2.3.3
 Sisiqa 3.4.3.5.2.4
 Sissano 3.2.1.2
 Sobei 3.1.1
 Solos 3.4.3.5.2.1
 Sponsorolese 4.5
 Sori-Harengan 2.2.2.1
 South Efate 4.2.5
 South-east Ambrym 4.2.4
 South-west Tanna 4.3
 Standard Fijian (see Bauan Fijian)
 Suau 3.3.1.1
 Sudest 3.3.3
 Sukurum 3.2.2.2
 Sursurunga 3.4.3.5.1
 Swit (see Gedaged)

Sye 4.3

T

Tabar 3.4.3.2
 Taboro 3.3.4
 Tahitian 4.6.4.2.1.2.B.b.ii
 Taiof 3.4.3.5.2.1
 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 3.4.3.5.1
 Tangoa 4.2.2
 Tasmate 4.2.2
 Tasiriki 4.2.2
 Tawala 3.3.1.2.6
 Tench 2.1
 Teop 3.4.3.5.2.1
 Terebu 3.2.1.1
 Tiang 3.4.3.1
 Tigak 3.4.3.1
 Tikopia 4.6.4.2
 Tinputz 3.4.3.5.2.1
 Titan 2.2.2.1
 To'aba'ita 4.1.1.3.2
 Tokelauan 4.6.4.2.1.2.A
 Tolai 3.4.3.5.1
 Tolo 4.1.1.2
 Tolomako 4.2.2
 Tomoip 3.4.3.4
 Tongan 4.6.4.1
 Tongareva 4.6.4.2.1.2.B.b.ii
 Torau 3.4.3.5.2.3
 Trukese (see Chuukese)
 Tuam 3.2.3.1
 Tuamotuan 4.6.4.2.1.2.B.b.ii
 Tubetube 3.3.1.1
 Tumleo 3.2.1.2
 Tuna (see Tolai)
 Tungag (see Lavongai)
 Tungak (see Lavongai)
 Tuvalu 4.6.4.2.1.2.A

U

Ubir 3.3.1.2.6
 Ughele 3.4.3.5.2.5
 Ulau-Suain 3.2.1.2
 Ulawa 4.1.1.3.2
 Ulithian 4.5
 Ura 4.3
 Uripiv 4.2.3
 Uruava 3.4.3.5.2.3
 Uvol 3.2.3.5

V

Vaghua 3.4.3.5.2.4
 Vangunu 3.4.3.5.2.5
 Varisi 3.4.3.5.2.4
 Vehes 3.2.2.3
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W

Wab 3.2.3.2
 Wagawaga 3.3.1.1
 Wailevu 4.6.3
 Wampar 3.2.2.2
 Wampur 3.2.2.2

Wayan 4.6.2
 Wedau 3.3.1.2.6
 West Futunan 4.6.4.2
 West Guadalcanal
 West Uvean 4.6.4.2
 Whitesands 4.3
 Wogeo 3.2.1.1
 Woleaian 4.5
 Wusi 4.2.2
 Wuvulu 2.2.1

X

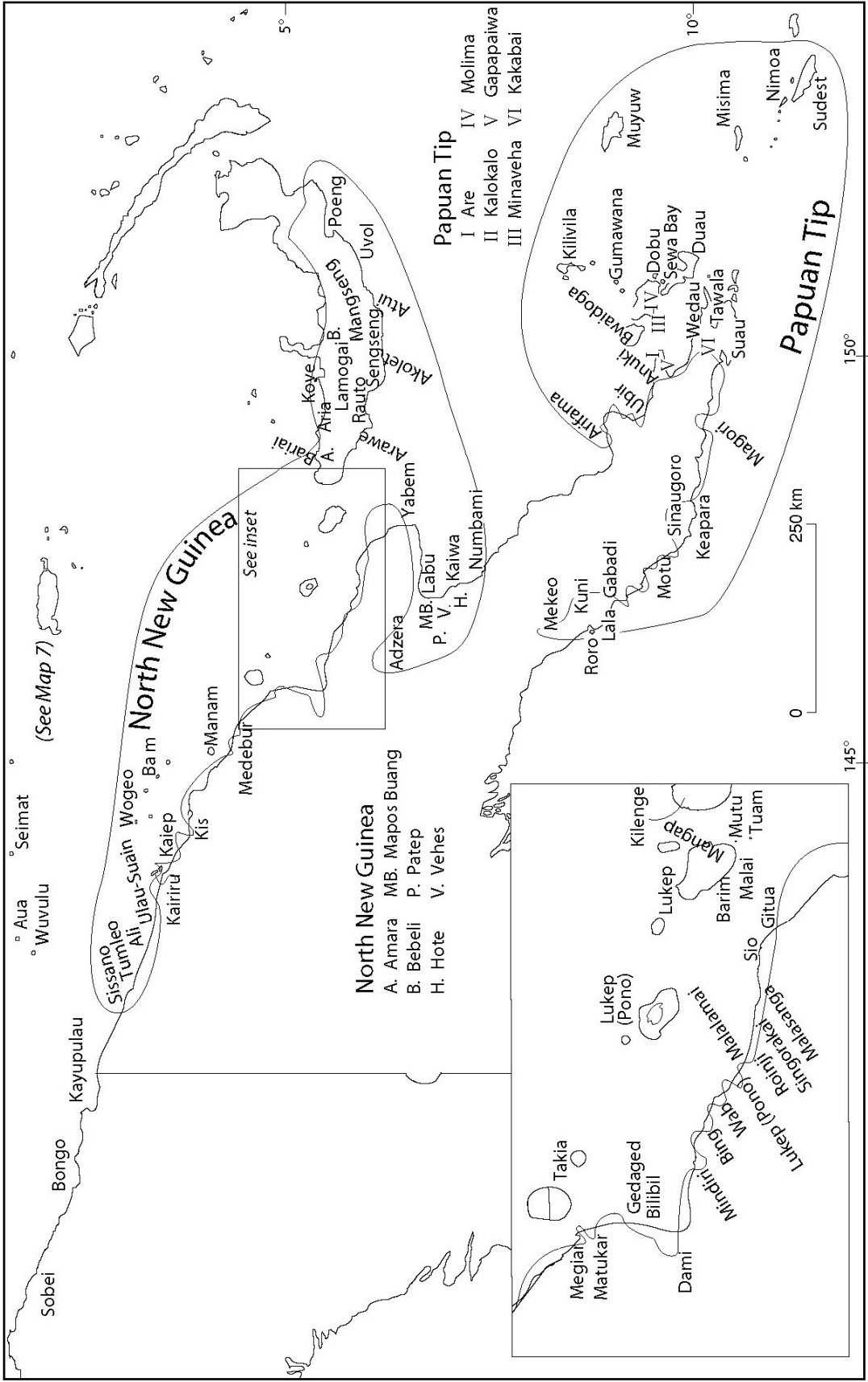
Xârâcùù 4.4.1

Y

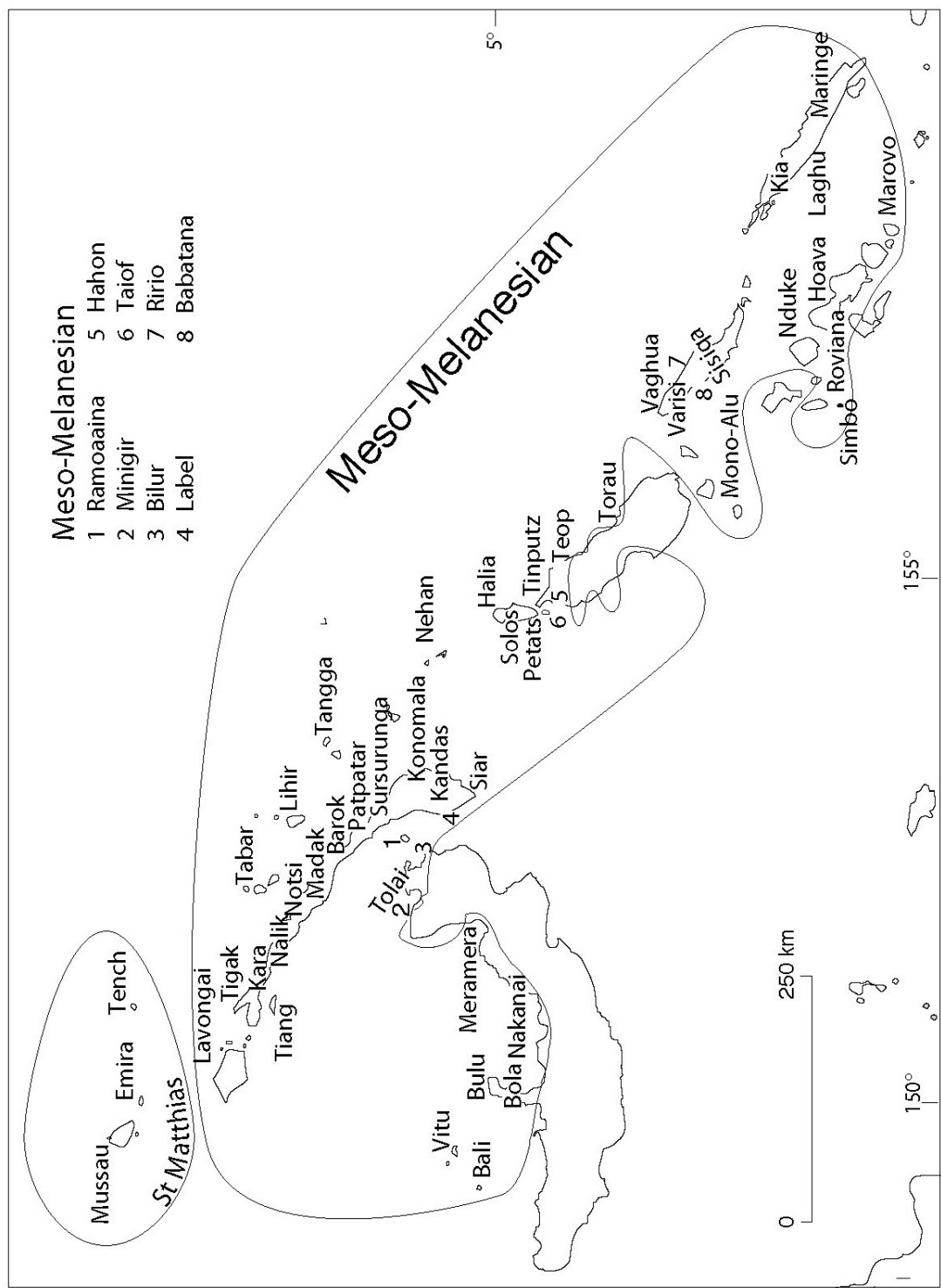
Yabem 3.2.2.1
 Yalu 3.2.2.2
 Yapese 1
 Yasawa 4.6.2
 Yuanga 4.4.1

Z

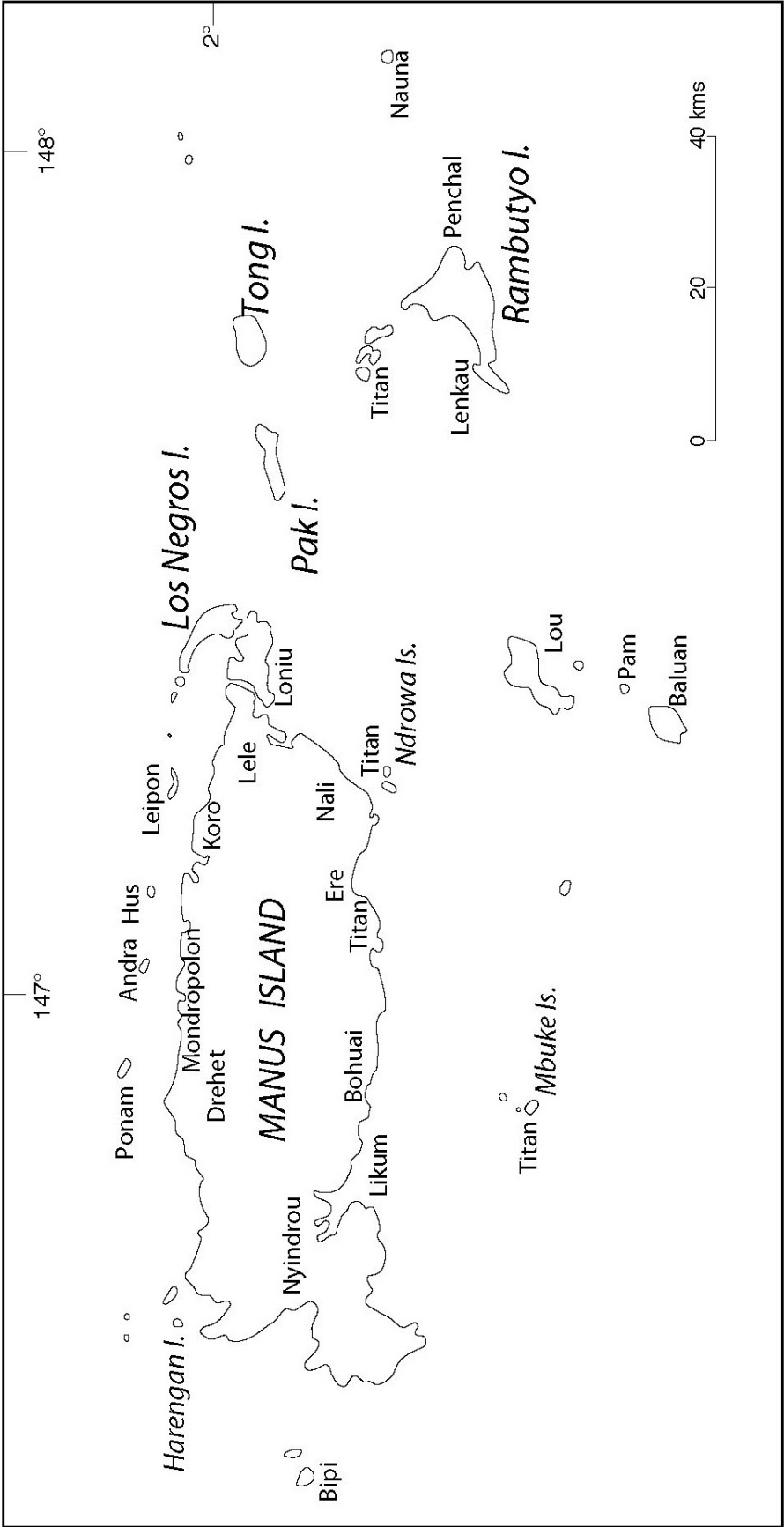
Zabana (*see* Kia)
 Zenang (*see* Mumeng)



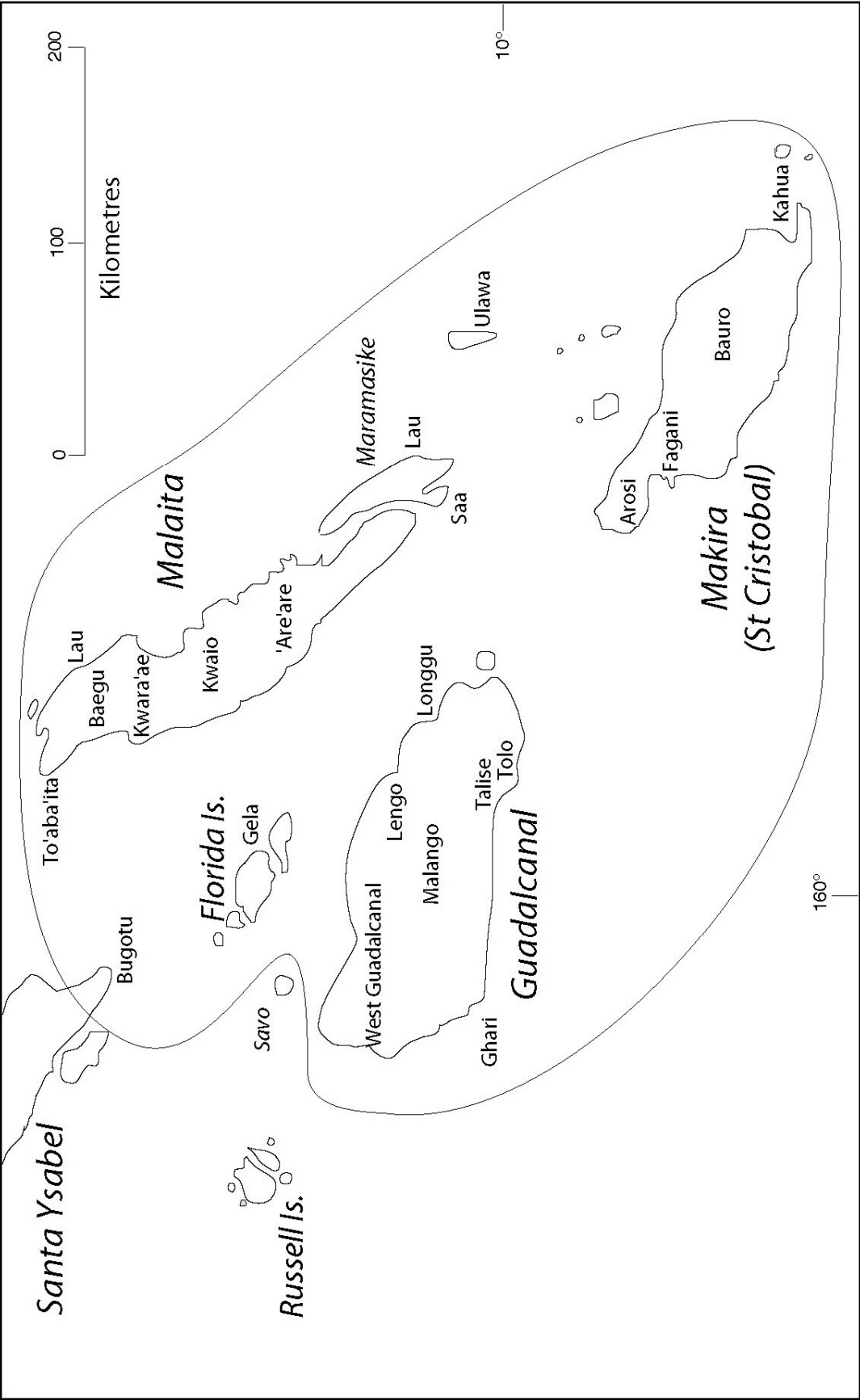
Map 12: Locations of languages of the North New Guinea (NNG) and Papuan Tip (PT) clusters



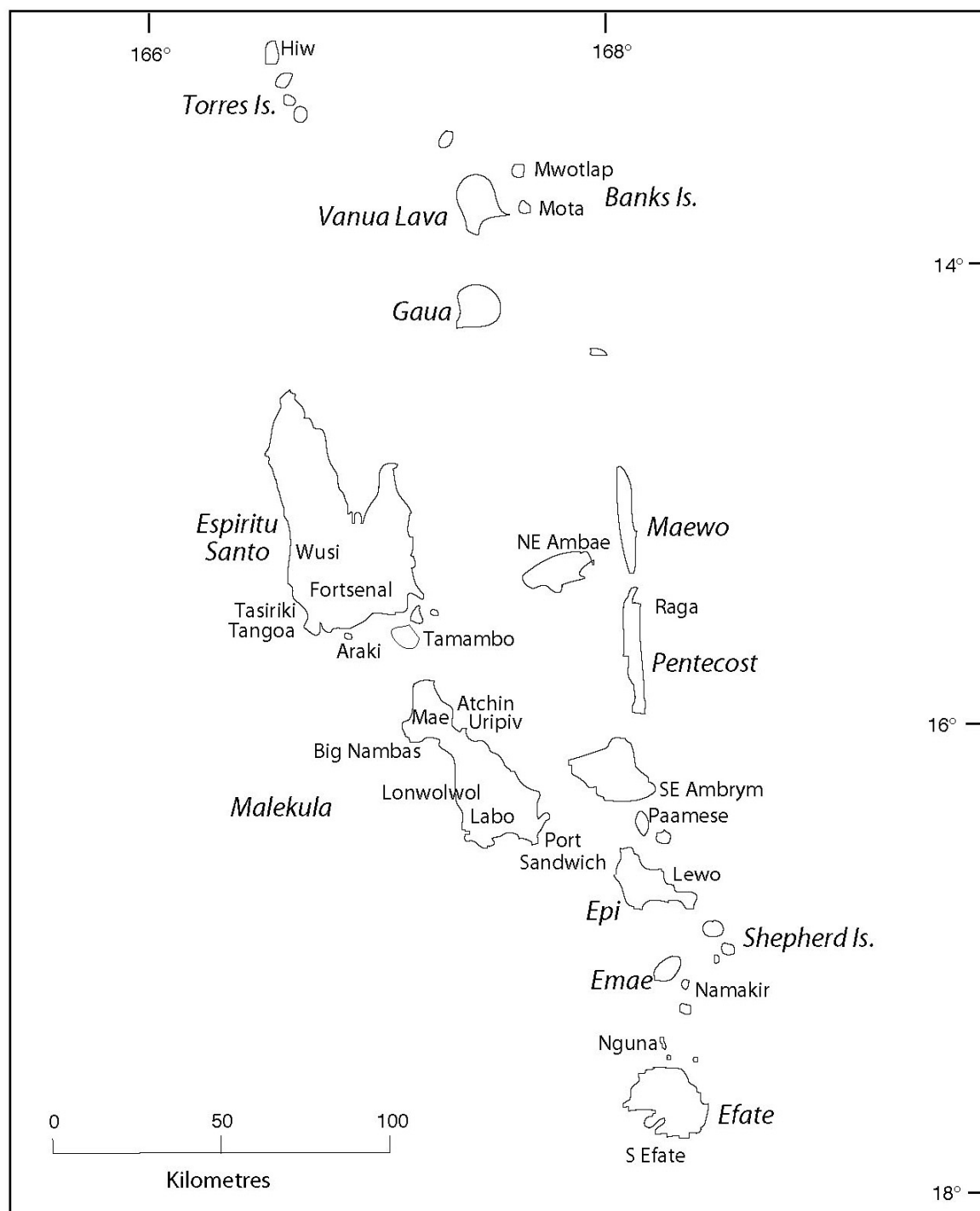
Map 13: Locations of languages of the Meso-Melanesian (MM) cluster and the St Matthias group



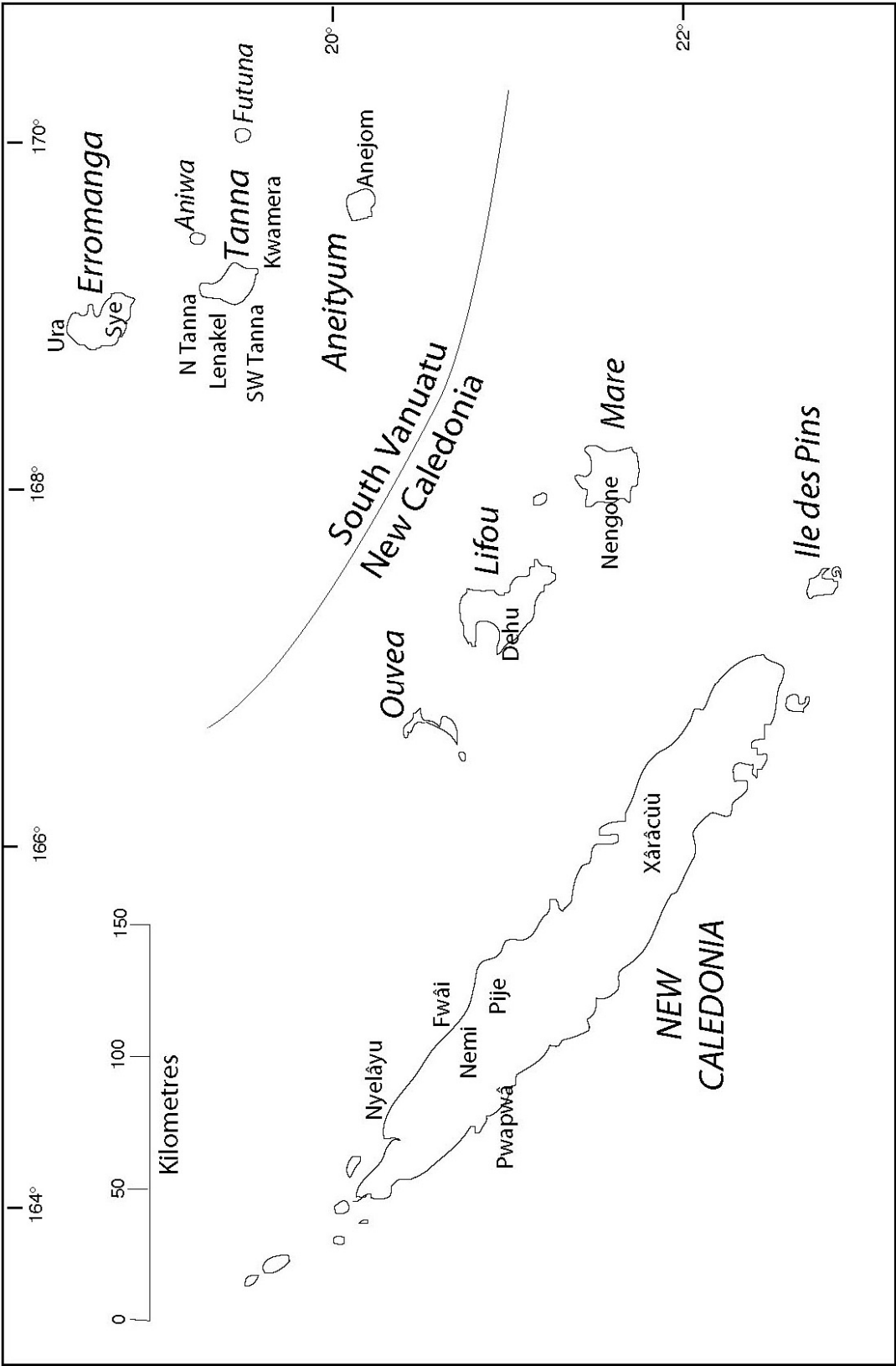
Map 14: Locations of Admiralties (Adm) languages
(for Wuvulu, Aua and Seimat, see Map 12; for Mussau, Emira and Tench, see Map 13)



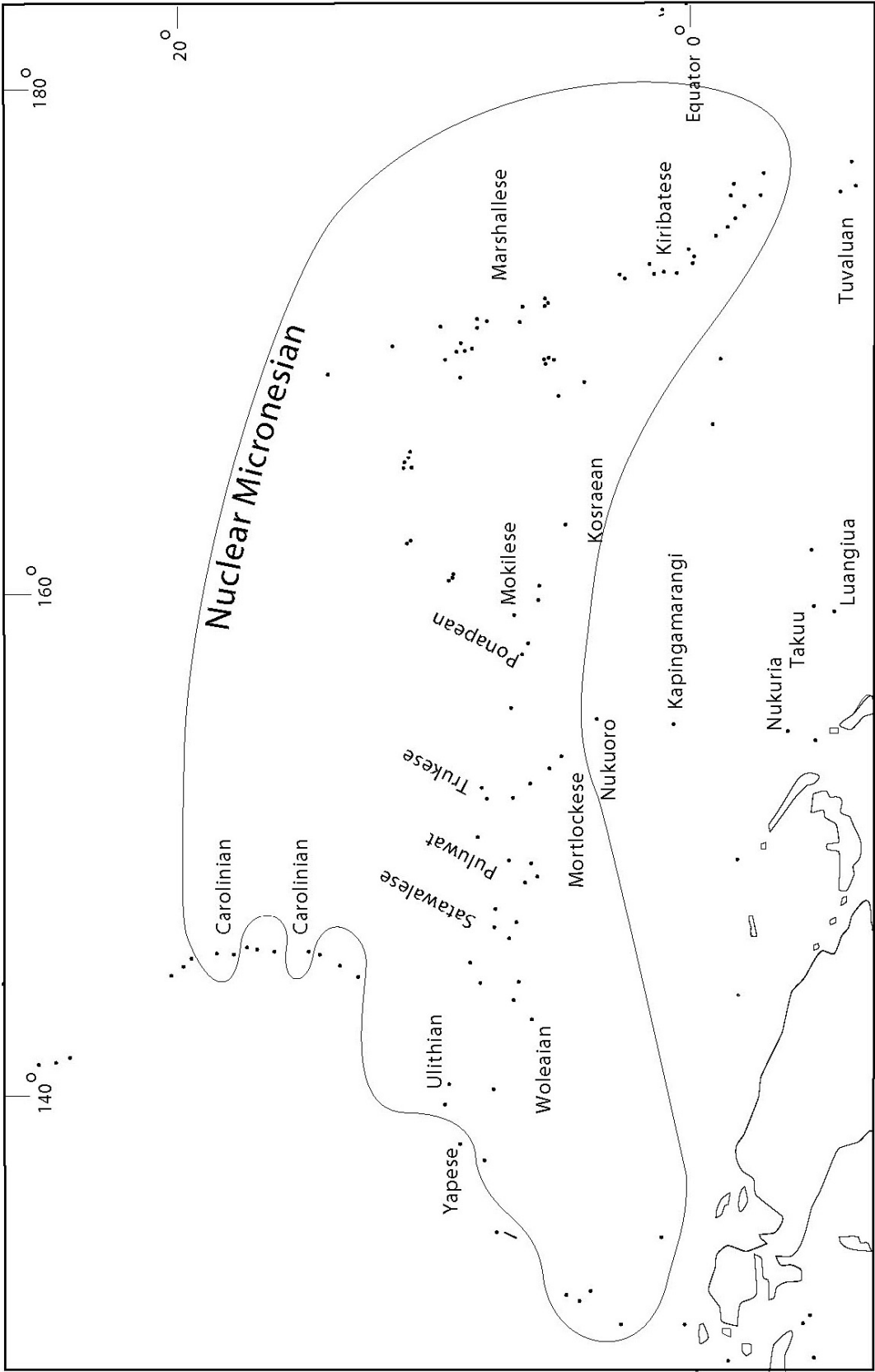
Map 15: Locations of Southeast Solomonic (SES) languages



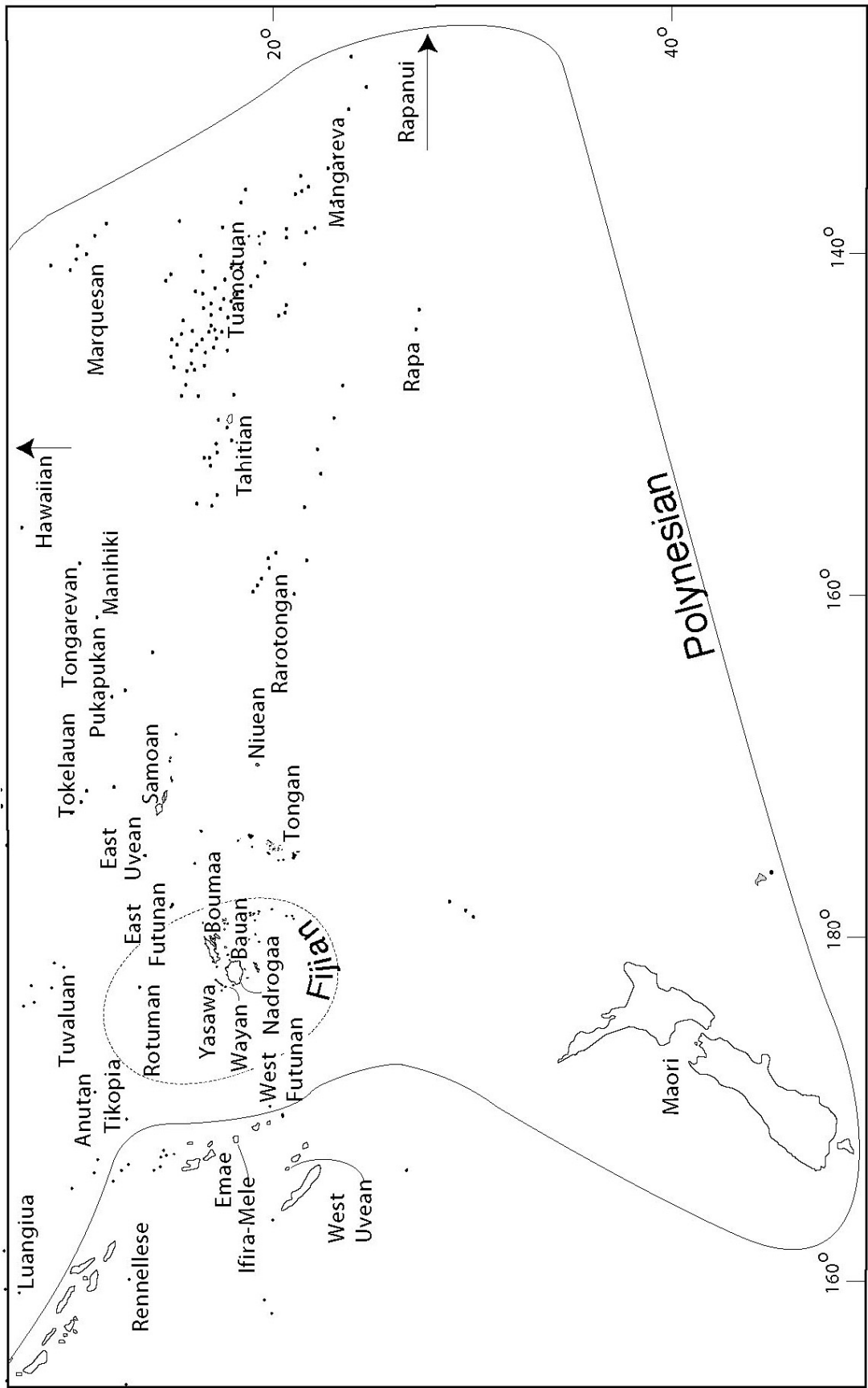
Map 16: Locations of North/Central Vanuatu (NCV) languages



Map 17: Locations of Southern Vanuatu (SV) and New Caledonia (NCal) languages



Map 18: Locations of Yapese, Nuclear Micronesian (Mic) and some Polynesian (Pn) languages



Map 19: Locations of Fijian (Fij) and Polynesian (Pn) languages

References

- Abo, Takaji, Byron Bender, Alfred Capelle and Tony DeBrum, 1976. *Marshallese-English dictionary*. Honolulu: University Press of Hawai'i.
- Adelaar, K. Alexander, 1992 The classification of the Tamanic languages. In D. Tryon and T. Dutton, eds *Language contact and change in the Austronesian world*. Berlin: Mouton de Gruyter.
- Åkerblom, Kjell, 1968. *Astronomy and Navigation in Polynesia and Micronesia*. Monograph Series No.14. Stockholm: The Ethnographical Museum, Stockholm.
- Akimichi, Tomoya, 1978. The ecological aspect of Lau (Solomon Islands) ethnoichthyology. *Journal of the Polynesian Society*, 87(4):301–326.
- Alip, Eufonio M. and Gregorio C. Borlaza, 1984. Philippines. In *The New Encyclopaedia Britannica* 14, 231–240. Chicago: Encyclopaedia Britannica.
- Alkire, William H., 1970. Systems of measurement on Woleai Atoll, Caroline Islands. *Anthropos*, 65:1–73.
- Allen, Gerald, 1987. *Halia grammar*. Data Papers in Papua New Guinea Languages 32. Ukarumpa: Summer Institute of Linguistics.
- Allen, Jim, 1984. In search of the Lapita homeland. *Journal of Pacific History*, 19:186–201.
- Allen, Jim and Chris Gosden, 1996. Spheres of interaction and integration: modelling the culture history of the Bismarck Archipelago. In J. Davidson, F. Leach, G. Irwin, A. Pawley and D. Brown, eds *Oceanic culture history: essays in honour of Roger Green*, 183–197. Wellington: New Zealand Archaeological Association.
- Allen, Jim and Chris Gosden, eds, 1991. *Report of the Lapita Homeland Project. Occasional Papers in Prehistory*, No.20. Canberra: Department of Prehistory, Research School of Pacific and Asian Studies, The Australian National University.
- Allen, Jim and Peter White, 1989. The Lapita homeland: some new data and an interpretation. *Journal of the Polynesian Society*, 98:29–146.
- Ambrose, Wal, 2002. From very old to new: obsidian artefacts in the Admiralty Islands. In C. Kaufmann, C. Kocher Schmid and S. Ohnemus, eds *Admiralty Islands art from the South Seas*, 67–72. Zurich: Museum Rietberg Zurich.
- Ambrose, W.R. and H.P. McEldowney, 2000. Age assessment for Lapita from obsidian and the Mouk Island site, Manus. In Atholl Anderson and Tim Murray, eds *Australian archaeologist: collected papers in honour of Jim Allen*, 268–278.
- Anderson, Atholl, 2000. Slow boats from China: issues in the prehistory of Indo-Pacific seafaring. *Modern Quaternary Research in Southeast Asia*, 16:13–50.

- Anderson, Atholl and Tim Murray, eds, 2000. *Australian archaeologist: collected papers in honour of Jim Allen*. Canberra: Coombs Academic Publishing, The Australian National University.
- Anderson, John M., 1971. *The grammar of case: towards a localistic theory*. Cambridge: Cambridge University Press.
- Anderson, Mike, 1990. *Sudest field notes*. Dictionaries in Papua New Guinea, vol. 11. Ukarumpa, PNG: SIL.
- Anderson, Mike and Malcolm D. Ross, 2002. Sudest. In J. Lynch, M. Ross and T. Crowley, eds *The Oceanic languages*, 322–346. Richmond: Curzon Press.
- Anderson, Stephen R. and Edward L. Keenan, 1985. Deixis. In Timothy Shopen, ed. *Language typology and syntactic description 3: Grammatical categories and the lexicon*, 259–308. Cambridge: Cambridge University Press.
- Beaumont, Clive H., 1979. *The Tigak language of New Ireland*. Canberra: Pacific Linguistics.
- Bellwood, Peter, 1997. *The prehistory of the Indo-Malaysian Archipelago* (2nd ed.). Honolulu: University of Hawai'i Press.
- 2001. Early agriculturalist population diasporas? Farming, languages and genes. *Annual Review of Anthropology*: 187–207.
- Bender, Byron, Robert W. Hsu, Frederick Jackson, Kenneth L. Rehg, Stephen Trussell and Judith Wang, 1983. Micronesian cognate sets. Computer printout. Department of Linguistics, University of Hawai'i, Honolulu.
- Benedek, Dezsö, 1991. *The songs of the ancestors: a comparative study of Bashiic folklore*. Taipei: SMC Publishing.
- Bennett, D.J. and R.J. Bennett, 1998. Awad Bing grammar essentials. In Darrell Tryon, ed. *Papers in Austronesian linguistics No. 5*, 149–275. Canberra: Pacific Linguistics.
- Best, Simon, 2002. *Lapita: a view from the east*. Auckland: Archaeological Society of New Zealand.
- Biggs, Bruce, 1965. Direct and indirect inheritance in Rotuman. *Lingua*, 14:383–415.
- 1978. The history of Polynesian phonology. In Stephen A. Wurm and Lois Carrington, eds *Second International Conference on Austronesian Linguistics: proceedings*, 691–716. Canberra: Pacific Linguistics.
- 1994. New words for a new world. In A. Pawley and M. Ross, eds *Austronesian terminologies: continuity and change*, 21–29. Canberra: Pacific Linguistics.
- Biggs, Bruce G. and Ross Clark, 1993. POLLEX (Polynesian lexicon). Computer file. Department of Anthropology, University of Auckland, Auckland.
- Biggs, Bruce, D.S. Walsh and Jocelyn Waqa, 1970. *Proto-Polynesian reconstructions with English to Proto-Polynesian finder list*. WPAALMS.
- Blackwood, Beatrice, 1935. *Both sides of Buka passage*. Oxford: Clarendon Press.
- Blust, Robert A., 1969. Some new Proto-Austronesian trisyllables. *University of Hawaii Working Papers in Linguistics*, 1(10):27–62.
- 1970. Proto-Austronesian Addenda. *Oceanic Linguistics*, 9:104–162.
- 1972. Proto Oceanic addenda with cognates in non-Oceanic Austronesian languages: a preliminary list. *University of Hawaii Working papers in Linguistics*, 4(1):1–41.
- 1977. A rediscovered Austronesian comparative paradigm. *Oceanic Linguistics*, 14:1–51.

- 1978a. Eastern Malayo-Polynesian: a subgrouping argument. In S.A. Wurm and Lois Carrington, eds *Second International Conference on Austronesian Linguistics: proceedings*, 181–234. Canberra: Pacific Linguistics.
- 1978b. *The Proto-Oceanic palatals*. JPS Monograph 43. Auckland: Polynesian Society.
- 1980a. Early Austronesian social organization: the evidence of language. *Current Anthropology*, 21:205–226.
- 1980b. Austronesian etymologies. *Oceanic Linguistics*, 19:1–182.
- 1981. Variation in retention rate among Austronesian languages. Paper presented to the Third International Conference on Austronesian Linguistics, Denpasar.
- 1982. The linguistic value of the Wallace Line. *Bijdragen tot de Taal-, Land- en Volkenkunde*, 138(2):231–250.
- 1983–84a. Austronesian etymologies II. *Oceanic Linguistics*, 22–23: 29–149.
- 1983–84b. More on the position of the languages of Eastern Indonesia. *Oceanic Linguistics*, 22–23:1–28.
- 1984. A Mussau vocabulary, with phonological notes. In *Papers in New Guinea linguistics No. 23*, 159–208. Canberra: Pacific Linguistics.
- 1984–85. The Austronesian homeland: a linguistic perspective. *Asian Perspectives*, 26(1):45–67.
- 1986. Austronesian etymologies – III. *Oceanic Linguistics*, 25:1–123.
- 1987. Lexical reconstruction and semantic reconstruction: the case of Austronesian ‘house’ words. *Diachronica*, 4:79–106.
- 1988. *Austronesian root theory: an essay on the limits of morphology*. Amsterdam: Benjamins.
- 1989. Austronesian etymologies – IV. *Oceanic Linguistics*, 28(2):111–180.
- 1993. Central and Central-Eastern Malayo-Polynesian. *Oceanic Linguistics*, 32:241–293.
- 1994. Proto Malayo-Polynesian sibling terms. In A. Pawley and M. Ross, eds *Austronesian terminologies: continuity and change*, 31–72. Canberra: Pacific Linguistics.
- 1995a. The position of the Formosan languages: method and theory in Austronesian comparative linguistics. In P. Li, C. Tsang, Y. Huang, D. Ho and C. Tseng, eds *Austronesian studies relating to Taiwan*, 585–650. Taipei: Academia Sinica. Institute of History and Philology Symposium Series 3.
- 1995b. The prehistory of the Austronesian-speaking peoples: a view from language. *Journal of World Prehistory*, 9:453–510.
- 1996. The Neogrammarian Hypothesis and pandemic irregularity. In M. Durie and M. Ross, eds *The comparative method reviewed: regularity and irregularity in language change*, 135–156. New York: Oxford University Press.
- 1997. Semantic change and the conceptualization of spatial relationships in Austronesian languages. In Gunter Senft, ed. *Referring to space: Studies in Austronesian and Papuan languages*, 39–51. Oxford: Clarendon.
- 1998a. A note on higher-order subgroups in Oceanic. *Oceanic Linguistics*, 37:182–188.

- 1998b. A Lou vocabulary with phonological notes. In D. Tryon, ed. *Papers in Austronesian Linguistics* No. 5:35–99. Canberra: Pacific Linguistics.
- 1999. Subgrouping, circularity and extinction: Some issues in Austronesian comparative linguistics. In E. Zeitoun and P. Li, eds *Selected papers from the Eighth International Conference on Austronesian Linguistics*, 31–94. Taipei: Academia Sinica.
- 2001. Reduplicated colour terms in Oceanic languages. In A. Pawley, M. Ross and D. Tryon, eds *The boy from Bundaberg: studies in Melanesian linguistics in honour of Tom Dutton*, 23–49. Canberra: Pacific Linguistics.
- Bonhomme, T. and J. Craig, 1987. Radiocarbon dates from Unai, Baipot, Saipan: some implications for the prehistory of the Mariana Islands. *Journal of the Polynesian Society*, 96:95–106.
- Bowden, John, 1992. *Behind the preposition: grammaticalisation of locatives in Oceanic languages*. Canberra: Pacific Linguistics.
- Bradshaw, Joel, 1997. The population kaleidoscope: another factor in the Melanesian diversity v. Polynesian homogeneity debate. *Journal of the Polynesian Society*, 106:222–249.
- Bril, Isabelle, 1994. *La structure de l'énoncé en nêlêmwâ (extrême-nord de la Nouvelle-Calédonie)*. Thèse pour le Doctorat de Linguistique, Université Paris 7.
- 2004. Deixis in Nêlêmwa. In Gunter Senft, ed. *Deixis and demonstratives in Oceanic languages*, 99–127. Canberra: Pacific Linguistics.
- Brookfield, H.C. and Doreen Hart, 1971. *Melanesia: a geographical interpretation of an island world*. London: Methuen & Co.
- Buck, Carl Darling, 1949. *A dictionary of selected synonyms in the Principal Indo-European languages*. Chicago: The University of Chicago Press.
- Bugenhagen, Robert D., 1995. *A grammar of Mangap-Mbula: an Austronesian language of Papua New Guinea*. Canberra: Pacific Linguistics.
- Bybee, Joan L., 1994. A view of phonology from a cognitive and functional perspective. *Cognitive Linguistics*, 5:285–305.
- Capell, Arthur, 1941. *A new Fijian dictionary*. Sydney: Australasian Medical Publishing Co.
- 1969. *Grammar and vocabulary of the language of Sonsorol-Tobi*. Sydney: Oceanic Linguistic Monographs.
- Cashmore, Christine, 1969. Some Proto-Eastern Oceanic reconstructions with reflexes in Southeast Solomon Islands languages. *Oceanic Linguistics*, 8:1–25.
- Chowning, Ann, 1996. Relations among languages of West New Britain: an assessment of recent theories and evidence. In M. Ross, ed. *Studies in languages of New Britain and New Ireland*, 7–62. Canberra: Pacific Linguistics.
- Christian, F.W., 1899. *The Caroline Islands: Travel in the sea of the little lands*. London: Methuen.
- Chung, Ying Shing Anthony, 1998. *Descriptive grammar of Merei*. Graduate Diploma thesis, Northern Territory University.
- Churchward, C. Maxwell, 1953. *Tongan grammar*. Oxford: Oxford University Press.
- 1959. *Tongan dictionary*. London: Oxford University Press.
- 1973. *A new Fijian grammar* (Reprinted). Suva: Government Press.

- Clark, Herbert H., 1973. Space, time, semantics and the child. In T.E. Moore, ed. *Cognitive development and the acquisition of language*. New York: Academic Press.
- Clark, Ross, 1973. Transitivity and case in Eastern Oceanic languages. *Oceanic Linguistics*, 12:559–605.
- 1976. *Aspects of Proto-Polynesian syntax*. Auckland: Linguistic Society of New Zealand.
- 1985. Languages of north and central Vanuatu: groups, chains, clusters and waves. In A. Pawley and L. Carrington, eds *Austronesian linguistics at the 15th Pacific Science Congress*, 199–236. Canberra: Pacific Linguistics.
- 1991. Fingota/fangota: Shellfish and fishing in Polynesia. In A. Pawley, ed. *Man and a half: essays in Pacific anthropology and ethnobiology in honour of Ralph Bulmer*, 78–83. Auckland: The Polynesian Society.
- 1996. North and Central Vanuatu languages: a comparative study. Unpublished MS. University of Auckland.
- 2002. Ifira-Mele. In J. Lynch, M. Ross, and T. Crowley, eds, *The Oceanic languages*, 681–693. Richmond: Curzon Press.
- Clark, Stephen and Dawn Clark, 1987. Sio grammar essentials. Unpublished MS. Summer Institute of Linguistics, Ukarumpa.
- Codrington, Robert H, 1891. *The Melanesians: Studies in their anthropology and folk lore*. Oxford: Clarendon.
- Codrington, R.H. and Ven. J. Palmer, 1896. *A dictionary of the language of Mota*. London: Society for Promoting Christian Knowledge.
- Collins, J.T., 1983. *The historical relationships of the languages of Central Maluku*. Canberra: Pacific Linguistics.
- Corston-Oliver, Simon, 2002. Roviana. In J. Lynch, M. Ross and T. Crowley, eds *The Oceanic languages*, 467–497. Richmond: Curzon Press.
- Cotter, Charles H., 1984. Pacific Ocean. In *The New Encyclopaedia Britannica* 13, 836–845. Chicago: Encyclopaedia Britannica.
- Counts, David R, 1969. *A grammar of Kaliai-Kove*. Oceanic Linguistics Special Publication No. 6. Honolulu. University of Hawai'i Press.
- Croft, William, 1990. A conceptual framework for grammatical categories (or: a taxonomy of propositional acts). *Journal of Semantics* 7:245–279.
- Crowley, Susan Smith, 1986. *Tolo dictionary*. Canberra: Pacific Linguistics.
- Crowley, Terry, 1982. *The Paamese language of Vanuatu*. Canberra: Pacific Linguistics.
- 1985. Common noun phrase marking in Proto-Oceanic. *Oceanic Linguistics*, 24:135–193.
- 1992. *A dictionary of Paamese*. Canberra: Pacific Linguistics.
- 1998. *An Erromangan (Sye) grammar*. Oceanic Linguistics Special Publication No. 27. Honolulu: University of Hawai'i Press.
- 2002a. Gela. In J. Lynch, M. Ross and T. Crowley, eds *The Oceanic languages*, 525–537. Richmond: Curzon Press.
- 2002b. Mwotlap. In J. Lynch, M. Ross, and T. Crowley, eds *The Oceanic languages*, 587–598. Richmond: Curzon Press.
- Damon, F.H., 1990. *From Muyuw to the Trobriands*. Tucson: University of Arizona Press.

- Davis, Karen, 1997. *A grammar of the Hoava language, Western Solomons*. PhD dissertation, University of Auckland.
- Davies, Robyn and Lisbeth Fritzell, 1992. Duke of York grammar essentials (Ramoaaaina). Unpublished MS. Summer Institute of Linguistics, Ukarumpa.
- Davis, Tom, 1992. *Island Boy: an autobiography*. Auckland: The Institute of Pacific Studies, University of the South Pacific; The Macmillan Brown Centre for Pacific Studies, University of Canterbury; The Centre for Pacific Studies, University of Auckland.
- Dempwolff, Otto, 1925. Die L-, R- und D-Laute in austronesischen Sprachen. *Zeitschrift für Eingeborenen-Sprachen*, 15: 19–50, 116–138, 223–238.
- 1938. *Vergleichende Lautlehre des Austronesischen Wortschatzes*, Band 3: *Austronesisches Wörterverzeichnis*. Beiheften zur Zeitschrift fuer Eingeborenen-Sprachen 19. Berlin: Dietrich Reimer.
- 1939. *Grammatik der Jabêm-Sprache auf Neuguinea*. Hamburg: Friederichsen, de Gruyter.
- Dixon, R.M.W., 1977. Where have all the adjectives gone? *Studies in Language*, 1:19–80.
- 1982. Where have all the adjectives gone? In R.M.W. Dixon, ed. *Where have all the adjectives gone? and other essays in semantics and syntax*, 1–62. Berlin: Mouton.
- 1988. *A grammar of Boumaa Fijian*. Chicago: University of Chicago Press.
- D’Jernes, Jeffrey and Lucille D’Jernes, n.d., Arop-Lokep grammar essentials. Unpublished MS. Summer Institute of Linguistics, Ukarumpa.
- Donohue, Mark, 2002. Tobati. In J. Lynch, M. Ross and T. Crowley, eds *The Oceanic languages*, 186–203. Richmond: Curzon Press.
- Durie, Mark, 1988. Verbal serialization and “verbal-prepositions” in Oceanic languages. *Oceanic Linguistics*, 27:1–23.
- Dutton, Tom and Darrell Tryon, eds, 1994. *Language contact and change in the Austronesian world*. Berlin: Mouton de Gruyter.
- Dye, Tom, 1983. Fish and fishing on Niuatoputapu (Tonga). *Oceania*, 53(3):242–271.
- Dyen, Isidore and David F. Aberle, 1974. *Lexical reconstruction: the case of the Proto-Athapaskan kinship system*. Cambridge: Cambridge University Press.
- Early, Robert J., 1994a. A grammar of Lewo, Vanuatu. PhD dissertation, The Australian National University.
- 1994b. Lewo. In Peter Kahrel and René van den Berg, eds *Typological studies in negation*, 65–92. Amsterdam: John Benjamins.
- Early, Robert J. (abstracted by), 2002. Niuafu’ou. In J. Lynch, M. Ross and T. Crowley, eds *The Oceanic languages*, 848–864. Richmond: Curzon Press.
- Elbert, Samuel H., 1972. *Puluwat dictionary*. Canberra: Pacific Linguistics.
- 1975, *Dictionary of the language of Rennell and Bellona*. Copenhagen: National Museum of Denmark.
- Elkins, Richard F., 1968. *Manobo-English dictionary*. Honolulu: University of Hawai’i Press.
- Erickson, Leland and Laurinda Erickson, 1992. Grammar essentials of the Nochi language of New Ireland Province. Unpublished MS. Summer Institute of Linguistics, Ukarumpa.

- Evans, Bethwyn, 2003. *A study of valency-changing devices in Proto Oceanic*. Canberra: Pacific Linguistics.
- Evans, Bethwyn and Malcolm Ross, 2001. The history of Proto Oceanic *ma-. *Oceanic Linguistics*, 40(2):269–290.
- Ezard, Bryan, 1997. *A grammar of Tawala: an Austronesian language of the Milne Bay area, Papua New Guinea*. Canberra: Pacific Linguistics.
- Feinberg, Richard, 1988. *Polynesian seafaring and navigation: ocean travel in Anutan culture and society*. Kent, Ohio: Kent State University Press.
- Finney, Ben R., 1976. *Pacific navigation and voyaging*. Wellington, N.Z.: The Polynesian Society Inc.
- Firth, Raymond, 1957. *We, the Tikopia* (2nd ed.). London: Allen & Unwin.
- 1985. *Tikopia-English dictionary*. Auckland: Auckland University Press, Oxford University Press.
- Fitzsimons, Matthew, 1989. *Zabana: a grammar of a Solomon Islands language*. MA thesis, University of Auckland.
- Flannery, Tim, 1995. *Mammals of New Guinea (revised ed.)*. Sydney: Australian Museum/Reed Books.
- Foley, William A., 1986. *The Papuan languages*. Cambridge: Cambridge University Press.
- 1997. *Anthropological linguistics: an introduction*. Oxford: Blackwell.
- Fox, Charles E., 1955. *A dictionary of the Nggela language (Florida, British Solomon Islands)*. Auckland: Unity Press.
- 1974. *Lau dictionary*. Canberra: Pacific Linguistics.
- 1978. *Arosi dictionary*. Canberra: Pacific Linguistics.
- François, Alexandre, 2001. The “five-day week” hypothesis. Unpublished MS. LACITO–CNRS, Paris.
- 2002. *Araki: a disappearing language of Vanuatu*. Canberra: Pacific Linguistics.
- 2003. Of men, hills and winds: Space directionals in Mwotlap. *Oceanic Linguistics*, 42:407–437.
- 2004. Reconstructing the geocentric system of Proto Oceanic. *Oceanic Linguistics*, 43:1–31.
- French-Wright, Renwick, 1983. Proto-Oceanic horticultural practices. MA thesis, University of Auckland.
- Gallagher, Steve, 1998. *Bariai Grammar Essentials*. Unpublished MS. Summer Institute of Linguistics, Ukarumpa.
- Geerts, P., 1970. *’Are’are dictionary*. Canberra: Pacific Linguistics.
- Gentili, Joseph, 1984. Monsoons. In *The New Encyclopaedia Britannica* 12, 389–394. Chicago: Encyclopaedia Britannica.
- Geraghty, Paul, 1983. *The history of the Fijian languages*. Oceanic Linguistics Special Publication No. 19. Honolulu: University of Hawai’i Press.
- 1986. The sound system of Proto Central Pacific. In Lois Carrington and S.A. Wurm, eds *Focal II: Papers from the Fourth International Conference on Austronesian Linguistics*, 289–312. Canberra: Pacific Linguistics.

- 1989. The reconstruction of Proto-Southern Oceanic. In Ray Harlow and Robin Hooper, eds *VICAL 1: Oceanic languages. Papers from the Fifth International Conference on Austronesian Linguistics*, 141–156. Auckland: Linguistic Society of New Zealand.
- 1990. Proto-Eastern Oceanic *R and its reflexes. In J. Davidson, ed., *Pacific Island languages: essays in honour of G.B. Milner*, 51–93. London & Honolulu: School of Oriental and African Studies, University of London and University of Hawai'i Press.
- 1996. Problems with Proto Central Pacific. In John Lynch and Fa'afo Pat, eds *Oceanic studies: Proceedings of the First International Conference on Oceanic Linguistics*, 83–91. Canberra: Pacific Linguistics.
- 2002. Nadrogā. In J. Lynch, M. Ross and T. Crowley, eds *The Oceanic languages*, 833–847. Richmond: Curzon Press.
- Gladwin, Thomas, 1970. *East is a big bird*. Cambridge, Mass.: Harvard University Press.
- Golson, Jack, 1977. No room at the top: agricultural intensification in the New Guinea Highlands. In J. Allen, J. Golson, and R. Jones, eds *Sunda and Sahul: prehistoric studies in Southeast Asia, Melanesia and Australia*, 601–638. New York: Academic Press.
- 1991. Bulmer phase II: early agriculture in the New Guinea Highlands. In A. Pawley, ed. *Man and a half: essays in Pacific anthropology and ethnobiology in honour of Ralph Bulmer*, 484–491. Auckland: Polynesian Society.
- Golson, J., T. Denham, P. Swadling and J. Muke, ed., forthcoming, *9000 years of gardening: Kuk and the archaeology of agriculture in Papua New Guinea*.
- Gonda, Jan, 1973. *Sanskrit in Indonesia* (2nd ed.). New Delhi: International Academy of Indian Culture.
- Goodenough, Ward H. and Hiroshi Sugita, 1990. *Trukese-English dictionary*. Philadelphia: American Philosophical Society.
- Gosden, C. and J. Specht, 1991. Diversity, continuity and change in the Bismarck Archipelago, Papua New Guinea. In P. Bellwood, ed. *Indo-Pacific history 1990: Proceedings of the 14th Congress of the Indo-Pacific Association*, 276–280. Canberra: Indo-Pacific Prehistory Association.
- Grace, George W., 1961. Austronesian linguistics and culture history. *American Anthropologist*, 63:359–368.
- 1964. Movements of the Malayo-Polynesians 1500 BC to AD 500. The linguistic evidence. *Current Anthropology*, 5:361–368, 403–404.
- 1969. A Proto-Oceanic finder list. *University of Hawaii Working Papers in Linguistics*, 1/2:39–84.
- 1996. Regularity of change in what? In M. Durie and M. Ross, eds *The comparative method reviewed: regularity and irregularity in language change*, 157–179. New York: Oxford University Press.
- Grant, R.V., 1953. *A school dictionary in the Dobu language*. Rabaul: Methodist Mission Press.
- Green, Roger C., 1979. Lapita. In J.D. Jennings, ed. *The prehistory of Polynesia*, 27–60. Cambridge, Mass.: Harvard University Press.
- 1991a. Near and remote Oceania—disestablishing “Melanesia” in culture history. In Andrew Pawley, ed. *Man and a half: essays in Pacific anthropology and ethnobiology in honour of Ralph Bulmer*, 491–502. Auckland: The Polynesian Society.

- 1991b. The Lapita cultural complex: current evidence and proposed models. *Bulletin of the Indo-Pacific Prehistory Association*, 11:295–305.
- 1991c. A reappraisal of the dating for some Lapita sites in the Reef/Santa Cruz group of the Southeast Solomons. *Journal of the Polynesian Society*, 100:197–208.
- 2003. The Lapita horizon and traditions: signature for one set of oceanic migrations. In C. Sand, ed. *Pacific archaeology: assessments and prospects. Proceedings of the First International Conference for the 50th anniversary of the first Lapita conference (July 1952)*. Noumea: Les Cahiers de l'Archéologie en Nouvelle-Calédonie. Vol.15 New Caledonia Museum.
- Grimble, Arthur, 1931. Gilbertese astronomy and astronomical observances. *Journal of the Polynesian Society*, 40: 197–224.
- Grimble, Rosemary, 1972. *Migrations, myth and magic from the Gilbert Islands: early writings of Sir Arthur Grimble*. London and Boston: Routledge and Kegan Paul.
- Groves, Terab'ata R., Gordon W. Groves and Roderick Jacobs, 1985. *Kiribatese: an outline description*. Canberra: Pacific Linguistics.
- Gruber, Jeffrey S., 1965. *Studies in lexical relations*. Bloomington: Indiana University Linguistics Club. Reprinted as part of *Lexical structures in syntax and semantics* (Amsterdam: North-Holland, 1976).
- Hamel, Patricia J., 1994. *A grammar and lexicon of Loniu, Papua New Guinea*. Canberra: Pacific Linguistics.
- Harding, Thomas G., 1967. *Voyagers of the Vitiaz Straits: a study of a New Guinea trade system*. Seattle: University of Washington Press.
- Hare, F. Kenneth, 1984. Winds and storms. In *The New Encyclopaedia Britannica* 19, 862–875. Chicago: Encyclopaedia Britannica.
- Harrison, Sheldon P., 1976. *A Mokilese reference grammar*. Honolulu: University of Hawai'i Press.
- Harrison, Sheldon P. and Salich Albert, 1977, *Mokilese-English dictionary*. Honolulu: University of Hawai'i Press.
- Haudricourt, André G. and Françoise Ozanne-Rivierre, 1982. *Dictionnaire thématique des langues de la région de Hienghène (Nouvelle Calédonie), Pije, Fwâi, Nemi, Jawe (Thematic dictionary of the Hienghène languages, New Caledonia)*. Paris: SELAF.
- Heine, Bernd, 1989. Adpositions in African languages. *Linguistique Africaine*, 2:77–127.
- Heyen, G.H., 1962. Primitive navigation in the Pacific - 1. In Jack Golson, ed. *Polynesian navigation: a symposium on Andrew Sharp's theory of accidental voyages*. Wellington and Sydney: A.H. and A.W.Reed for the Polynesian Society.
- Hill, Deborah, 1992. Longgu grammar. PhD dissertation, The Australian National University.
- 1997. Finding your way in Longgu: Geographical reference in a Solomon Islands language. In Gunter Senft, ed. *Referring to space: Studies in Austronesian and Papuan languages*, 101–126. Oxford: Clarendon.
- 2002. Longgu. In J. Lynch, M. Ross, and T. Crowley, eds *The Oceanic languages*, 538–561. Richmond: Curzon Press.
- Hinton, Leanne, Johanna Nichols and John J. Ohala, 1994. *Sound symbolism*. Cambridge: Cambridge University Press.

- Hockett, C.F., 1976. The reconstruction of Proto Central Pacific. *Anthropological Linguistics*, 18:187–235.
- Hooper, Robin, 1985. Proto-Oceanic *qi. In A. K. Pawley and Lois Carrington, eds *Austronesian linguistics at the 15th Pacific Science Congress*, 141–167. Canberra: Pacific Linguistics.
- Howlett, D.R., 1967. *A geography of Papua and New Guinea*. Melbourne: Nelson.
- Huang, Lillian, 2000. Verb classification in Mayrinax Atayal. *Oceanic Linguistics*, 39:364–390.
- Hviding, Edvard, 1995. *Of Reef and Rainforest: a dictionary of environment and resources in Marovo Lagoon*. Bergen: Centre for Development Studies, University of Bergen and Western Province Division of Culture, Gizo, Solomon Islands.
- 1996. *Guardians of Marovo Lagoon*. Honolulu: University of Hawai'i Press.
- Hyslop, Catriona, 2001. *The Lolovoli dialect of the North-East Ambae language, Vanuatu*. Canberra: Pacific Linguistics.
- Irwin, Geoffrey, 1992. *The prehistoric exploration and colonization of the Pacific*. Cambridge: Cambridge University Press.
- Ivens, Walter G., 1927 (reissued 1972). *Melanesians of the South-east Solomon Islands*. New York: Benjamin Blom, Inc.
- 1929. *A dictionary of the language of Sa'a (Mala) and Ulawa, south-east Solomon Islands*. London: Oxford University Press.
- 1930. *The island builders of the Pacific*. London: Seeley, Service & Co. Ltd.
- 1933. A grammar of the language of Bugotu, Ysabel Island, Solomon Islands. *Bulletin of the School of Oriental and African Studies*, 7:141–177.
- 1940. *A dictionary of the language of Bugotu*. London: Royal Asiatic Society.
- Jackendoff, Ray, 1976. Toward an explanatory semantic representation. *Linguistic Inquiry*, 7:89–150.
- 1983. *Semantics and cognition*. Cambridge MA: MIT Press.
- 1991. Parts and boundaries. *Cognition*, 41:9–45.
- 1992. *Languages of the mind: essays on mental representation*. Cambridge MA: MIT Press.
- Jackson, Frederick H., 1986. On determining the external relationships of the Micronesian languages. In P. Geraghty, L. Carrington and S.A. Wurm, eds *FOCAL II: papers from the Fourth International Conference on Austronesian Linguistics*, 201–238. Canberra: Pacific Linguistics.
- Jackson, Frederick H. and Jeffrey C. Marck, 1991. *Carolinian-English dictionary*. Honolulu: University of Hawai'i Press.
- Jauncey, Dorothy, 1997. *A grammar of Tamambo, the language of western Malo, Vanuatu*. PhD dissertation, Australian National University.
- Jennings, A.P., 1956. *Wedau-English dictionary*. Dogura, PNG: The Diocesan Printing Shop.
- Johnston, Raymond L., 1980. *Nakanai of New Britain: the grammar of an Oceanic language*. Canberra: Pacific Linguistics.
- Jones, Alan A., 1998. *Towards a lexicogrammar of Mekeo (an Austronesian language of western central Papua)*. Canberra: Pacific Linguistics.

- Josephs, Lewis S., 1990. *New Palauan-English dictionary*. Honolulu: University of Hawai'i Press.
- Keesing, Roger M., 1975, *Kwaio dictionary*. Canberra: Pacific Linguistics.
- 1985. *Kwaio grammar*. Canberra: Pacific Linguistics.
- Kirch, Patrick V., 1995. The Lapita culture of Western Melanesia in the context of Austronesian origins and dispersal. In P. Li, C. Tsang, Y. Huang, D. Ho and C. Tseng, eds *Austronesian studies relating to Taiwan*, 255–294. Taipei: Academica Sinica. Institute of History and Philology Symposium Series 3.
- 1996. Lapita and its aftermath: the Austronesian settlement of Oceania. In Ward H. Goodenough, ed. *Prehistoric Settlement of the Pacific*, 57–70. Philadelphia: American Philosophical Society.
- 1997. *The Lapita peoples: ancestors of the Oceanic world*. Oxford: Blackwell.
- 2000. *On the road of the winds: an archaeological history of the Pacific Islands before European contact*. Berkeley: University of California Press.
- Kirch, Patrick V. and Roger Green, 2001. *Hawaiki, ancestral Polynesia. An essay in historical reconstruction*. Cambridge: Cambridge University Press.
- Kirch, Patrick V. and T.L. Hunt, 1988. *The spatial and temporal boundaries of the Lapita cultural complex: a critical review*. Thomas Burke Washington State Memorial Museum, Report no.5. Seattle: Burke Museum.
- Kirch, Patrick V. and Dana Lepofsky, 1993, Polynesian irrigation: archaeological and linguistic evidence for origins and development. *Asian Perspectives* 32(2):183–204.
- Lamb, Hubert H., 1984. Climate. In *The New Encyclopaedia Britannica* 4, 714–779. Chicago: Encyclopaedia Britannica.
- Lanyon-Orgill, Peter, 1962. *A dictionary of the Raluana language*. Victoria BC: The author.
- Lauer, Peter K., 1976. Sailing with the Amphlett Islanders. In Ben R. Finney, ed. *Pacific navigation and voyaging*. Wellington: The Polynesian Society Inc.
- Lawton, Ralph, 1998. Kiriwina wordlist. Unpublished MS.
- Lee, Kee-dong, 1975. *Kusaiean reference grammar*. Honolulu: University Press of Hawai'i.
- 1976. *Kusaiean-English dictionary*. Honolulu: University Press of Hawai'i.
- Leech, Geoffrey N., 1969. *Towards a semantic description of English*. London: Longman.
- Lepofsky, Dana, 1988. The environmental context of Lapita settlement locations. In P. V. Kirch and T. L. Hunt, eds, *Archaeology of the Lapita cultural complex*, 33–48. Seattle: Burke Museum Research Report 5.
- Levinson, Stephen C, 1996. Frames of reference and Molyneux's question: crosslinguistic evidence. In P. Bloom, M.A. Peterson, L. Nadel and M.F. Garrett, eds *Language and space*, 109–169. Cambridge MA: MIT Press.
- Levy, Richard S., 1979. The phonological history of the Bugotu-Nggelic languages and its implications for Eastern Oceanic. *Oceanic Linguistics*, 18:1–32.
- 1980. Languages of the southeast Solomon Islands and the reconstruction of Proto-Eastern-Oceanic. In Paz Buenaventura Naylor, ed. *Austronesian studies: papers from the Second Eastern Conference on Austronesian Languages*, 213–222. Ann Arbor: University of Michigan, Center for South and Southeast Asian Studies.

- Levy, Richard and Nathan Smith, 1970. Proto-Eastern Oceanic reconstructions. Computer printout. Department of Anthropology, University of British Columbia.
- Lewis, David, 1972. *We, the navigators*. Canberra: Australian National University Press.
- 1978. *The voyaging stars*. Sydney: Collins.
- 1994. *We, the navigators* (revised edition). Honolulu: University of Hawai'i Press.
- Lichtenberk, Frantisek, 1983. *A grammar of Manam*. Oceanic Linguistics special publication No. 18. Honolulu: University of Hawai'i Press.
- 1985. Syntactic-category change in Oceanic languages. *Oceanic Linguistics*, 24:1–84.
- 1986. Leadership in Proto Oceanic society: linguistic evidence. *Journal of the Polynesian Society*, 95:341–356.
- 1988. The Cristobal–Malaitan subgroup of Southeast Solomonian. *Oceanic Linguistics*, 27:24–62.
- 1991. Semantic change and heterosemy in grammaticalization. *Language*, 67:474–509.
- Lilley, I., 1999. Post Lapita scenarios for archaeology and language in north New Guinea–west New Britain. *Bulletin of the Indo-Pacific Prehistory Association*, 18:25–34.
- Lindstrom, Lamont, 1986. *Kwamera dictionary*. Canberra: Pacific Linguistics.
- Lister-Turner, R. and J.B. Clark, 1954a. *A dictionary of the Motu language of Papua*. (ed. Percy Chatterton) (Second edition). Sydney: NSW Government Printer.
- 1954b. *A grammar of the Motu language of Papua* (ed. Percy Chatterton) (Second edition). Sydney: NSW Government Printer.
- Lithgow, David and Daphne Lithgow, 1974. *Muyuw dictionary*. Ukarumpa: SIL.
- Lovell, Larry Lee, 1994. Minaveha grammar: a study of an Austronesian language of Milne Bay Province, Papua New Guinea. Unpublished MS. Summer Institute of Linguistics, Ukarumpa.
- Lynch, John, 1977. *Lenakel dictionary*. Canberra: Pacific Linguistics.
- 1978a. Proto-Central Papuan: a reassessment. Mimeo. University of Papua New Guinea.
- 1978b. Proto-South Hebridean and Proto-Oceanic. In S.A. Wurm and Lois Carrington, eds *Second International Conference on Austronesian Linguistics: proceedings*, 717–779. Canberra: Pacific Linguistics.
- 1978c. *A grammar of Lenakel*. Canberra: Pacific Linguistics.
- 1980. Proto-Central Papuan phonology. Mimeo. University of Papua New Guinea.
- 1981. Melanesian diversity and Polynesian homogeneity: the other side of the coin. *Oceanic Linguistics*, 20:95–129.
- 1995. Linguistic subgrouping in Vanuatu and New Caledonia. Unpublished MS. University of the South Pacific, Port Vila.
- 1996. Proto Southern Vanuatu lexical reconstructions (with supporting evidence). Unpublished MS. University of the South Pacific, Port Vila.
- 1997. Proto Oceanic **paRiu* 'cyclone'. *Oceanic Linguistics*, 36:180–181.
- 2000a. Reconstructing Proto-Oceanic stress. *Oceanic Linguistics*, 39:53–82.
- 2000b. *A grammar of Anejom̃*. Canberra: Pacific Linguistics.

- 2001. *The linguistic history of southern Vanuatu*. Canberra: Pacific Linguistics.
- 2002a. Cèmuhi. In J. Lynch, M. Ross and T. Crowley, eds *The Oceanic languages*, 753–762. Richmond: Curzon Press.
- 2002b. Marquesan. In J. Lynch, M. Ross and T. Crowley, eds *The Oceanic languages*, 865–876. Richmond: Curzon Press.
- 2002c. Puluwatese. In J. Lynch, M. Ross and T. Crowley, eds *The Oceanic languages*, 804–814. Richmond: Curzon Press.
- 2002d. Ulithian. In J. Lynch, M. Ross and T. Crowley, eds *The Oceanic languages*, 792–803. Richmond: Curzon Press.
- 2002e. The Proto Oceanic labiovelars: some new observations. *Oceanic Linguistics*, 41: 310–362.
- Lynch, John and Rex Horoi, 2002. Arosi. In J. Lynch, M. Ross and T. Crowley, eds *The Oceanic languages*, 562–572. Richmond: Curzon Press.
- Lynch, John and Malcolm Ross, 2002. Banoni. In J. Lynch, M. Ross and T. Crowley, eds *The Oceanic languages*, 440–455. Richmond: Curzon Press.
- Lynch, John, Malcolm Ross and Terry Crowley, 2002. *The Oceanic languages*. Richmond, UK: Curzon Press.
- Lynch, John and D.T. Tryon, 1983. Central Oceanic: a subgrouping hypothesis. Paper presented to the Fifteenth Pacific Science Congress, Dunedin, New Zealand.
- 1985. Central-Eastern Oceanic: a subgrouping hypothesis. In A. Pawley and L. Carrington, eds *Austronesian linguistics at the 15th Pacific Science Congress*, 31–52. Canberra: Pacific Linguistics.
- MacGregor, Gordon, 1937. Ethnology of Tokelau Islands. *Bulletin of the Bishop Museum* (146):3–183.
- Mager, John F., 1952. *Gedaged-English dictionary*. Columbus, Ohio: American Lutheran Church, Board of Foreign Missions.
- Makemson, Maud W., 1939. Hawaiian astronomical concepts II. *American Anthropologist*, 40:589–595.
- 1941. *The Morning Star rises: an account of Polynesian astronomy*. New Haven: Yale University Press.
- Malinowski, Bronislaw, 1922. *Argonauts of the Western Pacific*. London: Routledge and Kegan Paul Ltd.
- 1935. *Coral gardens and their magic*. London: George Allen and Unwin Ltd.
- Marck, Jeff, 1994. Proto Micronesian terms for the physical environment. In A. Pawley and M. Ross, eds *Austronesian terminologies: continuity and change*. Canberra: Pacific Linguistics.
- 2000. *Topics in Polynesian language and culture history*. Canberra: Pacific Linguistics.
- Margetts, Anna, 2004. Spatial deictics in Saliba. In Gunter Senft, ed. *Demonstratives and deixis in Oceanic languages*, 37–57. Canberra: Pacific Linguistics.
- Matisoff, James A., 1992. The mother of all morphemes: augmentatives and diminutives in areal and universal perspective. In Martha Ratliff and Eric Schiller, eds *Papers from the First Annual Meeting of the South East Asian Linguistic Society 1991*. Arizona State University.

- Mayr, Ernst and Jared Diamond, 2001. *The birds of northern Melanesia: speciation, ecology and biogeography*. Oxford: Oxford University Press.
- McCoy, Michael, 1976. A renaissance in Carolinian-Marianas voyaging. In Ben R. Finney, ed. *Pacific navigation and voyaging*, 129–138. Wellington: The Polynesian Society Inc.
- McDivitt, James F., 1984. Indonesia. In *The New Encyclopaedia Britannica* 9, 457–476. Chicago: Encyclopaedia Britannica.
- McEldowney, Phyllis H., 1995. *Subsistence Intensification in the late prehistory of Manus*. PhD dissertation, The Australian National University.
- McGuckin, Catherine, 2002. Gapapaiwa. In J. Lynch, M. Ross and T. Crowley, eds *The Oceanic languages*, 297–321. Richmond: Curzon Press.
- McGuckin, Ed and Catherine McGuckin, 1992. *Gapapaiwa field notes*. Dictionaries in Papua New Guinea, vol. 12. Ukarumpa, PNG: SIL.
- McKenzie, Robin, 1997. Downstream to here: Geographically determined spatial deictics in Aralle-Tabulahan (Sulawesi). In Gunter Senft, ed. *Referring to space: Studies in Austronesian and Papuan languages*, 221–249. Oxford: Clarendon.
- Mead, David, 2001. The numeral confix *- (e)n. *Oceanic Linguistics*, 40:167–176.
- Milke, Wilhelm, 1958. Zur inneren Gliederung und geschichtlichen Stellung der ozeanisch-Austronesischen Sprachen. *Zeitschrift für Ethnologie*, 83:58–62.
- 1965. Comparative notes on the Austronesian languages of New Guinea. In *Lingua* 14:330–348.
- Milner, G.B., 1966. *Samoan dictionary*. London: Oxford University Press.
- Monkhouse, F.J., 1966. *Principles of physical geography* (5th ed.). Totowa, New Jersey: Littlefield, Adams & Co.
- Mosel, Ulrike, 1982. Local deixis in Tolai. In Jürgen Weissenborn and Wolfgang Klein, eds *Here and there: crosslinguistic studies on deixis and demonstration*, 111–132. Amsterdam: John Benjamins.
- 1984. *Tolai syntax and its historical development*. Canberra: Pacific Linguistics.
- 2004. Demonstratives in Samoan. In Gunter Senft, ed. *Demonstratives and deixis in Oceanic languages*, 141–174. Canberra: Pacific Linguistics.
- Mosel, Ulrike and Even Hovdhaugen, 1992. *Samoan reference grammar*. Oslo: Scandinavian University Press.
- Moyse-Faurie, Claire, 1993. *Le drehu, langue de Lifou (Îles Loyauté)*. Paris: SELAF.
- 1995. *Le xârâcùù, langue de Thio-Canala (Nouvelle-Calédonie): Éléments de syntaxe*. Langues et cultures du Pacifique 10. Paris: Peeters.
- Næss, Åshild, 2004. Spatial deixis in Pileni. In Gunter Senft, ed. *Demonstratives and deixis in Oceanic languages* 81–97. Canberra: Pacific Linguistics.
- Nenegemo, Tau and Larry Lee Lovell, 1995. *Minaveha field notes*. Dictionaries in Papua New Guinea, vol. 14. Ukarumpa, PNG: SIL.
- Newell, Leonard E. and Francis Bon'og Poligon, 1993. *Batad Ifugao dictionary with ethnographic notes* 9/2. Manila: Linguistic Society of the Philippines.
- Neyret, J. M., 1950. Notes sur la navigation indigène aus îles Fidji. *Journal de la Société des Océanistes*, 6:5–31.

- Nothofer, Bernd, 1975. *The reconstruction of Proto-Malayo-Javanic*. VKI 73. The Hague: Martinus Nijhoff.
- Olson, Clif, 1992. Gumawana (Amphlett Islands, Papua New Guinea): grammar sketch and texts. In M.D. Ross, ed. *Papers in Austronesian linguistics* No. 2, 251–430. Canberra: Pacific Linguistics.
- Osmond, Meredith, 2000. Proto Oceanic insects: the supernatural association. In S.R. Fischer and W. Sperlich, eds *Leo Pasifika: Proceedings of the Fourth International Conference on Oceanic Linguistics*, 283–302. Auckland: The Institute of Polynesian languages and Literatures.
- Osumi, Midori, 1995. *Tinrin grammar*. Oceanic Linguistics Special Publication No. 25. Honolulu: University of Hawai'i Press.
- Ozanne-Rivierre, Françoise, 1986. Redoublement expressif et dédoublement des séries consonantiques dans les langues des Iles Loyauté (Nouvelle-Calédonie). In Chris Corne and Andrew Pawley, eds *Le Coq et le cagou: essays on French and Pacific languages. In honour of Jim Hollyman*, 25–53. Auckland: Te Reo, Linguistic Society of New Zealand.
- 1992. The Proto-Oceanic consonantal system and the languages of New Caledonia. *Oceanic Linguistics*, 31:191–207.
- 1997. Spatial references in New Caledonian languages. In Gunter Senft, ed. *Referring to space: Studies in Austronesian and Papuan languages*, 83–100. Oxford: Clarendon.
- 1998. *Le nyelâyu de Balade (Nouvelle-Calédonie)*. SELAF 367. Paris: Peeters.
- 2004. Spatial deixis in Iaaï (Loyalty Islands). In Gunter Senft, ed. *Demonstratives and deixis in Oceanic languages*, 129–139. Canberra: Pacific Linguistics.
- Palmer, Bill, 1999. A grammar of the Kokota language, Santa Isabel, Solomon Islands. PhD dissertation, University of Sydney.
- 2001. Absolute spatial reference and the grammaticalisation of perceptually salient phenomena. In Giovanni Bennardo, ed., *Representing space in Oceania: Culture in language and mind*, 107–157. Canberra: Pacific Linguistics.
- Palmer, Bill and Paul Geraghty, eds, 2000. *SICOL: Proceedings of the Second International Conference on Oceanic Linguistics*. vol. 2, *Historical and descriptive studies*. Canberra: Pacific Linguistics.
- Parsonson, G.S., 1962. The settlement of Oceania: an examination of the accidental voyage theory. In J. Golson, ed. *Polynesian navigation: a symposium on Andrew Sharp's theory of accidental voyages* 11–63. Wellington and Sydney: A.H. and A.W. Reed for the Polynesian Society.
- Paton, W.F., 1973. *Ambrym (Lonwolwol) dictionary*. Canberra: Pacific Linguistics.
- Pavrides, C. and C. Gosden, 1994. 35,000-year old sites from in the rainforests of West New Britain, Papua New Guinea. *Antiquity*, 68: 604–610.
- Pawley, Andrew K., 1972. On the internal relationships of Eastern Oceanic languages. In R.C. Green and M. Kelly, eds *Studies in Oceanic culture history 3: Pacific Anthropological Records* 13, 1–142. Honolulu: Bernice P. Bishop Museum.
- 1973. Some problems in Proto Oceanic grammar. *Oceanic Linguistics*, 12:103–188.
- 1975. The relationships of the Austronesian languages of Central Papua. In T.E. Dutton, ed. *Studies in languages of central and south-east Papua*, 3–106. Canberra: Pacific Linguistics.

- 1981. Melanesian diversity and Polynesian homogeneity: a unified explanation. In J. Hollyman and A. Pawley, eds *Studies in Pacific languages and cultures in honour of Bruce Biggs*, 269–309. Auckland: Linguistic Society of New Zealand.
- 1982. The etymology of Samoan tāupōu. In Rainer Carle, Martina Heinschke, Peter W. Pink, Christel Rost, and Karen Stadlander, eds *Gava: Studies in Austronesian languages and cultures dedicated to Hans Kähler*. Berlin: Dietrich Reimer.
- 1985. Proto-Oceanic terms for ‘person’: a problem in semantic reconstruction. In Veneeta Z. Acson and Richard L. Leed, eds *For Gordon H. Fairbanks*. Oceanic Linguistics Special Publications No. 20. Honolulu: University of Hawai’i Press.
- 2003a. The Austronesian dispersal: languages, technologies and people. In P. Bellwood and C. Renfrew, eds, *Examining the Farming/Language Dispersals Hypothesis*, 251–274. Cambridge: McDonald Institute of Archaeological Research, Cambridge University.
- 2003b. Grammatical categories and grammaticisation in the Oceanic verb complex. In A. Riehl and M.T.C. Savella, eds *Proceedings of the Ninth Annual Meeting of the Austronesian Formal Linguistics Association*. Cornell Working Papers in Linguistics, vol. 19, 149–172. Ithaca NY. CLC Publications.
- n.d. Addendum to: Proto-Oceanic terms for ‘person’: a problem in semantic reconstruction, published in Acson and Leed, eds (1985). Unpublished MS. University of Hawai’i, Honolulu.
- Pawley, Andrew K. and Roger C. Green, 1973. Dating the dispersal of the Oceanic languages. *Oceanic Linguistics*, 12:1–67.
- 1984. The Proto-Oceanic language community. *Journal of Pacific History*, 19:123–146.
- 1985. The Proto-Oceanic language community. In Robert Kirk and Emöke Szathmary, eds *Out of Asia: peopling the Americas and the Pacific*, 161–184. Canberra: The Journal of Pacific History.
- 2005. The meaning(s) of Proto Oceanic *panua. In C. Gross, H.D. Lyons and D.A. Counts, eds *A Polymath Anthropologist: Essay in Honour of Ann Chowning*, 211–223. Auckland: Department of Anthropology and Linguistics, University of Auckland.
- Pawley, Andrew and Medina Pawley, 1994. Early Austronesian terms for canoe parts and seafaring. In A.K. Pawley and M.D. Ross, eds *Austronesian Terminologies: continuity and change*, 329–361. Canberra: Pacific Linguistics.
- Pawley, Andrew K. and Malcolm D. Ross, 1993. Austronesian historical linguistics and culture history. *Annual Review of Anthropology*, 22:425–459.
- 1995. The prehistory of Oceanic languages: a current view. In P. Bellwood, J. Fox and D. Tryon, eds *The Austronesians: historical and comparative perspectives*, 39–74. Canberra: Department of Anthropology, Research School of Pacific and Asian Studies, The Australian National University.
- Pawley, A.K. and M.D. Ross, eds, 1994. *Austronesian terminologies: continuity and change*. Canberra: Pacific Linguistics.
- Pawley, Andrew K. and Timoci Sayaba, forthcoming. *Words of Waya: an encyclopaedic dictionary of the Wayan dialect of the Western Fijian language*. Canberra: Pacific Linguistics.
- Peekel, Gerhard, 1930. Grammatische Grundzüge und Wörterverzeichnis der Label-Sprache. *Zeitschrift für Eingeborenen-Sprachen*, 20:10–34, 92–120.

- Post, Ursula, 1992. *Binukid dictionary*. Studies in Philippine Linguistics 9/2. Manila: Linguistic Society of the Philippines and Summer Institute of Linguistics.
- Pukui, Mary Kawena and Samuel Elbert, 1973. *Hawaiian dictionary*. Honolulu: University Press of Hawai'i.
- Rehg, Kenneth L. and Damian G. Sohl, 1979, *Ponapean-English dictionary*. Honolulu: University Press of Hawai'i.
- Reid, L. A., 1982. The demise of Proto-Philippines. In A. Halim, L. Carrington and S.A. Wurm, eds *Papers from the Third International Conference on Austronesian Linguistics*, vol. 2: *Tracking the travellers*, 201–216. Canberra: Pacific Linguistics.
- Rickard, R.H., 1888, *A Kuanua dictionary*, with additions by H. Fellman circa 1920 and W.L.I. Linggood in 1939. Revised and edited by L.H. Wright in 1964. Rabaul: Methodist Mission Press.
- Rinderknecht, Peter, 1987. *Nomen und Verb im melanesischen Tuna (Tolai)*. Europäische Hochschulschriften XXI/58. Bern: Peter Lang.
- Rivierre, Jean-Claude, 1994. *Dictionnaire cèmuhi-français*. Paris: Peeters.
- Ross, Malcolm D., 1982. The development of the verb phrase in the Oceanic languages of the Bougainville region. In A. Halim, L. Carrington and S.A. Wurm, eds *Papers from the Third International Conference on Austronesian Linguistics 1: Currents in Oceanic*, 1–52. Canberra: Pacific Linguistics.
- 1988. *Proto Oceanic and the Austronesian languages of western Melanesia*. Canberra: Pacific Linguistics.
- 1992. The sound of Proto-Austronesian: an outsider's view of the Formosan evidence. *Oceanic Linguistics*, 31:23–64.
- 1994. Central Papuan culture history: some lexical evidence. In A. Pawley and M. Ross, eds *Austronesian terminologies: continuity and change*, 389–479. Canberra: Pacific Linguistics.
- 1995a. Proto Oceanic terms for meteorological phenomena. *Oceanic Linguistics*, 34:261–304.
- 1995b. Some current issues in Austronesian linguistics. In D.T. Tryon, ed. *Comparative Austronesian dictionary* 1, 45–120. Berlin: Mouton de Gruyter.
- 1996a. Is Yapese Oceanic? In Bernd Nothofer, ed. *Reconstruction, Classification, Description. Festschrift in Honor of Isidore Dyen*, 121–166. Hamburg: Verlag Meyer & Co.
- 1996b. On the genetic affiliations of the Oceanic languages of Irian Jaya. *Oceanic Linguistics*, 35:259–271.
- 1996c. Reconstructing food plant terms and associated terminologies in Proto Oceanic. In John Lynch and Fa'afu Pat, eds *Oceanic studies: proceedings of the First International Conference on Oceanic Linguistics*, 163–221. Canberra: Pacific Linguistics.
- 1996d. Pottery terms in Proto Oceanic. In J. Davidson, G. Irwin, F. Leach, A. Pawley and D. Brown, eds *Oceanic culture history: essays in honour of Roger Green*, 67–82. Dunedin North: New Zealand Journal of Archaeology.
- 1998a. Proto-Oceanic adjectival categories and their morphosyntax. *Oceanic Linguistics*, 37:85–119.
- 1998b. Possessive-like attribute constructions in the Oceanic languages of northwest Melanesia. *Oceanic Linguistics*, 38:234–276.

- 2000. Proto Oceanic adjectival morphology: the suffix **-[k]a*. In S. Fischer and W. Sperlich, eds *Leo Pasifika: Proceedings of the Fourth International Conference on Oceanic Linguistics*, 326–342. Auckland: The Institute of Polynesian Languages and Literatures.
- 2001a. Is there an East Papuan phylum? In A. Pawley, M. Ross and D. Tryon, eds *The boy from Bundaberg: essays in Melanesian linguistics in honour of Tom Dutton*, 301–321. Canberra: Pacific Linguistics.
- 2001b. Proto Oceanic **i*, **qi* and **ki*. In J. Bradshaw and K. Rehg, eds *Studies in Austronesian morphology in honour of Byron W. Bender*. Canberra: Pacific Linguistics.
- 2001c. Summary: terms for ‘yesterday’ and ‘tomorrow’. *Linguist List*, 12–1795. (<http://www.linguistlist.org>).
- 2002a. Bali-Vitu. In J. Lynch, M. Ross and T. Crowley, eds *The Oceanic languages*, 362–386. Richmond: Curzon Press.
- 2002b. Mussau. In J. Lynch, M. Ross and T. Crowley, eds *The Oceanic languages*, 148–166. Richmond: Curzon Press.
- 2002c. Siar. In J. Lynch, M. Ross and T. Crowley, eds *The Oceanic languages*, 410–425. Richmond: Curzon Press.
- Ross, Malcolm D. (adapted by), 2002d. Jabêm. In J. Lynch, M. Ross and T. Crowley, eds *The Oceanic languages*, 270–296. Richmond: Curzon Press.
- 2002e. Kairiru. In J. Lynch, M. Ross and T. Crowley, eds *The Oceanic languages*, 204–215. Richmond: Curzon Press.
- 2002f. Kele. In J. Lynch, M. Ross and T. Crowley, eds *The Oceanic languages*, 123–147. Richmond: Curzon Press.
- 2003. The grammaticisation of directional verbs in Oceanic languages. In Isabelle Bril and Françoise Ozanne-Rivierre, eds *Complex predicates in Oceanic languages: Studies in the dynamics of binding and boundness*, 297–330. Berlin: Mouton de Gruyter.
- 2004. Demonstratives, local nouns and directionals in Oceanic languages: a diachronic perspective. In Gunter Senft, ed. *Deixis and demonstratives in Oceanic languages*, 175–204. Canberra: Pacific Linguistics.
- 2005. Pronouns as a preliminary diagnostic for grouping Papuan languages. In A. Pawley, R. Attenborough, R. Hide and J. Golson, eds *Papuan pasts: investigations into the cultural, linguistic and biological history of the Papuan-speaking peoples*.
- Ross, Malcolm, Andrew Pawley and Meredith Osmond, eds, 1998. *The lexicon of Proto Oceanic*. vol.1. *Material culture*. Canberra: Pacific Linguistics.
- Sabatier, E. (translated Sister Oliva), 1971, *Gilbertese-English dictionary*. Sydney: South Pacific Commission Publications Bureau.
- Schütz, Albert J., 1985. *The Fijian language*. Honolulu: University of Hawai’i Press.
- 1969. *Nguna grammar*. Oceanic Linguistics Special Publication No. 5. Honolulu: University of Hawai’i Press.
- Senft, Gunter, 1986. *Kilivila: the language of the Trobriand islanders*. Berlin: Mouton de Gruyter.
- Senft, Gunter, ed., 2004. *Deixis and demonstratives in Oceanic languages*. Canberra: Pacific Linguistics.

- Smits, L. and C.L. Voorhoeve, eds, 1992. *The J.C. Anceaux collection of wordlists of Irian Jaya languages. A: Austronesian languages*. Jayapura and Leiden: Irian Jaya Study Centre, Indonesia, and Leiden University.
- Sneddon, J.N., 1978. *Proto-Minahasan: phonology, morphology and wordlist*. Canberra: Pacific Linguistics.
- 1984. *Proto-Sangiric and the Sangiric languages*, Canberra: Pacific Linguistics.
- Sohn, Ho-min, 1975. *Woleaian reference grammar*. Honolulu: University Press of Hawai'i.
- Sohn, Ho-min and Anthony F. Tawerilmang, 1976, *Woleaian-English dictionary*. Honolulu: University Press of Hawai'i.
- Specht, J. and C. Gosden, 1997. Dating Lapita pottery in the Bismarck Archipelago, Papua New Guinea. *Asian Perspectives*, 36:175–189.
- Sperlich, Wolfgang B., 1997. *Niue language dictionary*. Honolulu: University Press of Hawai'i.
- Spriggs, Matthew, 1996. What is Southeast Asian about Lapita? In T. Akazawa and E.J.E. Szathmáry, eds *Prehistoric Mongoloid Dispersals*, 324–348. Oxford, New York, Tokyo: OUP.
- 1997. *The Island Melanesians*. Oxford: Blackwell.
- Sterner, Joyce and Malcolm Ross, 2002. Sobei. In J. Lynch, M. Ross and T. Crowley, eds *The Oceanic languages*, 167–184. Richmond: Curzon Press.
- Stimson, J. Frank, 1928. Tahitian names for nights of the moon. *Journal of the Polynesian Society*, 37: 326–337.
- Streicher, J.F., 1982. *Jabêm-English dictionary*. Canberra: Pacific Linguistics.
- Summerhayes, Glenn, 2000a. Lapita interaction, 15. *Terra Australis*. Canberra: Archaeology and Natural History Publications and the Centre for Archaeological Research, The Australian National University.
- 2000b. Recent archaeological investigations in the Bismarck Archipelago, Anir–New Ireland Province, Papua New Guinea. In *Indo-Pacific Prehistory Association Bulletin* 19, 167–174.
- 2001. Lapita in the far west: recent developments. *Archaeology in Oceania*, 36:53–63.
- Tauberschmidt, Gerhard, 1999. *A grammar of Sinaugoro: an Austronesian language of the Central Province of Papua New Guinea*. Canberra: Pacific Linguistics.
- Terrell, John, 1986. *Prehistory in the Pacific Islands: a study of variation in language, customs and human biology*. Cambridge: Cambridge University Press.
- Terrell, John Edward, Terry L. Hunt and Joel Bradshaw, 2002. On the location of the Proto-Oceanic homeland. *Pacific Studies* 25(3):57–93.
- Terrell, J.E., K. Kelly and P. Rainbird, 2001. Foregone conclusions? In search of “Papuan” and “Austronesians”. *Current Anthropology*, 42:97–107, 118–124.
- Terrell, John and Robert Welsch, 1997. Lapita and the temporal geography of prehistory. *Antiquity*, 71: 548–572.
- Thomas, Stephen D., 1987. *The last navigator*. New York: Ballantine Books.
- Thurston, William, 1987. *Processes of change in the languages of North-western New Britain*. Canberra: Pacific Linguistics.

- 1994. Renovation and innovation in the languages of north-western New Britain. In T. Dutton and D. Tryon, eds *Language contact and change in the Austronesian world*. Berlin: Mouton de Gruyter.
- Torrence, Robin and Christopher M. Stevenson, 2000. Beyond the beach: changing landscapes on Garua Island, Papua New Guinea. In A. Anderson and T. Murray, eds *Australian archaeologist: collected papers in honour of Jim Allen*, 324–340.
- Tregear, Edward, n.d. [1891]. *The Maori–Polynesian comparative dictionary*. Christchurch: Whitcombe and Tombs.
- Tryon, D.T., 1976. *New Hebrides languages: an internal classification*. Canberra: Pacific Linguistics.
- Tryon, D.T. and B.D. Hackman, 1983. *Solomon Islands languages: an internal classification*. Canberra: Pacific Linguistics.
- Tryon, D.T., ed., 1995. *Comparative Austronesian dictionary*. Berlin: Mouton de Gruyter.
- Tsuchida, S., 1976. *Reconstruction of Proto-Tsouic phonology*. Study of languages and cultures of Asia and Africa. Monograph Series 5. Tokyo: Institute for the Study of Language and Culture in Asia and Africa.
- Ulan, Robert, 1978. Size-sound symbolism. In Joseph H. Greenberg, ed. *Universals of human language 2: Phonology*, 525–568. Stanford: Stanford University Press.
- Vanoverbergh, Morice, 1972. *Isneg-English dictionary*. Oceanic Linguistics Special Publication No. 11. Honolulu: University Press of Hawai'i.
- Volker, Craig, 1998. *The Nalik language of New Ireland, Papua New Guinea*. New York: Peter Lang.
- Walsh, D.S. and Bruce Biggs, 1966. *Proto-Polynesian word list 1*. Te Reo Monographs. Auckland: Linguistic Society of New Zealand.
- Walter, Richard, 1989. Lapita fishing strategies: a review of the archaeological and linguistic evidence. *Pacific Studies*, 13:127–149.
- Waterhouse, J.H.L., 1949. *Roviana and English dictionary*. Revised and enlarged by L.M. Jones. Sydney: Epworth.
- White, Geoffrey M., Francis Kokhonigita and Hugo Pulomana, 1988. *Cheke Holo (Maringe/Hograno) dictionary*. Canberra: Pacific Linguistics.
- White, J. Peter, 1996. Rocks in the head. Thinking about the distribution of obsidian in New Oceania. In J. Davidson, G. Irwin, F. Leach, A. Pawley and D. Brown, eds *Oceanic culture history: Essays in honour of Roger Green*, 199–209. Wellington: New Zealand Archaeological Association.
- Whorf, Benjamin Lee, 1956. *Language, thought, and reality: selected writings of Benjamin Lee Whorf*. Cambridge MA: MIT Press.
- Williams, H.W., 1928. The nights of the moon. *Journal of the Polynesian Society*, 37:338–356.
- 1975, *A dictionary of the Maori language*. Wellington: Government Printer.
- Wivell, Richard, 1981. Kairiru grammar. MA Thesis, University of Auckland.
- Wolff, John U., 1972. *A dictionary of Cebuano Visayan*. Ithaca: Southeast Asia Program, Dept. of Asian Studies, Cornell University.
- Yen, Douglas E., 1973. The origins of Oceanic agriculture. *Archaeology and Physical Anthropology in Oceania*, 8:68–85.

- 1991. Domestication: the lessons from New Guinea. In A. Pawley, ed. *Man and a half: essays in Pacific anthropology and ethnobiology in honour of Ralph Bulmer*, 558–569. Auckland: Polynesian Society.
- Zahn, Heinrich, 1940. *Lehrbuch der Jabêmsprache (Deutsch-Neuguinea)*. Beihefte zur Zeitschrift für Eingeborenen-Sprachen 21.
- Zeitoun, Elizabeth and Lillian M. Huang, 2000. Concerning *ka-*, an overlooked marker of verbal derivation in Formosan languages. *Oceanic Linguistics*, 39:391–414.
- Zorc, R.D.P., 1977. *The Bisayan dialects of the Philippines: subgrouping and reconstruction*. Canberra: Pacific Linguistics.
- 1986. The genetic relationships of Philippine languages. In P. Geraghty, L. Carrington and S.A. Wurm, eds *Focal II: Papers from the Fourth International Conference on Austronesian Linguistics*, 147–173. Canberra: Pacific Linguistics.
- 1994. Austronesian culture history through reconstructed vocabulary (an overview). In A. Pawley and M. Ross, eds *Austronesian terminologies: continuity and change*, 541–594. Canberra: Pacific Linguistics.

Index

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*

r is followed by *R*

Parentheses and hyphens are ignored in alphabetisation. When a reconstruction contains parenthesised alternants, for example **(b,p)ulit*, only the first alternant is counted for alphabetisation purposes.

Proto Austronesian (PAn)

- **aCas* ‘high, tall’ 242
- **aRi* ‘come on’ 280
- **baqeRuh* ‘new’ 210
- **baRiuS* ‘typhoon’ 87, 128, 153
- **batu* ‘stone’ 63
- **besuR* ‘satisfied from having eaten enough, satiated’ 224
- **bituqen* ‘star’ 166
- **bujeq* ‘foam, bubbles, lather, scum, froth’ 102
- **bulaN* ‘moon, month, menstruation’ 164, 315
- **Cebuj* ‘spring of water’ 60
- **CuqaS* ‘mature, elder’ 211
- **danaw* ‘inland lake, pond’ 56
- **daNum* ‘water — potable, drinking, fresh’ 98
- **daqaNi* ‘day’ 161, 309
- **daReq* ‘soil, clay’ 70
- **diki[t,q]* ‘little, few, small in amount’ 200
- **ijan* ‘when?’ 335
- **kuSa* ‘go’ 284
- **ma-dalis* ‘smooth, slippery’ 218
- **[ma]dalit* ‘smooth, slippery’ 218
- **[ma]Lipis* ‘thin’ 209
- **ma-qaCi* ‘ebb, of water in streams; low tide’ 103
- **ma-qañud* ‘adrift’ 97
- **maCa* ‘eye’ 259
- **maRi*, **mai* ‘come’ 280, 281
- **Nabek* ‘breakers, surf, waves’ 99
- **pu+put* ‘blow’ 131
- **qabu* ‘ash, cinders, powder’ 75
- **qadap* ‘front, face’ 256
- **qajaw* ‘sun, daylight’ 309
- **qalejaw* ‘sun, daylight’ 309

**qaluR* (?) (V) 'flow' 98
**qapuR* 'lime, calcium' 65
**qasiN* 'salt' 70
**qasiRa* 'salt' 70
**qenay* 'sand' 67
**quCaN* 'scrubland, bush' 54, 238
**qulu* 'head' 253
**quZaL* 'rain' 146
**Rabi* 'evening' 313
**Rumaq* 'dwelling house' 241
**SabaRat* 'south wind (?)' 133
**Sapuy* 'fire' 72

Proto Malayo-Polynesian (PMP)

**abus* 'ashes' 75
**aliten* '1. firebrand. 2. unconsumed wood in a fire. 3. charred wood' 72
**aluten* '1. firebrand. 2. unconsumed wood in a fire. 3. charred wood' 72
**apij* 'twins' 6
**ba(ŋ)kas* 'swift, strong, energetic, fast' 222
**babaq* 'lower surface, bottom, underside' 249, 251
**babaw* 'upper surface, top; above; highlands' 252
**bahaq* 'a flood; overflow, be in flood' 86
**balaŋ* 'side, part' 254
**baliw* 'moiety; answer; oppose; partner, friend, enemy; opposite side or part' 255
**banua* 'inhabited territory, where a community lives' 40
**baRah* 'live coal' 73
**belaj* 'spread out to dry' 207
**beRŋi* 'night' 305
**besuR* 'satiated' 223
**bilak* 'lightning' 149
**biRiŋ* 'dark hue, dark red (?)' 217
**budaq* 'foam, bubbles, lather, scum, froth' 61
**bujeq* 'foam, bubbles, lather, scum, froth' 101
**buku* 'node (as in bamboo or sugarcane); joint; knuckle; knot in wood; knot in string or rope' 51
**bulan* 'moon, month; menstruation' 164, 315
**bulan* 'white' 217
**buluq* 'a constellation, the Pleiades' 171
**burit* 'hind part, rear, back' 262, 323
**busa* 'foam' 101
**buŋa* 'flower, blossom' 108
**buŋa ni batu* 'coral sponge' 108
**da(m)paD* 'flat, level' 218
**Daləm* 'inside' 246
**dani* 'be near' 206, 207
**dapuR* 'hearth, fireplace' 75
**dem-dem* 'be dark' 308
**diŋin* 'cold' 225
**(d,r)apu* 'still, calm, quiet' 141
**duŋduŋ* 'sheltered as from wind, rain or sun' 46
**guruq* 'noise, tumult' 151
**habaRat* 'southwest monsoon season, wet season' 135
**habaRat* 'west monsoon' 133, 269
**haŋin* 'air, wind' 126
**i-pu(h)a-n* 'day after tomorrow, day before yesterday' 330
**ibut* 'breeze, draught of wind' 130
**ijunŋ* 'nose' 48
**kəbul* 'smoke' 79
**kabut* 'mist' 145
**kamaliR* 'men's house' 15
**kila(p,b)* 'flash, sparkle' 151
**la(ŋ)kas* 'spirited, energetic' 222
**lahud* 'downriver, towards the sea' 95, 137, 239
**lajay* 'coral' 107
**lako* 'go' 287
**lamuR* 'dew' 149
**lawa* 'wide, long' 203, 204
**laŋit* 'sky' 142, 157

- *lebleb (v) 'flood' 87
- *likuD '(person's back) 46, 256
- *linaw 'be clear' 140
- *liway 'open space' 244
- *lubuk 'deep pool in water' 106
- *luten 'firewood' 72
- *ma-dani 'be near' 207
- *ma-edem 'be dark' 308
- *ma-iRaq 'red' 213
- *maja 'be dry' 105, 226
- *[ma-]kumba 'thick (in dimension)' 208
- *[ma]laykaw 'high, tall' 204
- *[ma]lumu 'soft, tender, gentle' 222
- *maN-qinit 'hot, warm' 225
- *mantalaq 'the morning (evening) star: Venus' 167
- *manuk 'bird' 168
- *[ma]panas 'be/become warm, hot (of fire, sun, fever, water)' 224
- *ma-putiq 'white, light in colour' 213
- *ma-qasin 'salty' 70
- *[ma]qitem 'black, deep blue' 213
- *[ma]RaqaN 'light in weight' 221
- *[ma]Rajaw 'dry' 227
- *mata WahiR 'spring of water' 62
- *ma-udehi 'be last; be after or behind; be late, be later; future' 261, 322
- *ma-Zauq 'far away' 206
- *namaw 'sheltered water: deep place in a river; cove, harbour, lagoon' 114
- *ninih 'shake, tremble, rock' 84
- *nusa 'island' 42
- *ñeRab 'yesterday' 325, 331
- *pai 'where?' 264
- *paja 'swamp' 56
- *panaw 'go away, depart, leave on a journey' 290
- *paRih 'stingray' 173
- *pitak 'mud' 57
- *ponuq 'full' 223
- *punay 'source, origin' 61
- *puqun 'beginning, cause, origin, source, basis' 251
- *putput 'puff, blow suddenly and hard' 131
- *qajaw 'sun, daylight' 160
- *qalejaw 'sun, daylight' 160
- *qalun 'long rolling wave, swell, billow' 99
- *qaRus (N) 'current' 96
- *qasu 'smoke' 78
- *qatuR (v) 'pave with stones; pile or stack up, arrange, order, put in sequence' 43
- *qembus 'snort, pant' 130
- *qenay qenay 'sandy' 68
- *qitik 'small, little; few' 199
- *qusilak 'lightning' 149
- *qutan 'small wild herbaceous plants; scrubland, bush' 54, 238
- *quZan 'rain' 146
- *Rabi 'evening' 331
- *Ra(m)bun 'haze' 144
- *rendeŋ 'wet season' 143
- *Ruab 'high tide' 105–106
- *sabuq 'drop, fall' 62
- *Sa-dani 'be near' 207
- *sakaRu 'reef, shoal' 110
- *saliR 'flow' 98
- *sa(ŋ)kay 'catch a ride, ride on something' 181
- *sawaq 'channel' 116
- *sidiŋ 'border on, neighbor; peer, equal' 255
- *silak 'beam of light' 149
- *sinaR 'ray of light' 163, 310
- *surup 'enter, penetrate' 272
- *(t)ala(q) 'star' 167
- *talun 'fallow land' 55
- *taneq 'earth, land' 41, 241
- *taqun 'period of a year' 319
- *tasik 'sea' 92, 240
- *tebuR 'spring of water' 60
- *tekas 'come to rest in a place' 137
- *timuR 'south or east wind' 43, 135
- *tinaqi 'small intestine' 248
- *tipis 'thin' 209

- **tubuR* ‘spring of water’ 60
- **udehi* ‘that which is behind, that which is last, that which is after or in the future’ 261
- **ujun* ‘nose’ 48
- **uRin* ‘charcoal, wood that is charred (but no longer burning fiercely)’ 74
- **utus* ‘break under tension’ 42
- **uyun* ‘shake; earthquake’ 84
- **wahiR* ‘fresh water; stream, river’ 58
- **wahir* bahaq ‘floodwaters’ 86
- **waRej* ‘vine, creeper, rope’ 55
- **Zauq* ‘far away’ 205

**Proto Western Malayo-Polynesian
(PWMP)**

- **abuR*, **apuk*, **qabug* ‘dust’ 75

Proto Oceanic (POc)

- **alito(n)* (N) ‘firebrand, piece of burning wood’ 72
- **ajin* ‘wind’ 126
- **apaRat* ‘northwest wind; wet season when northwesterlies blow and sea is rough’ 133, 140, 269
- **apaRat* ‘wet season when northwesterlies blow and sea is rough’ 87, 318
- **api* ‘fire’ 72
- **apic* ‘twins’ 6
- **aqura* ‘wind, possibly southeast trade’ 139
- **atas* ‘top, space above’ 235, 242, 277
- **baban* ‘flat; board, plank; canoe strake; flat shelf of rock’ 114, 218, 254
- **bala* ‘k.o. cloud’ 144
- **bala* ‘move downward (?)’ 273
- **bali* ‘one of two (opposing) sides or parts’ 255
- **banoi* ‘volcano; matter emitted from volcano’ 81

- **bapan* ‘plank; canoe plank or strake’ 254
- **baRa* ‘fence’ 158
- **bata* ‘raindrop (?)’, rain cloud (?)’ 148
- **bayau* ‘ocean wave, ocean swell’ 100
- **[biRi]biRin* ‘dark hue, dirty’ 217
- **biRin-(k)a* ‘dark hue, dirty’ 217
- **botoŋ* ‘short’ 205
- **boŋi* ‘night, day of twenty-four hours’ 300, 305, 327
- **boŋi* ‘be/become night’ 307
- **boŋi rua* ‘two days’ 334
- **boŋi-boŋi* ‘early morning from dawn to 9 or 10 a.m.’ 310, 329
- **buku* ‘tie (a knot); fasten’ 5
- **buku* ‘mound, knob, joint’ 51
- **bula* ‘? burn, be alight’ 77
- **bulu(q)* ‘Pleiades’ 171
- **buluk* ‘be wet, soaked, waterlogged’ 226
- **buna(ŋ)* ‘spring of water’ 61
- **burit* ‘be behind, be after; back part, rear, behind, space to the rear of, time after; (canoe) stern’ 262, 323
- **busa* ‘foam, froth’ 101
- **buso* ‘foam, froth’ 101
- **buŋa* ‘smooth round coral’ 108
- **b^wal(o,a)k* ‘belly, hollow space’ 248
- **b^wa(p)o* ‘misty rain (?)’ 145
- **b^(w)arapu* ‘long, tall’ 202, 203
- **b^(w)iker* ‘beach, esp. sandy beach’ 44
- **[dr,r]ano* ‘lake, swamp’ 56
- **[dr,r]anum* ‘fresh water’ 59
- **[dr,r]aqā* (N) ‘sun’s heat, sunlight’ 162
- **draRaq* ‘blood’ 216
- **drike-drike* ‘earthquake’ 83
- **drik(i(t,q))* ‘small’ 200
- **d(r)im(a)-d(r)im(a)* ‘drizzle, light rain’ 148
- **gab^wari-* ‘the area underneath a raised house’ 250
- **gapu(l)* ‘mist’ 146
- **garani* ‘be near’ 207
- **giri-giri* ‘coral, coral rubble’ 65

- *[g,k]opu 'pond, lagoon, swamp' 57
 *goRu 'dry, of vegetation; coconut growth stage 8: dry and ready to fall' 228
 *guru 'thunder, make loud noise' 151
 *guru-ŋ(a), *gururu-ŋ(a), *gururu-aŋ 'thunder' 151–152
 *gururu 'thunder, make loud noise' 151
 *i boŋi-boŋi 'in the morning' 329
 *ibu 'half coconut shell used as a drinking cup' 129
 *ican 'when?' 335
 *(i,u)cuy 'nose; cape' 48
 *ikuR 'tail' 177
 *i muri 'behind, later' 261
 *[i] ŋaican 'when?' 335
 *i nusa 'at (our) island' 42
 *ipu 'blow' 129
 *i Rapi 'in the evening' 328
 *i tanoq 'down there' 237
 *ipu '(wind) blow' 130
 *ip^(w)i '(wind, person) blow' 130
 *[i] waRisa 'two days from today' 332
 *jaŋi (N) 'strong wind; ? (V) 'be windy' 127
 *(k,g)abu (V) 'burn, be on fire' 76
 *[ka]dapuR 'rain, rain cloud' 147
 *ka(l,r)ab^{wa} 'new' 211
 *kapuru 'low-burning remnants of a fire' 74
 *kapu(t) 'low cloud, mist, fog' 145
 *karak(a) '(strong?) southeast trade' 138
 *karaŋi 'be near' 207
 *ka-(r,R)aŋo 'be dry; be low tide' 228
 *keja-ka 'green' 217
 *[keja]keja 'green' 217
 *kiki 'small' 201
 *kilap 'flash, sparkle' 151
 *kiti 'tie, bind' 5
 *kobul(u) 'smoke' 79
 *kodos 'go straight; straighten' 219
 *kopu 'low cloud, mist, fog' 145
 *koran (N) '? embers, glowing coals' 73
 *koro 'mountain, hill' 50
 *kuba 'thick (in dimension)' 208
 *kupu(k) (V) 'emit smoke or steam' 78
 *kuru 'thunder' 151
 *kururu 'thunder' 151
 *laga(s) 'spirited, energetic' 222
 *laje 'coral, branching coral' 65, 107
 *laka 'up above' 235, 243
 *lako, *la (V) 'go (to)' 287
 *lalo-, *lo-, *la- (N LOC) 'inside' 115, 235, 246, 289
 *lalom 'inside' 246
 *laman 'deep sea beyond the reef' 94, 239
 *lamuR 'dew' 149
 *lap^(w)a(r,R) 'lightning, phosphorescence' 150
 *lapuat 'big, important' 197–198
 *laur 'sea, seawards' 95, 235, 239
 *laŋit 'sky, weather' 142, 243
 *laŋit 'up above' 142, 235
 *la-tuqu 'tomorrow' 331
 *liki 'small' 200
 *liku(r) 'person's back' 46, 256
 *liwa-/liwaŋa- 'open space, space between, middle' 244
 *liwaŋ 'open space, space between, middle' 244
 *loka (N) 'high sea or tide, heavy breakers' 100
 *lolo (V) 'flood' 87
 *lomak (N,V) 'flood, of sea' 87, 106
 *loto- 'space within a concave object' 115, 248
 *loŋa 'inland' 239
 *lua 'outside' 244
 *lubu(k) 'high tide; deep water' 106
 *luku- 'side, outside' 256
 *ma 'come' 267
 *ma-dala 'the morning star' 167
 *madrali(s,t) 'smooth, slippery' 218
 *[ma-[d]]rapu 'still, calm, windless' 95, 141
 *madri(d)riŋ '(s.o.) become cold' 225
 *maga 'stone; slingshot' 64

- *maga-maga* ‘small stones, pebbles, gravel’ 64
**mai* ‘come’ 268, 287
**mai*, **ma* ‘come’ 281, 283
**[ma]karawa* ‘green, blue’ 213
**makaridriŋ* ‘(s.o.) cold’ 225
**[ma]koto* ‘straight’ 219
**mala* ‘valley, ravine’ 52
**[ma]lago* ‘long, tall’ 202, 204
**malaso* ‘be cold’ 226
**[ma]lawa* ‘long, tall’ 202, 204–205
**malino* ‘calm’ 95, 140
**mal(i,e)u* ‘wind’ 87, 128
**ma-luas* ‘soft’ 141, 223
**[ma]lumu* ‘soft, gentle, easy’ 222
**[ma]maca* (V) ‘dry up, evaporate, be empty of liquid’ 104–105, 226
**mamat* ‘heavy’ 221
**manipis* ‘thin’ 209
**manuk* ‘bird, Bird constellation’ 168
**maŋini(t)* ‘become hot, warm (?)’ 225
**[ma]panas* ‘warm, hot’ 224
**mapat* ‘heavy’ 221
**ma-pua* ‘tomorrow’ 330
**maputi(q)* ‘white’ 213
**maqañur* ‘float, be afloat or drifting’ 66, 97
**maqasin* (V) ‘be salty’ 70, 196
**maqati* (N) ‘low tide; dry reef’ 103
**maqeto(m)* ‘black’ 213
**[ma](r,R)aŋo* ‘wither, dry up’ 227
**[ma]Raqaŋ* ‘light in weight’ 221
**ma-raqani* ‘become light’ 330
**ma-raqani* ‘tomorrow’ 331
**marau* ‘southeast trade wind’ 139
**ma-ri(d)ri(ŋ)* ‘(s.o.) cold’ 225
**marom* ‘be dark’ 308
**ma-sauq* (V) ‘be far away’ 206
**masawa(n,ŋ)* ‘open sea’ 93
**mata* ‘eye’ 62, 171, 175
**mata (qi/ni) sawa(n,ŋ)* ‘channel in fringing reef giving passage to boats; landing place’ 117
**mata waiR* ‘spring of water, source of a river’ 62
**mata* ‘edge’ 113
**mata[-]* ‘eye; face; front’ 254, 259
**mataq* ‘raw’ 196
**ma-tipi(s)* ‘thin’ 209
**ma-tolu* ‘thick’ 208
**[ma]tuqa* ‘ripe, mature, adult, old’ 193, 211
**matuqu* ‘coconut growth stage: ripe, brown but has not fallen yet’ 211
**[ma]uRua(p)* ‘flood, be flooded’ 86, 106
**maya* ‘tongue’ 79
**meRaq* ‘red’ 213, 216
**motus* (N) ‘island, detached reef; (V) become, be broken off, severed’ 42
**muqa-* ‘front’ 257, 322
**muqa[-]* ‘time before’ 257
**muri[-]* ‘back part, rear’ 261, 322
**mur[i,e]* (N) ‘breeze’ 127
**m^waloq* ‘submerged rock or coral reef, coral head’ 113
**m^wane-wane* ‘straight, direct; flat, level’ 220
**m^waqane* ‘man, male’ 173
**m^(w)ata* ‘point, blade, cutting-edge (of a weapon or instrument)’ 49
**na-boŋi* ‘yesterday’ 327
**na[d,dr]i* ‘flint, obsidian, stone with a cutting edge’ 64
**nako[-]* ‘face, front’ 259
**namo* ‘lagoon inside a reef; deep pool or hole in reef’ 114
**na-ñoRap* ‘yesterday’ 326
**napo(k)* ‘breaking wave; surf’ 99
**na-Rapi* ‘yesterday’ 328
**natu-ña* ‘her/his child; small, smallest’ 201
**[ni]nir* (V) ‘shake, quake’ 84
**niwaRop* ‘(weather) calm, peaceful’ 141
**nuku* ‘sandy ground, sand bank, sand spit’ 45, 67, 114

- *nusa* ‘island’ 42
**ñoRap* ‘yesterday’ 325
**ñoro* ‘flood, gush, flow everywhere’ 87
**ñalu(n)* ‘mounting wave, ocean wave’ 99
**η-ιu(η)* (V) ‘shake, quake’ 84
**ηoro-ηorok* ‘nose, cape’ 48
**ηorok* ‘snore’ 48
**oda* ‘reef’ 110–111
**pa* ‘go away; move in a transverse direction’ 291
**pai*, **i pai* ‘where at?’ 264
**pa(a)q* ‘overflow, flood’ 86
**pak qi Rumaq* ‘underneath of house’ 249
**paka(s)* ‘have strength, energy’ 222
**pani* (V) ‘give’ 285, 292
**pano* ‘go away; move in a transverse direction’ 290–292
**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 and the day/night cycle) the visible world, land and sky’ 40, 305
**papa-*, **pa-*, **papak*, **pak* ‘underneath, lower surface, bottom, underside’ 249
**[pa]pat* ‘heavy’ 220
**papo[-]* ‘upper surface, top’ 252
**paqoRu* ‘new; young, recent’ 196, 210
**paqu(s)*, **paqus-i-* ‘bind, lash; construct (canoe+) by lashing together’ 5
**para-η(a)* ‘thunder’ 152
**pa-raŋi*, **paka-raŋi* ‘be near’ 207
**paRiu* ‘cyclone’ 87, 128
**patu* ‘stone, rock’ 63
**paŋa* ‘be open, gape’ 47
**paŋ-oda* ‘gather shellfish and other seafood on the reef’ 111
**piro* ‘twist together’ 88
**piru-piru* ‘whirlwind, waterspout’ 88
**pisi* ‘bind up, tie up, wind round, wrap’ 5
**pitik* ‘lightning’ 150
**pituqun* ‘star’ 166
**poju* ‘full’ 224
**polas*, **polas-i-* ‘spread (s.t.) out’ 208
**ponuq* ‘full’ 107, 223
**poŋa-poŋa* ‘swamp, mud’ 57
**puko* (N, V) ‘morning’ 311, 330
**pulan* ‘moon, month’ 164, 315
**pulan paqoRu* ‘new moon, young moon’ 317
**[pula]pula-n* ‘white’ 217
**puŋa-puŋa* ‘mountain’ 50
**puŋu* ‘full’ 224
**(pu)put* ‘(wind) blow’ 131
**puqu-*, *puqun* ‘base, foundation’ 251
**pura(q)* (V) ‘bubble up, as spring of water’ 61
**pura-pura(q)* (V) ‘bubble up, as spring of water’ 61
**puro* ‘bubble up, boil, as hot spring’ 61, 83
**puruŋ*, **puru-puruŋ* ‘? glow or flame of fire’ 79
**puso* ‘foam, froth, slime’ 102
**p^waca* ‘swamp’ 56
**p^waka(r,R)* ‘steep rocky ground, cliff’ 53
**p^wala(η)* ‘side, part’ 254
**[p^wa]p^waRa[-]* ‘side; cheek’ 235, 254
**p^waraq* ‘thunder’ 152
**p^wararaq* ‘thunder’ 152
**p^wati* ‘come’ 283
**p^way(a)* ‘soil, earth’ 68
**p^(w)ilak* ‘lightning’ 149
**p^wiRa* ‘earth’ 69
**p^wita* ‘tie by encircling’ 5
**p^(w)ita(k)* ‘mud’ 57
**p^wotu* ‘protuberance, bulge’ 51
**p^(w)usi* ‘(wind) blow’ 130
**qaco* ‘sun, daytime’ 160, 167, 309
**qaliR* ‘drift, float’ 66, 98
**qaliR/*saliR* ‘to flow, drift, float’ 96
**[qa]na-ŋaican* ‘when (past)’ 336
**[qa]na-ŋican* ‘when (past)’ 336

- *[qa-]na-waRisa* ‘day before yesterday’ 333
**qapu* ‘ashes, dust’ 75, 81
**qapu(R)* ‘lime, burnt coral or limestone’ 65
**qaro-*, **qarop* ‘front; face’ 256
**qarop qi qaqe*, ‘sole (front) of foot’ 257
**qaRoq* ‘cloud (generic)’ 143
**qaRus* (N) ‘current’ 96
**qasiRa* ‘salt’ 71
**qasu* ‘smoke’ 78
**qatu(R)* (N) ‘?number of things in a line, row’ 43
**qitek* ‘small’ 196, 199
**qitik* ‘small’ 196, 199
**qone* ‘sand, sandy beach’ 67
**qone qone* ‘sand, sandy’ 68
**qu(s,j)ila(k)* ‘lightning’ 149
**qulu* ‘head’ 52, 253
**qulu[-]*, ‘top’ 235, 253
**qusan* (N, V) ‘rain’ 146
**qutan* ‘bushland, hinterland’ 54, 238
**qutan* ‘inland’ 55, 235, 237
**raba(r)* ‘flat, wide, broad’ 203, 218
**raki* ‘dry season when the southeast trades blow’ 318
**raki* ‘southeast trades’ 132, 139, 269
**Rapi*, **Rapi-Rapi* (N, V) ‘late afternoon and evening, from about 3 p.m. to sunset’ 313, 331
**rapu-ka* ‘old (of inanimates)’ 193, 212
**Rapu(n)* ‘haze, mist’ 144
**rapu(R)* ‘1. ashes, 2. fireplace, hearth’ 75
**raqani* ‘daytime, daylight’ 161, 309, 321, 324
**raraj* (VI) ‘be warm, hot, of sun; be warmed or heated by fire or sun’ 163
**raRo(q)* ‘clay; cooking pot’ 70
**rau(n)* ‘flat land’ 54
**raun* ‘leaf’ 54
**Rike* ‘earthquake’ 83
**riki(t,q)* ‘small’ 196, 198, 200
**ri-riki(t,q)* ‘small’ 198, 200
**rodo(ŋ)* ‘rain cloud’ 143
**rodrom* ‘be dark, be night’ 308
**ruku-* ‘underneath’ 250
**Rumaq* ‘house’ 235, 241
**ruru* ‘calm, sheltered’ 46, 113
**sakaRu* ‘reef, shoal’ 110
**sake* ‘rise, go up; upwards’ 181, 269
**sake* ‘go upward’ 243, 273, 277
**sake* ‘go upward, go southeast’ 273, 275–276
**salil* ‘valley’ 52
**saliR* (V) ‘flow, float, drift’ 98
**saqat* ‘bad’ 96
**sau* ‘breeze’ 127, 138
**sau* (V) ‘(breeze) blow’ 127
**sauq* (V) ‘be far away’ 205
**sawa(n,ŋ)* ‘channel, passage’ 93, 116
**sa[p,b]u(q)* (N) ‘waterfall’ 62
**sa[p,b]u(q)* ‘fall, trickle down, of water’ 62
**sinaR* ‘shine, sun’ 310, 315
**sinaR* (V) ‘shine’ 163
**sipo* ‘go down, downwards’ 182, 241, 271, 277
**sipo* ‘go downward, go northwest’ 275–277
**sirij* ‘side, edge’ 255
**sobu* ‘go downward, dive down’ 272
**solo* ‘sink down, subside; landslide’ 85, 182
**solos* ‘inland mountain country, highlands interior’ 50
**[s,j]u[(a,u)]* ‘go down vertically, fall’ 272, 275
**surup* ‘enter, penetrate; go down (?)’ 272
**tabiRa* ‘wooden bowl’ 177
**takuRu[-]* ‘(s.o.’s) back’ 263
**talun* ‘old garden, fallow land, land returning to secondary growth’ 55
**tama-* ‘father’ 199
**tam^wataq* ‘living person’ 173
**tani* (PREPV) ‘(go) away from’ 293

**tanoq* ‘earth, ground, soil; land’ 41, 235
 237, 241
**tape* (N,V) ‘(current) flow’ 63, 97, 102
**tape-tape* ‘waterfall; flow’ 63
**ta-pola(s)* ‘spread out (as of a mat)’
 203, 207
**taqun* ‘period of a year, yam season
 cycle (?)’, any cyclic period’ 319
**tasik* ‘sea, salt water’ 92, 240
**tata* (ADV) ‘near’ 207
**[t,d]onu(p)* ‘straight’ 219
**timu(R)* ‘wind bringing light rain’ 43,
 136
**tinaqe-* ‘intestines’ 248
**tina-ña* ‘her/his mother; big, biggest’
 201
**tob^{wa}* ‘bay, harbour; belly, stomach’ 46
**tokalau(r)* ‘northerly wind (?)’ 137
**tolu* ‘three’ 170
**topu(R)* ‘freshwater spring on the beach,
 often brackish’ 60
**[tubu]tubu[-ka]* ‘thick (in dimension)’
 208
**tuku* ‘short’ 205
**tupu(R)* ‘freshwater spring on the
 beach, often brackish’ 60
**tuqaRi* ‘(be) long ago, take a long time,
 old (of inanimates)’ 193, 212, 323
**ua* ‘go towards addressee’ 284–286,
 328
**ubi* ‘half coconut shell used as a
 drinking cup’ 129
**ucuy* ‘nose’ 48
**udra* ‘be on fire’ 77
**ulu* ‘k.o. cloud’ 144
**upi* ‘blow’ 129
**[u]Ruap* ‘high tide; to flow in of tide’
 85, 99, 106
**waiR* ‘fresh water; river, stream’ 58, 96
**waiR pa(a)q* ‘river floodwaters’ 86
**wane-wane* ‘straight, direct; flat, level’
 220
**waRisa* ‘two days from today’ 331
**waRoc* ‘vine, creeper, rope’ 55

**wasas* ‘passage, space between,
 particularly at sea, distance between
 two points’ 117
**watu* ‘go towards addressee’ 286
**wau* ‘go seawards’ 273
**[y]aku* ‘go (to)’ 293
**yaño* ‘turmeric, *Curcuma longa*’ 215
**[yaño]yaño* ‘yellow’ 215

Proto Western Oceanic (PWOc)

**kalis* ‘crooked’ 220
**kapu* ‘ash, dust, cinders’ 76
**ka-sauq* (V) ‘be far away’ 206
**muga* ‘front; be in front; formerly’ 258,
 322
**p^{wa}* (PREP) ‘instrumental, comitative’
 292
**qa[r,R]iη* ‘obsidian’ 65
**(rR)ugu* ‘rain’ 147
**siki* ‘small’ 201
**(s,t)imuR* ‘island’ 43
**siwaRop* ‘(weather) calm, peaceful’ 141
**tapal* ‘substance used to blacken teeth’
 68
**tunan* ‘high tide’ 107

Proto Eastern Oceanic (PEOc)

**baro* ‘flat rock or ledge (in or near sea)’
 114
**bubu* ‘Southern Cross; triggerfish’ 173
**b^{wela}* ‘taro swamp’ 57
**kalo-kalo* ‘glimmer’ 80
**libo* ‘eddy, whirlpool’ 88
**liku* ‘windward side’ 46, 113
**ma[d]rama* ‘moon’ 165
**maka* ‘burn brightly’ 80
**malala* ‘charcoal, charred wood’ 74
**makalo* ‘burn with glow’ 80
**ma-lua(s)* ‘soft, gentle, (weather) calm’
 141
**manja* ‘river branch, tributary’ 60
**marawa* ‘green, blue’ 214

- **mata* ‘point of land, headland’ 49
- **mataliki* ‘name given to a significant star cluster’ 172
- **nua-nua* ‘rainbow’ 148
- **nuku potu* ‘point of reef or sandbank (that appears at low tide)’ 114
- **papia* ‘firewood’ 71
- **papo* ‘shore reef, fringing reef’ 111
- **patu maqañur* ‘pumice’ 66
- **qulu ni panua* ‘headland, mountain peak’ 52
- **siosio* ‘whirlwind, rainbow(?)’ 88
- **tapa-* ‘side, outside’ 158, 255
- **tasi mate* ‘sheltered sea, lee shore’ 46
- **tasik maquri(p)* ‘open sea; ocean on the weather side; weather shore’ 46, 96
- **tasik mate* ‘sheltered sea, lee shore’ 95
- **to(b,p)a* (VI) ‘(land) slip’ 85
- **tob^wa* ‘bay’ 46
- **u(C)unu* ‘Aldebaran’ 174
- **udra* ‘be on fire, alight, flaming’ 77
- **wao* ‘forest, bushland, scrub, land in its natural uncultivated state’ 55

Proto New Guinea Oceanic (PNGOc)

- **guba(r,R)* ‘k.o. cloud (possibly storm cloud)’ 143
- **lamaR* ‘lightning’ 150
- **paqoRu* ‘new, young’ 210
- **paqu* ‘new, young’ 210
- **sabam* ‘sky’ 143
- **yawana* ‘southerly wind’ 139

Proto North New Guinea (PNNG)

- **kila(m,p)* ‘lightning’ 151
- **upi-η(a)* ‘wind’ 130

Proto Southeast Solomonian (PSS)

- **añu* (V) ‘shake’ 84

Proto Micronesian (PMic)

- **aremoi* ‘Arcturus’ 177
- **(d,z)umuri* ‘Antares’ 176
- **(fatu) wāni* ‘pumice’ 66
- **fitū rāni* ‘Morning Star’ 167
- **kua* ‘Dolphin constellation incl. Cassiopeia’ 177, 189
- **lakV* ‘stars in Pegasus’ 176
- **lau* ‘pool, pond’ 95
- **mai* ‘breadfruit’ 175
- **malu-malu* ‘storm, typhoon’ 87
- **maRi* ‘breadfruit’ 175
- **tapia* ‘Bowl constellation, approximately Delphinus’ 177, 189

Proto Central Pacific (PCP)

- **avā* ‘storm, gale, hurricane’ 87, 134
- **bari* ‘(waves) pound the coast, as at high tide’ 100
- **bari* ‘coastal cliff’ 53
- **g^wele* ‘earth, soil’ 69
- **kobulu* ‘? thick smoke, heavy cloud’ 79
- **qatu* ‘number of things in a line, row, as a chain of islands’ 43
- **qulu-qulu* ‘outer edge of shore reef where waves break’ 112
- **uju* (V) ‘project’, (N) ‘projecting or exposed land’ 48
- **vuqa(i)ŋa* ‘pumice; whetstone, grindstone’ 66
- **vusi* ‘swamp; taro swamp’ 58

Proto Polynesian (PPn)

- **afā* ‘storm, hurricane’ 87
- **awa* ‘channel, passage through reef’ 117
- **fajā* ‘bay’ 47
- **feo* ‘coral, possibly branching coral’ 108
- **fetuqu qaho* ‘Morning Star’ 167
- **fujā* ‘upper surface’ 50

- *kaniwa* ‘the Milky Way’ 179
**kawē* ‘to carry’ 180
**kawēiŋa* ‘that which is steered for (usually a star)’ 180
**kofu* (V) ‘emit smoke’ 78
**laki* ‘southwesterly quadrant, southwest wind and weather associated with it’ 132, 136
**lalo* ‘region underneath’ 247
**laqā* ‘sun’ 162
**lo(o)ma*, **lo(o)maki* ‘flood caused by high seas or tides’ 87
**loto* ‘pool, depression in reef; inside’ 115, 248
**luŋa* ‘top, space above, up top’ 239
**mafu-ike* ‘earthquake’ 83
**makala* ‘crackle and spark’ 80
**malū* ‘soft (of a substance), calm (of day, sea)’ 222
**maqafu* ‘Magellanic Clouds’ 179
**maqūŋa* ‘mountain’ 51
**mataliki* ‘Pleiades’ 172
**mato* ‘precipice, steep place, cliff’ 53
**moana* ‘sea beyond the reef, ocean’ 94, 118
**mula* ‘burst into flame’ 77
**muri-wai* ‘mouth of river’ 47
**mā-sina* ‘moon, month’ 164, 315
**pali* ‘cliff’ 53
**pali* ‘to pound the coast, as at high tide’ 100
**pata* ‘raindrop’ 148
**pō* ‘night, day of twenty-four hours’ 307
**poŋi-poŋi* (N, V) ‘morning’ 311
**pula* ‘shine, glow’ 77, 165
**puna* (N) ‘a spring’ 61
**puŋa* ‘coral rock’ 108
**qā-fea* ‘when (future)’ 337
**qaho* ‘daylight’ 312
**qaho-qatea* ‘late morning and early afternoon’ 312
**qana* ‘cave’ 53
**[qa]na-fea* ‘when (past)’ 327
**qana-pō* ‘last night’ 324
**qanoisa* ‘the day after tomorrow’ 332
**qarofiwaqe* ‘sole of foot’ 257
**qā-siosio* ‘whirlwind, waterspout’ 88
**qaso* ‘day, as period of time’ 161
**qiti* ‘small (SG)’ 198
**qulu* ‘head’ 112
**rau* ‘flat land’ 54
**refu*, **refurefu* ‘ashes’ 75
**sa-sake* (N) ‘east’ 276
**si-sifo* (N) ‘west’ 276
**(tafa)tafa-qaki-laŋi* ‘horizon’ 158
**(tafa)tafa-qi-laŋi* ‘horizon’ 158
**tahi* ‘shallow sea near shore or in lagoon, salt water; tide’ 92
**tākelo* ‘name of a star or stars, possibly in Orion constellation’ 170
**takulua* ‘a bright star’ 170
**talū-talū* ‘weeds, fallow’ 55
**tama* ‘child’ 199
**taqu* ‘season’ 320
**toka* ‘rock, as a submerged rock or reef’ 114
**tokelau* ‘northwesterly quadrant, northwest winds’ 136, 137–138
**toŋa* ‘southeasterly quadrant, southeast wind’ 136, 138
**tuqa* ‘back’ 112
**tuqa-hakau* ‘ocean side of the reef, ocean beyond the reef’ 112
**tuqa-siwi* ‘mountain ridge’ 52
**utu-a* ‘projecting land’ 48
**wasa* ‘open sea; space, distance, esp. at sea’ 117, 118