

*NAYAKALOU MEDAL ADDRESS*

EXPLAINING THE ABERRANT AUSTRONESIAN LANGUAGES  
OF SOUTHEAST MELANESIA: 150 YEARS OF DEBATE

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This paper reviews the history of ideas about the origins and development of the Melanesian languages, particularly those languages of Southeast Melanesia that have been called “aberrant”. Following tradition I use the phrase “Melanesian languages” to refer to languages of Melanesia that belong to the Austronesian family but are not Polynesian. The Melanesian languages, which number more than 450 (see note 4), do not constitute a separate branch of Austronesian apart from the Polynesian and Micronesian groups. The usefulness of the term is chiefly that it defines a large set of languages that are present in a particular geographic region, many of which have certain attributes that have long puzzled historical linguists.<sup>1</sup>

It is a striking fact that a high proportion of Melanesian languages are atypical in certain respects when compared with the better-known Austronesian languages of Melanesia, Polynesia and the western Austronesian region. The label “aberrant” has been applied to such languages by George Grace, who contrasts them with “exemplary” or “well-behaved” Melanesian languages (Grace 1981, 1992, 1996).<sup>2</sup> He emphasises that we are dealing here with a continuum rather than with two sharply distinct types.

Grace observes that a language or group of languages (call it L) can be aberrant in any of the following respects.

- (i) L shows relatively few cognates with other Austronesian languages.
- (ii) L’s sound system departs radically from the systems reconstructed for early stages of Austronesian, often making cognates hard to identify.
- (iii) L’s grammatical structure is atypical.
- (iv) It is unusually difficult to apply the Comparative Method to L because multiple sound correspondences obscure the distinction between directly inherited forms and borrowed forms.

These four variables are not necessarily linked but some languages exhibit two or more of characteristics (i)-(iv).

Table 1 provides an example of the extent to which Melanesian languages can vary in the number of cognates they share in basic vocabulary. The variation can be conveniently measured in terms of how many words are retained from the Austronesian inter-stage known as Proto Oceanic (POc), ancestral to most of the Austronesian languages of the Pacific Islands including all the Melanesian languages except about 30 spoken at the western end of New Guinea (see 1.4). The first line of the table shows POc words for six concepts that are part of core basic vocabulary, words that languages tend to retain for several millennia. Each POc word is a well-attested reconstruction and most of these etyma are continued (though often with sound changes) in more than half of the contemporary Oceanic languages. Below the POc word we find the most common word for that concept in eight contemporary Oceanic languages. Five of these languages are spoken in the Solomon Islands: Ririo on Choiseul, Zabana and Maringe on Santa Isabel, Gela on Florida and Arosi on Makira.<sup>3</sup> The other three are Standard Fijian, Tongan and Samoan. Words in daughter languages that are not cognate with the POc etymon are shown in italics.

The three lexically innovative languages in the sample are Ririo, Zabana and Maringe. Ririo keeps just one, and Zabana and Maringe two of the POc etyma. By contrast, Standard Fijian, Tongan and Samoan each retain all six etyma, Gela five and Arosi four. Of course, a sample of six words is tiny but a larger sample would yield quite similar results for these particular languages.

Table 1: A comparison of reflexes of six Proto Oceanic words in six languages of Melanesia and in Tongan and Samoan.

English	arm	ear	liver	bone	skin	louse
POc	*lima	*taliŋa	*qate	*suRi	*kulit	*kutū
Ririo	<i>karisi</i>	<i>ngel</i>	<i>tutuen</i>	<i>punda</i>	<i>kapat</i>	utu
Zabana	<i>kame</i>	taliŋa	<i>kola</i>	<i>huma</i>	<i>kafu</i>	gutu
Maringe	lima	<i>khuli</i>	<i>khebu</i>	<i>knubra</i>	guli	<i>theli</i>
Gela	lima	<i>kuli</i>	ate	huli	gui-guli	gutu
Arosi	rima	kariŋa	<i>rogo</i>	su-suri	?uri-?uri	<i>kote</i>
Fijian	liŋa	dalaiŋa	ate	sui	kuli	kutu
Tongan	lima	telaiŋa	?ate	hui	kili	kutu
Samoan	lima	taliŋa	ate	ivi	?ili	?utu

It can also be seen in Table 1 that, although there are some mutations in form, most of the cognate forms in the daughter languages have not departed far from the POc original and consequently cognates are easily recognised, even in Ririo, Zabana and Maringe. This suggests that none of the eight daughter languages in this sample is markedly aberrant in its sound system, although the data in this table are too scanty to speak with confidence.

Table 2 shows a different situation: reflexes of five POc words in four languages of northern New Caledonia that have undergone quite far-reaching sound changes. The New Caledonian forms are all good cognates but some are not easily recognisable as such at first glance. The table is adapted from Ozanne-Rivierre (1992:193).

Table 2: Reflexes of Proto Oceanic forms in four New Caledonian languages.

English	daytime	hear	blood	cooking pot	stand up
POc	*raqani	*rojoR	*draRaq	*kuron	*tuqur
Yuanga	ʔeɛ	ʔone	(ku)ʔa		koo
Kumak	taan	tālā	ndaa-	cet, cela-	kuut
Pwapwā	(mavi)taan	tena	(ku)taa-	cit-, cile-	cuut
Cèmuhî	tàn	tēne		ilā	cūut

When a language or language group L differs radically in lexicon and/or phonology and/or grammar from its relatives M and N, which are quite similar to one another, four broad types of historical explanation are normally considered.

- (a) Genealogical diversity. M and N are much more closely related to each other than to L, meaning that L has undergone a relatively long period of separate development since it diverged from M and N.
- (b) Contact-induced change. L has been extensively changed by borrowing from a language or languages that were previously of a very different cast to L.
- (c) An exceptional degree of organic (system internal) linguistic change. Particular linguistic structures are subject to natural processes in speech production and comprehension, which allow children to reinterpret these structures. L has undergone more far-reaching innovations of this type than M and N.

- (d) An exceptional degree of socially-induced linguistic change. L has changed more rapidly than M and N because of the far-reaching effects of social processes internal to the community, e.g., name taboo, the desire to be different from its neighbours, the emergence of a prestige dialect, or the lack of clear linguistic norms constraining language change.

The occurrence of population bottlenecks owing to migration, warfare, disease, etc. perhaps falls into category (d) insofar as it is associated with social disruption and the loss of linguistic knowledge. Otherwise it is simply a demographic circumstance that would allow innovations, whatever their source, to spread quickly through the speech community.

In the case of the aberrant Melanesian languages, each of these four main types of explanations has been proposed. In addition, a fifth, less orthodox type was for a long time favoured by some scholars, namely,

- (e) Pidginisation. This supposes that L is not a true sister language to M and N. Instead L was created as a pidgin, a hybrid formed when speakers of a language or languages unrelated to the family that M and N belong to imperfectly learned a language of that family and adopted the pidgin as their new mother tongue.

I will adopt the term "Southeast Melanesia" to refer to the part of Melanesia that lies in Remote Oceania, east of the main Solomons group. It consists principally of Vanuatu, New Caledonia, the Loyalty Islands and the Fiji group, and also includes the small Eastern Outer Islands of the Solomons (including Santa Cruz and its neighbours). More than 140 languages are spoken in this region: approximately 105 in Vanuatu, 25 in New Caledonia and the Loyalties, 10 in the Eastern Outer islands and at least three in Fiji (including Rotuma). A few of these languages are Polynesian Outliers. With the exception of three languages mentioned below, the rest are generally agreed to be "Melanesian".

I will use "Northwest Melanesia" for the part of Melanesia that lies in Near Oceania and consists principally of the main Solomons group, the Bismarck Archipelago (New Britain, New Ireland and the Admiralties) and New Guinea and its small satellite islands and island groups. There are about 300 Melanesian languages in Northwest Melanesia.<sup>4</sup> In Northwest Melanesia there are also some 700 non-Austronesian languages of diverse genetic stocks; these are often collectively referred as "Papuan" languages.

Languages that are aberrant in one or more of characteristics (i)-(iv) listed above predominate in certain parts of Southeast Melanesia, namely in Southern Vanuatu, the Loyalties and New Caledonia and in the Eastern Outer Islands Province of the Solomons. In these areas some of the aberrant

languages exhibit (i) few cognates with other Austronesian languages, and all exhibit (ii) radical phonological change. However, most are not markedly atypical in respect of (iii) morphology and syntax. Three languages, those of the Reefs-Santa Cruz area, have appeared so deviant in respect of criteria (i)-(iii) that their status as Austronesian has long been in question (Lincoln 1978, Wurm 1978), and François (2006) has recently asked whether the three Vanikoro languages are really Austronesian. Only in a few cases—chiefly certain languages of New Caledonia (Grace 1973, 1981, 1992, 1996)—has (iv) been noted as a very marked characteristic, but there are many regions of Southeast Melanesia where systematic studies of sound correspondences among neighbouring languages have not yet been carried out.

Languages at or near the exemplary end of the scale are present in certain parts of Central and North Vanuatu (such as Nguna of North Efate, Ambae, Maewo, Raga of North Pentecost, many languages of Espiritu Santo and Mota of the Banks Islands) and in Fiji (with the partial exception of Rotuman, which has undergone considerable change in its sound system and, to a lesser extent, its morphology).

In Northwest Melanesia there is similar variation. Exemplary languages occupy the eastern half of the main Solomons chain (Florida, Guadalacanal, Malaita and Makira) but in the Western Solomons and the Bismarck Archipelago most languages lie between the middle and the aberrant end of the scale in one or more respects, with exemplary languages in the minority. The same can be said of New Guinea and its satellites.

The presence of many aberrant Austronesian languages in Southeast Melanesia is more puzzling than such a presence in Northwest Melanesia. It is now generally accepted, on archaeological and linguistic grounds, that Austronesian speakers arrived in Northwest Melanesia just over three millennia ago and encountered established populations speaking non-Austronesian languages.<sup>5</sup> In many parts of Northwest Melanesia there was sustained bilingualism between Austronesian and non-Austronesian communities and sometimes language shift occurred. Southeast Melanesia is different. It is generally thought that there were no pre-Austronesian inhabitants of Remote Oceania. However, Blust (2005) has recently challenged this view.

In this paper I build on sketches of the history of ideas on the origins of the Melanesian languages that George Grace has included in a number of publications (e.g., Grace 1959, 1961, 1964, 1971a, 1981). The fullest of these sketches are in Grace (1959, 1971a), and the later paper takes the story up to the late 1960s. I will first review the pre-1970 period, during which several radically different explanations of Melanesian linguistic diversity were in competition, and will describe how some of these have been ruled out both on logical grounds and by the weight of evidence. I will then consider research over the past 35 years or so and assess how much progress has been made in understanding how the Melanesian languages got to be the way they are.

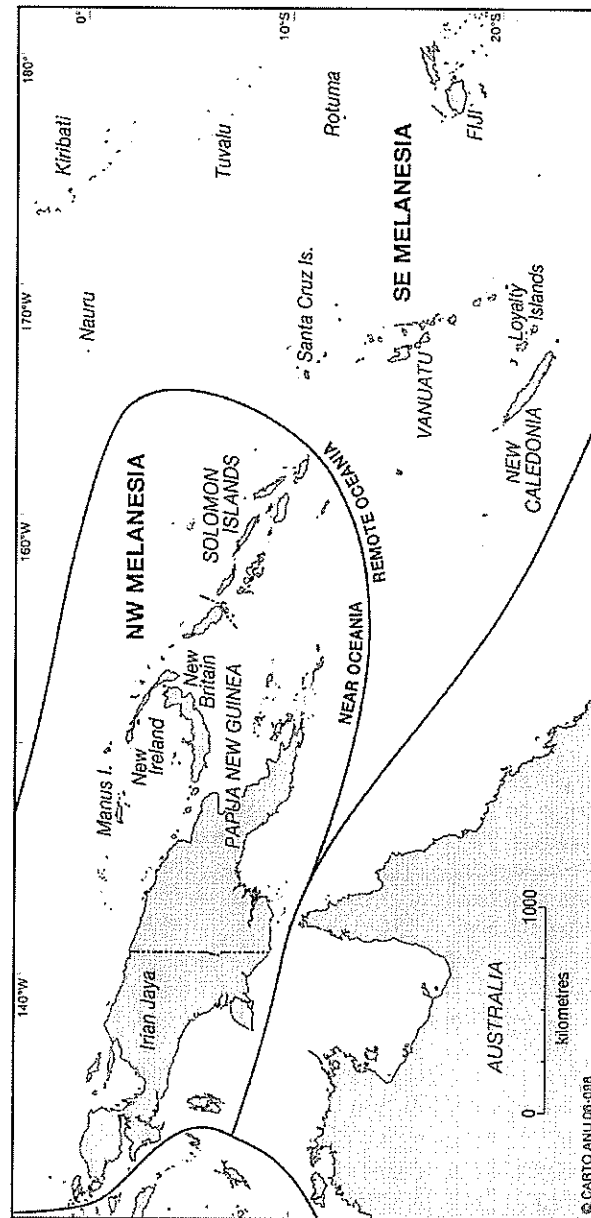


Figure 1. Map of Oceania, showing the boundary between Near and Remote Oceania.

# 1. ORIGINS OF THE "MELANESIAN" LANGUAGES: COMPETING HYPOTHESES

## 1.1 *The discovery of the Melanesian languages*

The Melanesian languages were late admissions to the Austronesian family and as recently as the 1960s a few linguists were reluctant to accept them as full members. Although the data were fragmentary, by the early 1700s European scholars had found evidence of a far flung language family, already recognised as containing Malay, Javanese and Malagasy (Reland 1708), from comparisons of wordlists of languages of Southeast Asia and the Pacific Islands brought back by voyagers. Building on groundwork laid by Joseph Banks, J.R. Forster (1778:188-89) demonstrated the existence of the Austronesian family (not then called by that name) in a remarkable Table that showed agreements between Malay and languages from the Philippines (Tagalog and Kapampangan) and five languages of Polynesia in the numerals for 1-10 and in forms denoting some 36 other concepts. The Table also shows that some agreements, though fewer, extended to certain languages of Melanesia (Tanna and Malekula of Vanuatu), and one language of New Caledonia for which Forster had data. Although Lorenzo Hervás y Pandero is sometimes credited with this achievement, the Table that appears in volume 17 of his *Idea dell' Universo* (Hervás 1784) probably owes something to Forster. Indeed, Forster preceded Sir William Jones in anticipating modern ideas about the development of related languages from a common proto-language.<sup>6</sup> Eight years before Jones' celebrated statement that Sanskrit, Greek and Latin must have "sprung from some common source", Forster commented as follows on the agreements in his table.

I am ... inclined to suppose, that all these dialects preserve several words of a more ancient language,... which gradually divided into many languages, now remarkably different. The words therefore of the language of the South Seas isles, which are similar to others in the Malay tongue, prove clearly in my opinion, that the Eastern South Sea Islands were originally peopled from the Indian, or Asiatic Northern isles; and that those lying more to the Westward, received their first inhabitants from the neighbourhood of New Guinea. (Forster 1778:190)

Both Forster and Hervás excluded from the Austronesian family the languages of Melanesia, for which only the most fragmentary data were available. Forster identifies two main "races" in the South Seas and, like others of his time, was inclined to think that linguistic divisions would consistently correlate with those of race.

The first wordlists from the South Pacific were collected in 1568 during Mendafía's expedition and consisted of 38 words from S.E. Santa Isabel in the Central Solomons. In 1605 Quiros gathered short vocabularies from Sikaiana

(a Polynesian Outlier north of the Solomons) and Espiritu Santo in Vanuatu. In 1616 the Dutch voyagers Schouten and Le Maire recorded vocabularies from Niuatoputapu, between Tonga and Samoa, and Futuna, west of Samoa, and three vocabularies from islands off New Guinea and New Ireland. Over a century and a half later the voyages of Cook and d'Entrecasteaux brought back short vocabularies from New Caledonia and Vanuatu as well as more extensive ones for several Polynesian languages. By the late 18th century the existence of a far-flung Polynesian group was well known in Europe and its relationship to the family that contains Malay, Javanese and Malagasy was accepted. It was thought that the Polynesian branch stemmed from the migration of wavy-haired, brown-skinned seafarers, essentially Malay type peoples, from Southeast Asia.

Around the middle of the 19th century missionary scholars began to study some of the languages of Melanesia in systematic fashion. By the 1840s and 1850s such work was under way in parts of Fiji, Vanuatu, the Loyalties, New Caledonia and the Eastern Solomons. It was soon evident that many of these languages showed a family resemblance to those of Polynesia and the Indo-Malaysian region. It was probably the German linguist Hans Conon von der Gabelentz who first used the term "Melanesian languages", in the first of his two volumes of grammatical sketches of languages of Melanesia (Gabelentz 1861-1873). Gabelentz distinguished between "Melanesian" and "Polynesian" languages but assigned both to the "Malay" family.

Many 19th century observers were perplexed by the fact that languages resembling those of Polynesia and Indonesia were spoken by dark, frizzy-haired people. A common view was that the Melanesian peoples must have borrowed Austronesian elements from their neighbours to the west and/or the east. The term "Papuan" to refer to people of the South Pacific whose physical type was distinct from both Malays and Polynesians had been introduced by William Marsden in the 1830s. During the 1850s the naturalist A.R. Wallace collected vocabularies in the eastern part of the Indo-Malaysian Archipelago. When he published these (Wallace 1869) he proposed a distinction between "Malay" and "Papuan" languages in that region, a distinction that was to be echoed in Melanesia a few decades later.

### *1.2 Codrington's The Melanesian Languages*

By the 1880s there was enough material on the languages of Southeast Melanesia for Bishop Robert Codrington of the Melanesian Mission to publish the first major comparative linguistic study of this region, together with sketch grammars of 34 languages. In *The Melanesian Languages* Codrington (1885) sought to prove conclusively that the "Melanesian" languages are Austronesian. He was clearly exasperated by prevalent race-based interpretations of the linguistic facts and commented on these with heavy irony.



The Melanesian people have the misfortune to be black, to be much darker, at least, than either Malays or Polynesians; and because they are black it is presumed that their original language cannot be of the same family with that spoken by their brown neighbours; that where their language has a general resemblance to that of their neighbours they must have cast off their own and taken another in the lump, and that where the resemblance is not conspicuously apparent they must have borrowed words and expressions in commercial or other intercourse. (Codrington 1885:12)

Codrington showed that almost all the Melanesian languages in his sample share many everyday words and a good deal of morphology (the grammar of word formation) with well-established members of the Austronesian family. Furthermore the Melanesian languages share some features that distinguish them from those of the Indo-Malaysian archipelago and Polynesia. These typically "Melanesian" features included several in morphology: in nouns, a distinction between alienable and inalienable possession and often between two or three kinds of alienable possession (food versus drink versus general); and in verbs, a transitive suffix ending in *-i* or *-aki*.

The view of the Melanesian Languages here proposed is, in the first place, that they are homogenous; and secondly, that they belong to a common stock with the Ocean [i.e., Austronesian] tongues generally—those of the Indian [i.e., Indo-Malaysian] Archipelago and of Polynesia. The view which is opposed is one which would make the Melanesian stock of languages originally distinct from that to which Malayan and Polynesian languages belong, and would pronounce all that is found in Melanesian languages common with Malay and Polynesian to be borrowed from these tongues, or due to influence received from them. In opposition to this latter view, it is by no means denied that the Melanesian languages have borrowed from those of the Indian or Malay Archipelago on the one side, and from those of the Eastern Pacific [i.e., Polynesian] on the other, or that they have been influenced in various ways; allowing this, what is maintained is, that whatever has been introduced has been brought from languages of a kindred, not a distinct stock. (Codrington 1885:10)

By the close of the 19th century there were further developments. Some scholars now argued that the Polynesian group had as their closest relatives certain languages of Melanesia: Kern (1886) proposed Fijian, while Schmidt (1899a, 1899b) favoured Gela, Bugotu and Vaturanga of the Central Solomons. However, it was a very different view that was to gain more general acceptance, if not among linguists, then among anthropologists and others writing on the history of Pacific Island peoples and to hold sway into the second half of the 20th century.

*1.3 Ray's theory of the pidgin origins of Melanesian languages, or, How some Papuan languages became Austronesian by degrees*

Sidney Ray, all his working life a schoolteacher in the East End of London, was inspired by Codrington's 1885 book and in 1886 began to accumulate a vast body of data on languages of Melanesia. Although Ray carried out fieldwork in Southeast Papua with the British ethnological expedition to the Torres Straits in 1898, the main sources of data for the many works he published over the next 40 years were Bible translations, provided by the British and Foreign Bible Society. In the early 1890s Ray pointed out that some of the languages of British New Guinea and the Solomon Islands did not appear to be Austronesian at all (Ray 1892-93). Following Wallace's lead, he adopted "Papuan" as a name for this residual category of languages. Around the same time Pater Wilhelm Schmidt (1899a) observed that "Papuan" as well as "Austronesian" languages were present on and near the north coast of the New Guinea mainland and in New Britain.

Ray's major synthesis, *A Comparative Study of the Melanesian Island Languages*, was published in 1926. It focused on the Solomons, the Loyalties and Vanuatu, largely overlapping with the region studied by Codrington but extending to the Western Solomons. In this 600 page book Ray presented grammatical sketches of more than 50 languages, listed reflexes of Proto-Indonesian words as reconstructed by Renward Brandstetter, and attempted to trace the reflexes of Proto-Indonesian sounds in each language.

Ray's conclusions were essentially those that Codrington had been at pains to disprove. The Melanesian languages are diverse in appearance, Ray said, because they are not truly Austronesian. Instead they derive from pidgin languages, which developed when Papuan-speaking communities imperfectly learnt the Austronesian languages of migrants from the Indo-Malaysian Archipelago, a process that happened independently many times. We should let Ray speak for himself (bearing in mind that by "IN [Indonesian] language" Ray means any Austronesian language from west of Melanesia, e.g., from Malaya, the Indo-Malaysian Archipelago, the Philippines, Taiwan and Madagascar).

The great variation in the extent to which the Melanesian islanders have changed IN words seems to suggest that these words were introduced by colonists from Indonesia, who effected a settlement on the smaller islands, imposing part of their speech upon the natives, and that this mixed speech influenced the native languages with which it came in contact, these latter adopting some of the IN modified speech, but changing it according to their own style of pronunciation. An IN word, for example, like *manuk* becoming *manu* in the colony, but *man*, *mon*, *men*, *min*, in districts away from it. (595-96)

The IN words found in Melanesia have the characteristics of a pidgin-tongue. They can be no longer referred, except in rare cases, to any one original IN tongue, and are on a par with the modern pidgin of the Pacific where the co-

called English has such words as "savvy," "pickaninny," and "wewe". (597)  
The very large number of words which cannot be referred to an IN source cannot be shown to have (except to a very slight extent) any community of origin. This diversity, which is characteristic of the Papuan languages of New Guinea, New Britain and the Solomon Islands, suggests that the Melanesian languages were originally of variant stocks, and that their apparent uniformity has been brought about by the influx of IN words and idioms. (596)

However, Codrington had made his case on the basis of agreements in grammar (specifically morphology) rather than lexicon. Ray acknowledged these grammatical agreements in the following terms, but interpreted them differently.

In grammar the languages depart widely from a common standard, yet there is in each area a use of the broad outstanding features of IN grammar. Such are:

1. A general agreement in the numerals from 'one' to 'five' where the system is quinary, and in the higher numbers when decimal.
2. A general agreement in the basic form of the pronouns.
3. The use of a short pronoun with the verb.
4. A tendency in some languages to use the verb without a pronoun in the third person singular.
5. The persistence here and there of ready-made IN words, such as *matakut*, afraid, *maturu*, sleep, *mauri*, live, *mavat*, heavy, etc., with no corresponding simple form.
6. The use of a suffixed pronoun with nouns, but only to parts of the body, or 'definite property of me, thee,' etc. Other possessions being 'thing of mine, thine,' etc.
7. The excessive and exclusive use of the IN prepositions *i*, *ni* and *ki*. Cf. 'belong' and 'along' in pidgin-English. (Ray 1926:597)

Ray explained such grammatical agreements as stemming from numerous episodes of pidginisation, in which speakers of Papuan languages in different parts of Melanesia independently acquired a simplified but broadly similar version of Indonesian grammar. There are several obvious objections to his theory:

- (i) Codrington, the more astute historical linguist, had already pointed out that some of the Melanesian morphological agreements have no counterparts in Indonesian and Polynesian languages, so they could not have been derived from them by simplification. And it is very unlikely that certain striking agreements in details of morphology would have developed independently or from Papuan sources, if as Ray insisted, Papuan languages were themselves of diverse stocks.

- (ii) Not a single Papuan language survives in the core region of Codrington's and Ray's studies: the Southeast Solomons, Vanuatu, Loyalties and New Caledonia. Ray's theory thus requires every Papuan language in this large region to have become extinct—not impossible, perhaps, but a pretty uneconomical hypothesis.
- (iii) No place is given to that most natural of linguistic processes, change resulting from system-internal pressures. Ray attributes practically all departures from the Indonesian prototype exhibited by the Melanesian languages to contact between speakers of Papuan and Austronesian languages. But no direct evidence of a Papuan substratum in the Melanesian languages is cited. Indeed, as no Papuan languages are found in Southeast Melanesia the only linguistic argument for saying that Papuan languages were ever spoken there was the observation that some of the Melanesian languages shared relatively few cognates with one another or with Polynesian and Indonesian languages and the belief that they had "simplified" the sound system and grammar of Proto Indonesian.

What led Ray to overlook these weighty objections? He points out that the discovery in the 1890s that there are non-Austronesian languages in various parts of Melanesia required a revision of the idea that the languages of Melanesia are all "related as descendants of an original mother tongue" (Ray 1926:25). But as the only clear cases of non-Austronesian languages were confined to Northwest Melanesia that does not explain why Ray should reject Codrington's view of the origins of the languages of Southeast Melanesia in such a sweeping manner.

It seems that the difference between Codrington's and Ray's interpretations had little to do with the range of data at their disposal. It owed much more to their respective mindsets and biases. Codrington saw race as irrelevant to the question of linguistic affinities. He looked at his Melanesian glass with the eye of a classical comparative linguist and saw that it was half full of resemblances that provided good evidence for gradual and systematic change from a common Austronesian ancestor. He began with the more exemplary languages and found he could make sense of them according to the standard family tree theory. He then assumed, as a matter of faith, that problems in accounting for the more deviant languages would somehow be resolved without disturbing his main hypothesis.

Ray, on the other hand, looked at the same glass and focused not on the resemblances but on the differences. He took the more aberrant languages to be the norm and saw them as incapable of being explained in terms of gradual and systematic change. He then assumed, as a matter of faith that the explanation he proposed to make sense of the aberrant languages

would also do for those that show a higher degree of likeness to the well-established Austronesian languages of Indonesia. Why did Ray take the aberrant languages to be the norm? Almost certainly he was influenced by the idea that there was an original correlation between language family and racial type. Melanesians were seen to be of "Papuan" physical type. Some Melanesian peoples speak Papuan languages and therefore all Melanesians once spoke Papuan languages.<sup>7</sup>

#### *1.4. Dempwolff defines the Oceanic subgroup*

Soon after Ray's book appeared there was a major advance in Austronesian historical linguistics. Otto Dempwolff had spent several years in German New Guinea around the turn of the century, combining linguistic research with work as a medical doctor. Building on a series of papers he wrote in the 1920s, and on the work of earlier scholars such as Brandstetter, Dempwolff (1934-38) published a three volume work that provided by far the most systematic reconstruction of the Proto-Austronesian (PAN) sound system to date along with more than 2000 reconstructed roots. The reconstructions he attributed to "Proto Austronesian" are nowadays equated with the later inter-stage known as "Proto Malayo-Polynesian" (PMP), ancestral to all Austronesian languages outside of Taiwan; the reason is that Dempwolff's sample excluded the Austronesian languages of Taiwan, which are now known to be genetically very diverse (see 1.7).

An important by-product of Dempwolff's comparative phonological work was proof of the subgroup that we now call "Oceanic".<sup>8</sup> His sample of languages from Melanesia showed largely regular correspondences with PMP consonants and vowels.<sup>9</sup> They also showed something even more striking: in vocabulary inherited from PMP the Melanesian languages share a sizeable set of common innovations to the PMP sound system, innovations that are not present in Austronesian languages found west of New Guinea. Furthermore, the Polynesian and Micronesian languages (except Chamorro and Palauan) that he examined have undergone the same innovations. These shared innovations can thus be attributed to a common inter-stage, Proto Oceanic (POc), ancestral to just the Melanesian, Polynesian and Micronesian languages. However, the exact position of the western boundary of Oceanic in New Guinea was unclear in Dempwolff's time.

The main phonological innovations attributable to POc are as follows. For convenience I refer here to contemporary reconstructions, which make various modifications to Dempwolff's reconstructions and orthography. In the consonants, there were several mergers (where contrasts between certain pairs of PMP consonants were lost) in POc. PMP \*p and \*b merged, as did \*k and \*g, \*d and \*r, and \*s and \*Z. PMP \*h was lost. Several new consonants

were added: the labiovelars \*bw, \*pw and \*mw. In the vowels, PMP \*e and \*aw merged as \*o, \*i and \*uy merged as \*i. There were some other rather complicated developments that need not detain us here (for a fuller account see Lynch *et al.* 2002:63–67).

Dempwolff found that more than 600 of the 2000 or so PMP roots he reconstructed have reflexes in Melanesian languages. (Today's figures for both PMP etyma and reflexes in Melanesian languages are much higher.)

Dempwolff's proofs of an Oceanic subgroup should have greatly narrowed the debate over the history of the Melanesian languages. It is incompatible with two of the five major types of explanation for the aberrant languages, namely genealogical diversity—the idea that the aberrant languages are only distantly related to the exemplary ones, and their separate origins as pidgins. The aberrant languages do not belong to different subgroups of Austronesian from their exemplary sisters. It is just that they have changed faster. And if the Melanesian languages all fall into an Oceanic subgroup apart from all “Indonesian” languages, it follows by definition that the Melanesian languages could not be descended from many different pidgin languages that arose independently as a result of various Papuan languages taking on layers of Indonesian borrowings.

However, the matter was not yet settled. Over the next few decades the Oceanic hypothesis continued to come under indirect attack from certain quarters. I say “indirect” because its critics did not try to demonstrate flaws in Dempwolff's evidence (even though there were some). Instead they chose to address quite different kinds of evidence and to use different conceptual frameworks.

### *1.5 Capell's support for Ray*

In the 1930s Ray's baton was taken up by the Australian clergyman-linguist Arthur Capell, the leading Australian linguist of the first 60 years of the 20th century. Like Ray, Capell was a dyed-in-the-wool diffusionist and he was never fully committed to the logic of the family-tree model and the method of determining subgroups by shared innovations.

Capell's leanings were made evident in a short paper he published in 1933 where he compared the structure of “Melanesian” and “Papuan” languages. He begins by saying that the paper is “in no sense a dissertation of the vexed and undecided question of Melanesian origins” (Capell 1933:418), but in the end is unable to resist putting forward some fairly firm views. Although “the general structure of Melanesian grammar is fairly uniform from New Guinea to Fiji, and is very similar to that of the Polynesian languages”, in regard to vocabulary the “common element is remarkably small. Ray...lists seventy words as being common throughout Melanesia, which can be traced back to

Indonesia. The addition of others very common but not clearly Indonesian might bring the list up to a hundred or so [but] all the remainder appears to be 'aboriginal'..." (432-33). Capell concludes that:

[There is no] real doubt that the "Papuan" races represent the aboriginal populations of the islands, and we have to imagine wave after wave of migration from the west, making impact on these "Papuan" populations and modifying their languages and customs in different ways and in different places. (431)

If we regard the original linguistic condition of Oceania as that of many practically unrelated tongues spoken by tribes having very little contact with each other, then it becomes obvious that the present common element must have been introduced and superimposed.... The Indonesian has simply impinged on the original, different words being taken in different places.... The Indonesian element in Melanesia... is definitely "pidgin", i.e. constructions, grammatical elements, etc. have frequently been taken over with very little regard for their original meaning. (432-33)

Capell's ideas were developed further in his doctoral thesis, completed at the University of London in 1938 (Capell 1943). This consisted of a detailed comparative study of the lexicon of the Austronesian languages of Southeast Papua, which he divided into 11 different groups. To account for the distribution of particular cognate sets in these groups and in the Indo-Malaysian region he proposed three separate migrations into Southeast Papua from the west, one from Borneo, another from Central Sulawesi and the Philippines, and a third from Java-Sumatra via the Philippines. He assumed that if a word in Southeast Papua has a "western" cognate only in, say, Borneo, it was evidence for a migration from Borneo. Capell made use of the phonological and lexical reconstructions in Dempwolff (1934-38) but did not accept the sub-grouping indicated by these reconstructions.

Later work by the German businessman-linguist, Wilhelm Milke (1961), showed that Capell's three migration theory had no significant statistical basis. Nevertheless, Capell himself continued to support a version of the Ray theory, albeit in more guarded form (Capell 1962, 1971). And in popular treatments of Pacific culture history written by anthropologists and archaeologists until the 1970s this theory remained dominant, or was given equal status with the Oceanic hypothesis and a third hypothesis to which we now turn.

#### *1.6 Dyen's (1965) lexicostatistical classification: The Melanesian homeland hypothesis*

A second indirect assault on the Oceanic hypothesis came from an unexpected quarter. In the mid 1950s Isidore Dyen, the leading Austronesian

historical linguist of the time, who until then had worked very much within the framework constructed by Dempwolff, became interested in applying to the Austronesian family a new method of sub-grouping: lexicostatistics.

Lexicostatistics can be described as a quick and dirty quantitative method of arriving at a family tree classification. The idea is that a sub-grouping can be arrived at simply by counting the number of cognates that sister languages share with each other in a sample of "basic" vocabulary, usually consisting of 100 or 200 words. Basic vocabulary items refer to putatively universal concepts, such as body parts, constant features of the physical environment like sun, moon, water and rain, activities like eating, drinking and sleeping, and certain personal pronouns and kinship relations. It is generally agreed that words for these concepts are less likely to be borrowed than "cultural" vocabulary and that they tend to be replaced rather slowly (where "replaced" means that a word is either lost or ceases to be the most common word for the meaning in question). A small number of control studies of (mainly Indo-European) languages with long written histories indicated that they all show a replacement rate within two or three points of 19.5 percent per millennium on the 200 item list. That is, an average of about 80 percent of the words on the list were retained over 1000 years. These control studies were also the basis for glottochronology, a method by which approximate absolute dates for language splits are derived from lexicostatistical percentages.

Dyen (1965) compared standardised 196 item wordlists for some 245 different Austronesian languages—a sizeable sample although we now know it amounts to less than a quarter of the total number of languages in the family. Some 70 of the languages were Melanesian. There were weaknesses in sampling, data and decision-making on cognation, nonetheless the study showed beyond reasonable doubt that, within the Austronesian-speaking area, Melanesia contains by far the greatest number of languages showing very low cognate counts with all languages other than their immediate neighbours. He argued that, taking the lexicostatistical evidence at its face value, the most reasonable interpretation of the matrix of cognate percentages for the 245 languages is that they divide into 40 first order branches of Austronesian, of which no fewer than 31 are located in Melanesia. Many of these are single member branches.

This finding should not have surprised anyone familiar with the previous century of debate on the origins of the Melanesian languages. What was surprising is Dyen's assessment of the implications. He concluded that the lexicostatistical evidence amounts to a strong case that Melanesia is the homeland—the primary dispersal centre—of the entire Austronesian family. Within this region, the New Britain area, as the region of greatest lexicostatistical diversity, is the most likely homeland. Having made this



observation Dyen noted, albeit very briefly, that this hypothesis conflicts with that of an Oceanic sub-group based on shared innovations in phonology. He pointed to three other regions as alternative but weaker candidates for the homeland, on the grounds of their considerable lexicostatistical diversity, namely (i) Taiwan, (ii) Sumatra and the islands off its west coast, (iii) West New Guinea and the eastern part of the Indonesian archipelago.

The Melanesian homeland hypothesis had a spectacular but short-lived career. The hypothesis made sense only on the assumption that most of the languages in the study have replaced their basic lexicon at roughly constant rates. To most Austronesianists this seemed very unlikely for a number of reasons—one being that Dyen's lexicostatistical classification conflicted sharply with the well-supported Oceanic hypothesis. In his review of Dyen (1965), Grace (1966) suggested that the exceptional lexical diversity of Melanesian languages is most likely due to many languages there having relatively low retention rates. Grace (1967) demonstrated variability in retention rates for 20 of the most stable items in the basic vocabulary list in six Oceanic languages. Some 15 years later Blust provided proof of such variability on a much larger scale (see 1.8 below).

#### *1.7 Consolidating the Oceanic hypothesis*

In the 1950s and 1960s, as more university departments began to employ scholars trained in modern linguistics, Austronesian linguistics became professionalised. For the first time there were considerable numbers of trained linguists and their students writing grammars and dictionaries of Austronesian languages. The new generation of Austronesianists included some who did historical linguistics, at first just a handful, gradually increasing to several dozen. The journal *Oceanic Linguistics* was established in 1962. The first international conference on Austronesian linguistics was held in Honolulu in 1974 and became a regular event.

Among Oceanicists the main focus of historical work in the 1950s, 60s and early 1970s was on sub-grouping and on phonological, lexical and grammatical reconstruction. Reconstructive work relied heavily on exemplary languages. There were good reasons for this. In the first place, most of the best-described Oceanic languages belonged to the exemplary category. In the second place, conservative daughter-languages are much better witnesses than aberrant daughter-languages for reconstructing the proto-language. Starting with ill-behaved daughter-languages is a poor strategy, likely to bring more headaches than solutions. Once the history of the conservative languages is reasonably well understood this provides established points of reference for forays into more difficult territory.

One important outcome of this work was the consolidation of the Oceanic hypothesis. Additional innovations defining an Oceanic subgroup were found, mainly in the domain of morphology and morphophonology (e.g., Blust 1977, Lichtenberk 1985, Lynch 1996, Pawley 1973). Numerous refinements to the sound system of POC have been made (Blust 1978, 1981a; Haudricourt 1971; Lichtenberk 1978; Milke 1968; Lynch 2000; Lynch, Ross and Crowley 2002; Ross 1988, 1989; Wolff 1974). The body of POC lexical reconstructions has grown to upwards of 1500 (the most detailed account is in Ross *et al.* (1998, 2003, in prep.), although Blust 1995a contains more than 4000 PMP lexical reconstructions with supporting cognate sets many of which have Oceanic reflexes). Extensive sets of lexical reconstructions for various lower-order proto-languages within Oceanic stages have also been made, including Proto Polynesian (Biggs and Clark n.d.), Proto Micronesian (Bender *et al.* 2003), Proto Central-North Vanuatu (Clark n.d.) and Proto Southern Vanuatu (Lynch 2001).

The upper sections of the Austronesian family tree have been quite drastically revised, chiefly in a series of papers by Blust between 1977 and 1999, with evidence accumulating that Oceanic is no higher than a fourth-order branch of Austronesian (Blust 1995b), as indicated in Figure 2.

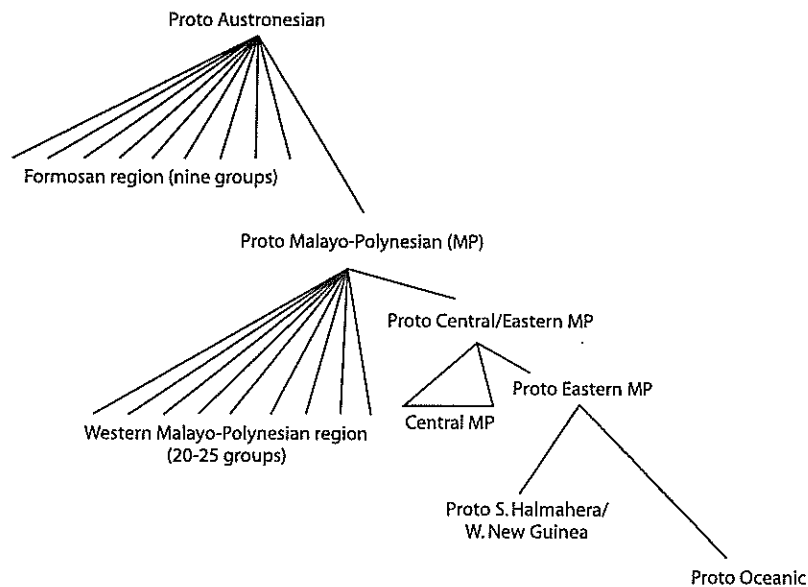


Figure 2. An Austronesian family tree (after Blust 1995b).

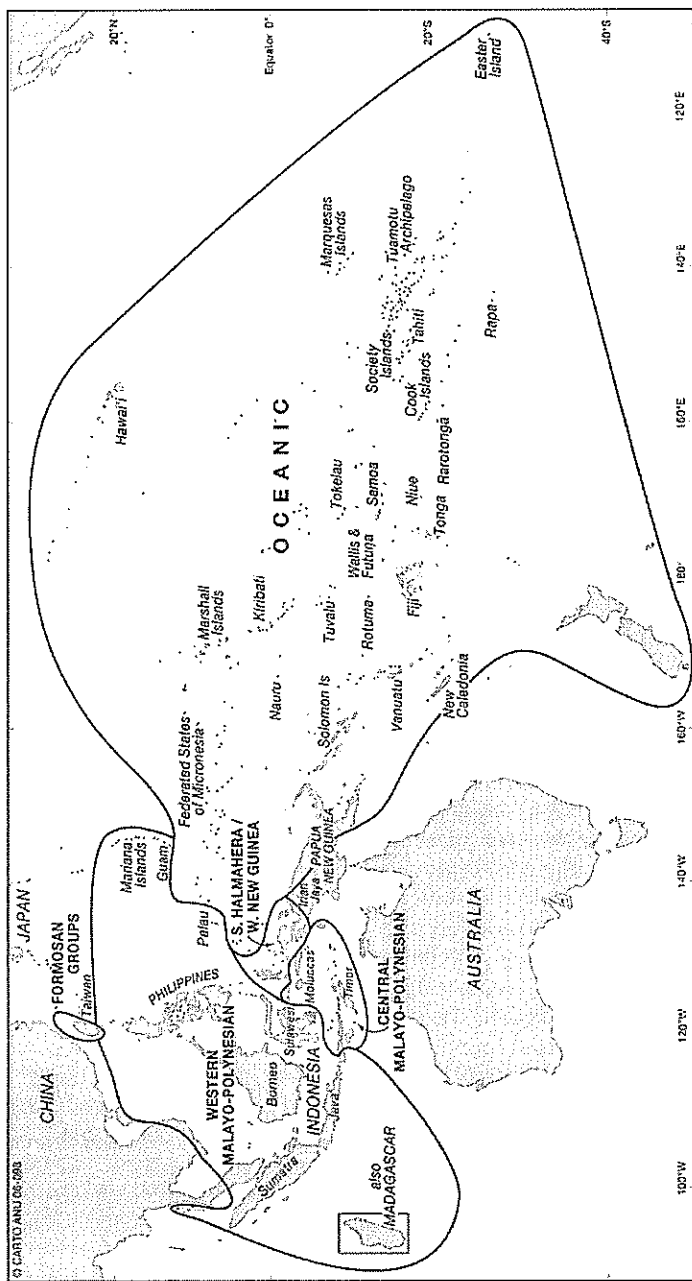


Figure 3. Distribution of the Austronesian family and its major subgroups.

The western boundary of Oceanic in New Guinea was determined as lying between 136 and 138 degrees East (see Figure 3). Blust (1978) showed that the Austronesian languages of Cenderawasih (Geelvink) Bay and South Halmahera are not Oceanic but form a subgroup that is almost certainly the closest relative of Oceanic. Grace (1971b) and Ross (1996a) showed that the languages of the Sarimi coast and Jayapura, to the east of Cenderawasih Bay, have undergone at least some of the sound changes diagnostic of Oceanic (other changes are indeterminate).

#### *1.8 Blust's proof of variable retention rates*

Grace's point about variable retention rates was proved beyond reasonable doubt in an ingenious study by Robert Blust. Using as his baseline Proto Malayo-Polynesian (PMP) lexical reconstructions representing some 200 basic concepts, he compared 55 Malayo-Polynesian languages and showed that they vary greatly in their rates of lexical retention (Blust 1981b). Later he extended the sample of languages to 230 (Blust 1999). The lexically most conservative language in his sample was Malay, which has kept 58 percent of the PMP words. The most conservative Oceanic languages, such as Fijian and Samoan, have kept around 40 percent, similar to the average for most Western Malayo-Polynesian and Central Malayo-Polynesian languages. The average number of retentions for the Oceanic languages is, however, much lower: 23.6 percent, chiefly owing to low scores among certain languages of Melanesia. The most innovative language was Kaulong of New Britain, which retains only 5 percent. A number of other languages of Melanesia score between 7 and 12 percent.

#### *1.9 Estimating absolute rates of lexical replacement: Enter archaeology*

Blust's study of variable retention rates allows the notions "lexically well-behaved" or "lexically aberrant" to be quantified in terms of the proportions of basic vocabulary items retained by sister languages since the breakup of a common ancestor. But other discoveries now allow us to go further and speak with some confidence about the absolute rates of lexical replacement in particular Malayo-Polynesian languages.

Until recently linguists had little idea of the precise dates and directions of the early stages of the dispersal of Austronesian languages. However, archaeological and linguistic work over the past few decades has changed that. The spread of the Lapita culture and its forebears in Island Southeast Asia is strongly associated with the initial spread of Austronesian languages (Bellwood 1997; Green 2003; Kirch 2000; Pawley 2002, 2003; Shutler and Marck 1975; Spriggs 1997).

It now appears that the first Neolithic culture to enter Island Southeast Asia came into Taiwan from southeast China about 5,500 years ago. This

culture was characterised by sedentary settlements with substantial wooden houses, pottery-making, cultivation of rice, domesticated pigs, chickens and dogs, and a distinctive array of tool and ornament types. After some 1500 years of local diversification in Taiwan, bearers of one of the Taiwan regional Neolithic cultures settled the Batanes Islands and Luzon around 4000 years ago (Bellwood and Dizon 2005, *in press*). From there variants of this culture spread rapidly to various parts of the Philippines and Indonesia and to the Marianas and Northwest Melanesia. By 3400-3300 B.P. one variant had reached the Bismarck Archipelago, in the manifestation known as the Lapita culture. Between 3200 and 3000 B.P. bearers of the Lapita culture colonised Remote Oceania, settling in the Santa Cruz group, Vanuatu and New Caledonia. By 3000-2900 B.P. they had reached Fiji and Tonga.

Although humans colonised New Guinea, New Britain and New Ireland by 40,000 years ago and reached Bougainville some 30,000 years ago (Kirch 2000, Specht 2005, Spriggs 1997), there is no archaeological evidence of pre-Lapita occupation of any islands in Remote Oceania. Evidently the pre-Lapita inhabitants of Near Oceania lacked the sailing capabilities and the food production techniques to establish viable settlements in Remote Oceania.

The break-up of Proto Malayo-Polynesian can be placed at around 4000 B.P.—the time when the Taiwan Neolithic spread into the Batanes Islands, and Luzon—and the breakup of POc at no later than about 3200-3100 B.P.—the time when the Lapita Neolithic spreads into Remote Oceania. We can use the 4000 B.P. date as a baseline for estimating retention (or replacement) rates of the Malayo-Polynesian languages in Blust's sample. Table 3 shows what would happen over 4000 years if the average rate of lexical replacement per 1000 years were 10, 20, 30, 40 and 50 percent respectively. The lower figures in each column show the percentage of original lexicon retained.

Table 3: Percentages of basic vocabulary retained at different replacement rates over four millennia.

Millennia	Replacement rates				
	10%	20%	30%	40%	50%
1	90	80	70	60	50
2	81	64	49	34	25
3	73	51	34	24	12
4	65	41	24	14	6

By these calculations, the most innovative language in Blust's sample, Kaulong, has replaced its basic lexicon at an average rate of about 50 percent per millennium, whereas the rate in Fijian and Samoan is about 20 percent. The replacement rate in the most conservative MP language, Malay, is only about 12 percent per millennium. The differences between the extremes in rate per millennium are considerable but it is their cumulative effect over time that is more striking.

## 2. PROGRESS SINCE 1970 IN UNDERSTANDING WHY SOME OCEANIC LANGUAGES OF MELANESIA HAVE CHANGED MUCH MORE THAN OTHERS

### 2.1 *Competing explanations*

Showing that languages have changed their lexicons (or other components) at variable rates is one thing. Providing a satisfactory explanation for extreme differences in rates of change is another. I turn now to an assessment of progress since about 1970 in understanding how some Oceanic languages of Melanesia came to be aberrant.

It was noted earlier that in the 1950s, 1960s and early 1970s the bulk of historical work in Oceanic used exemplary languages as key witnesses, for strategic reasons. During the 1970s, with better descriptive data becoming available for a wider range of languages and with a fairly secure framework of POc reconstructions in place, more scholars were emboldened to begin working out the history of some of the aberrant languages.

Five main hypotheses had been proposed to explain the aberrant Melanesian languages: (a) the extreme pidginisation hypothesis proposed by Ray and Capell, which holds that all Melanesian languages stem from pidgins, created when Papuan-speaking communities adopted as their mother tongue an imperfectly acquired Austronesian language, (b) deep genealogical diversity, (c) extensive change due to organic (language-internal) processes, (d) extensive change due to community-internal social processes, and (e) extensive borrowing between Oceanic and Papuan languages. Of the five, only three remained viable. By the 1970s the consensus among Austronesianists was that (a) and (b) could be ruled out, leaving (c), (d) and (e) as the most likely possibilities.

In Northwest Melanesia (e) has clearly been a major factor and I will return to this in 2.4. But for the Southeast Melanesian region, with the exception of the Santa Cruz area, (e) looked to be unlikely because there was no direct evidence that non-Austronesian languages had ever been spoken in that region.

For most of Southeast Melanesia that left (c) and (d). Now it is the natural bent of historical linguists to seek to explain change in terms of organic (system internal) processes, as described under (c) in the first section of this paper, and for most of those linguists who worked on aberrant languages of Southeast

Melanesia in the 1970s the question was: how much of the change undergone by these languages can be satisfactorily attributed to organic change?

To talk usefully about how types of organic change come about it is necessary to distinguish between different subsystems of a language. The import of these contrasts has to do with what factors trigger changes, how much impact a change to one part of the system has on other parts and on how particular kinds of changes spread through the speech community.

One important distinction is between systems that people are able to consciously manipulate with some ease and systems that operate in a very mechanical way, largely below the level of consciousness. Systems where the units and relations are strongly conceptual (representing concepts with real world associations) and where the units are isolable fall into the first category. Broadly speaking, lexical items (roughly, words and conventional phrases) are the part of language that people can consciously manipulate with most ease. Lexical units are therefore fairly vulnerable to influence by social factors. However, insofar as the lexicon is a large, open system with many relatively independent subsystems, change in one part of the lexicon has little impact on other parts.

Systems that are weakly conceptual or a-conceptual (the units and their relations have no meaning in themselves) and where the boundaries of the units are not very transparent generally operate below the level of consciousness. Phonological systems fall into this category and for the most part speakers do not consciously manipulate the units. Such systems can therefore be very stable. However, because they are tight-knit systems, with interdependent parts, they can also change dramatically in a fairly short time, when one or two small systemic changes provide the preconditions for further changes which in turn may "bring the house down", so to speak. The far-reaching effects of regular consonant-vowel metathesis on vowel systems (Blevins and Garret 1998), such as has occurred in Rotuman, Kwara'ae and Ririo (see 2.2), provide one class of examples, and the sequence of changes exhibited by Southern Vanuatu languages (also see 2.2) provide another.

One is tempted to say that grammar lies between these two extremes. But in fact the heading "grammar" subsumes a cluster of diverse systems that are relatively independent of one another. Particular morphological paradigms—ways of forming words by sets of inflectional and derivational affixes—tend to be closed, tight-knit and low on conceptual content. Morphological subsystems may be extremely stable over long periods of time but may also be transformed quite rapidly as a result of sound change or other system-internal changes. There are other systems of grammatical markers that are intermediate between morphology and lexicon. Syntax, the rules for combining words into larger constructions, is made up of some

rather highly structured subsystems that are very largely a-conceptual, but some elements of syntax, such as word order, are more open to conscious manipulation than morphology.

Of course, all innovations begin with individual speakers. Whether an innovation is nipped in the bud or spreads through an entire speech community (or some part of it) is determined by social and demographic factors. Oceanic linguists have seldom undertaken case studies of the spread of innovations across speech communities, recording the kinds of information from which comparative linguists might draw generalisations. Geraghty's (1983) work on Fiji remains by far the best study of dialect geography combined with a historical perspective.

In recent decades considerable progress has been made in reconstructing the sequence of changes undergone by some of the aberrant languages. My comments on this work will necessarily be very sketchy. In the last 35 years upwards of 500 papers and books have been published on Austronesian historical linguistics—indeed, more work has been done in this period than in the previous 200 years. Around half of these works have dealt with issues in Oceanic historical linguistics.

## 2.2 *Phonological change*

POc is reconstructed as having a rather simple syllable and root structure. Syllables consisted of a vowel alone or a consonant plus a vowel, with word-final syllables able to have a final consonant. Roots could consist of one, two, three and occasionally more than three syllables. It follows from syllable structure constraints that no phonemic consonant clusters were allowed in roots or complex words, e.g., disyllabic roots had the shape (C)V(C)V(C) and trisyllables (C)V(V)V(C)V(C). Twenty three consonants and five vowels (\*a, \*e \*i \*o \*u) are reconstructed (Lynch *et al.* 2002).

Many languages of Southeast Melanesia have drastically modified the POc sound system. For example, some New Caledonian languages have developed very complex vowel systems, some with more than 20 contrasting vowels, including contrasts between nasal and oral vowels (Gordon and Maddieson 1999, Haudricourt 1971, Rivierre 1973), and tone contrasts. Iaai, in the Loyalties, has developed 37 consonants (Ozanne-Rivierre 1976). In some languages the inventory of consonants had been considerably reduced, as a result of losses and mergers.

We certainly know a great deal more about how certain languages of Southeast Melanesia came to be phonologically aberrant than was the case in 1970. A linguistic survey of Vanuatu by Tryon (1976) yielded tables listing the most common reflexes of POc consonants and vowels of 179 languages and dialects. Tryon and Hackman (1983) did the same for nearly



Table 4: Probable sequence of sound changes to some POc words in Sye, Lenakel and Anejom (adapted from Lynch 2001:105-6).

1. Sye			
POc	<i>*e tama-ña</i>	<i>*kulit</i>	<i>*makubu-ña</i>
Pre-PSV	<i>e-ta'ma-na</i>	<i>na-ku'liti</i>	<i>maku'bu-na</i>
(Pre-deletion rules)	<i>e-tə'ma-na</i>	<i>no-ku'lisi</i>	<i>moku'bu-na</i>
MEDIAL VOWEL DELETION	<i>e-t'ma-na</i>	<i>no-k'lisi</i>	<i>mok'bu-na</i>
FINAL VOWEL DELETION	<i>'e-tma-n</i>	<i>no-k'lis</i>	<i>'mokbu-n</i>
(Other rules)	<i>'etme-n</i>	<i>no'yleh</i>	<i>'moypo-n</i>
	'his father'	'skin'	'his grandchild'
2. Lenakel			
POc	<i>*panako</i>	<i>*na lima-ña</i>	<i>*na bayan</i>
Pre-PSV	<i>a-pa'nako</i>	<i>na-li'ma-na</i>	<i>na-ba'yani</i>
(Pre-deletion rules)	<i>a-pə'nako</i>	<i>ne-li'ma-na</i>	<i>na-bə'yani</i>
MEDIAL VOWEL DELETION	<i>a-p'nako</i>	<i>ne-l'ma-na</i>	<i>na-b'yani</i>
FINAL VOWEL DELETION	<i>'a-pnak</i>	<i>'ne-lma-n</i>	<i>'na-byan</i>
(Other rules)	<i>'əvna-k</i>	<i>'nelmə-n</i>	<i>'nəpien</i>
	'steal'	'his hand'	'bait'
3. Anejom			
POc	<i>*keli</i>	<i>*na lima-ña</i>	<i>*na bayan</i>
Pre-PSV	<i>a-ke'li-i</i>	<i>na-li'ma-na</i>	<i>na-ba'yani</i>
(Pre-deletion rules)	<i>a-ke'ji-i</i>	<i>ne-ji'ma-na</i>	<i>ne-bə'yañi</i>
MEDIAL VOWEL DELETION	<i>a-k'ji-i</i>	<i>ne-j'ma-na</i>	<i>ne-b'yañi</i>
FINAL VOWEL DELETION	—	<i>'ne-jma-n</i>	<i>'ne-byañ</i>
(Other rules)	<i>ay'ji-i</i>	<i>'nijma-n</i>	<i>'nepyañ</i>
	'dig (TR)'	'his hand'	'bait'

100 Solomon Islands languages and dialects. However, the sheer number of languages combined with the scarcity of good descriptions meant that these tables leave many loose ends.

There have been a number of more detailed studies. Painstaking work on the development of the Southern Vanuatu languages by John Lynch (1978, 2001) has teased apart their complex phonological histories and shown that many lexical retentions have been disguised by a series of sound changes. Table 4 contains a few examples from Lynch (2001) that show the steps by which POc prototypes were transformed into very different forms in three Southern Vanuatu languages. "Pre-PSV" here refers to "Pre Proto Southern Vanuatu", a stage prior to Proto Southern Vanuatu.

Significant advances have been made in understanding sound changes in the notoriously difficult New Caledonian languages, e.g., by Geraghty (1989), Haudricourt (1951, 1971), Lynch and Ozanne-Rivierre (2001), Ozanne-Rivierre (1982, 1992, 1995), Ozanne-Rivierre and Rivierre (1989) and Rivierre (1991, 1993). Once the sound changes in these New Caledonian languages have been unravelled it turns out that cognates are more plentiful than appears on casual inspection.

Alexandre François has recently shown how languages of the Banks Islands have by a series of natural changes developed systems of from six to 16 vowels (François 2005). In Rotuman the number of contrasting vowels doubled from five to ten because of metathesis, specifically, anticipatory copying of a vowel in the next consonant-vowel syllable, caused unlike vowels to be adjacent and to fuse (Biggs 1965, Blevins and Garret 1998). Blevins and Garret (1998) note that Kwara'ae of Malaita (Sohn 1980) and Ririo of Choiseul (Layock 1982) are in the process of changing their vowel systems in ways quite similar to Rotuman. In Oceanic cases of such transformations are not confined to Melanesian languages. For instance, most Micronesian languages have developed vowel systems a good deal more complex than that of POc (e.g., Bender 1968, Dyen 1949).

### 2.3 *Grammatical change*

There have been many studies of change in particular grammatical subsystems in Melanesian languages but most have focused mainly on relatively conservative languages, e.g., Clark (1973), Evans (2003), Geraghty (1983), Lichtenberk (1985), Lynch (1996), Pawley (1972, 1973), Ross (1988, 2004a, 2004b) and few have examined single languages in depth. Investigations of morphosyntactic change undergone by more innovative languages are fewer. Examples can be found in Chapters 5-7 of Lynch's (2001) study of the Southern Vanuatu subgroup, Crowley's (2000) study of Erromangan verbs, and in several of the papers in Brill and Ozanne-Rivierre (2004).

#### 2.4 Other models to explain extreme lexical change and borrowing

While far-reaching changes in phonology and morphology can often be readily attributed to system-internal factors, that some Southeast Melanesian languages retain much less of the POc lexicon than others remains something of a puzzle. The most extreme degree of lexical replacement is found in Dehu and Negone of the Loyalties and in several languages of the Santa Cruz area, particularly Teanu of Vanikoro (Francoise 2006) and the three Reefs-Santa Cruz languages whose status as Austronesian is disputed (see 2.5). For these languages the percentages of secure reflexes of PMP reconstructions on the 200 item list is comparable to that of Kaulong (see 1.8). It is unlikely that such extreme lexical replacement can be accounted for solely in terms of system-internal factors. Pawley and Ross (1995) refer to a number of “external” circumstances and processes likely to have favoured rapid change in particular Oceanic languages:

- (i) Bilingualism between Oceanic and Papuan neighbours, sustained by intermarriage and trade.
- (ii) Taboos on using words coinciding with names of chiefs or the dead.
- (iii) Social pressures to maintain or accentuate the distinctiveness of one’s language (or dialect) from one’s neighbours.
- (iv) Small size of speech communities as a result of migration, habitat, political structures, etc.
- (v) Changes of physical environment following migration.
- (vi) Cultural changes generated internally or by contact.

Name taboo, especially on using the names of dead chiefs, has been widely reported for Oceania. Chowning (1985, 1986) attributes rapid lexical change in a number of languages of New Britain (including Sengseng and Kaulong) to name taboo and borrowing. Keesing and Fifi’i (1969) have written on name tabooing in Kwaio of Malaita, but I do not know of any such studies of societies in Southeast Melanesia. In my view name taboo is unlikely to have been a major cause of low lexical retention rates in this region.

Among the above-mentioned factors the one that has received most attention is bilingualism in Northwest Melanesia—not only Oceanic-Papuan bilingualism but also among speakers of neighbouring Oceanic languages. It is generally agreed that sustained bilingualism among small language communities, often associated with a high frequency of intermarriage and sometimes with the merging of populations drawn from distinct speech communities, can lead to large scale lexical borrowing and to radical phonological and grammatical

change and to language shift (Bradshaw 1997; Chowning 1986; Holzknecht 1994; Ross, 1996b, 2001; Thurston 1987, 1994; Tryon 1994).

Within Southeast Melanesia (where Oceanic-Papuan bilingualism is not attested) there have been insightful studies of lexical borrowing that introduces useful words (Clark 1982, 1994; Lynch 1994) but also of borrowing that yields no obvious practical gain (Clark 1982). Rivierre (1994) shows how a number of languages of northern New Caledonia have enriched their phonemic inventories through lexical borrowing. A collection of case studies of borrowing among Oceanic languages can be found in Geraghty and Tent (2004).

Extensive lexical borrowing greatly complicates the task of making sense of sound correspondences. Grace (1973, 1981, 1992, 1996, 1997) describes his efforts to establish regular correspondences between Canala and Grand Couli, two neighbouring languages in southern New Caledonia that appear to be closely related. Each has 26 consonant phonemes. Canala has 18 vowels and Grand Couli 14. These inventories of about 40 phonemes are associated with at least 291 different sound correspondences.

But not all neighbours borrow from one another in such a messy way. Grace (1992) offers a social explanation for the fact that some Oceanic languages show relatively regular sound correspondences with closely related neighbouring languages, while others exhibit highly irregular correspondences. He suggests that whereas the well-behaved languages have been spoken by predominantly monolingual communities that have close-knit social networks with sharply focused linguistic norms, the aberrant languages have been spoken in a very different social milieu—one where there are diverse networks crisscrossing different languages and where there are no well-defined linguistic norms.

William Thurston (1987, 1994) has criticised the “gradualist” Neogrammarian model of linguistic change that has dominated Austronesian linguistics in the post-Ray/Capell era. Based on his fieldwork among languages communities in northwest New Britain (one Papuan, the others Oceanic) he proposes a distinction between two kinds of languages, *esoteric* and *exoteric*, in terms of their social functions. An esoteric language is one spoken chiefly by insiders, people with the same mother tongue. An exoteric language may have mother-tongue speakers but it is also much used as a *lingua franca* by people who have different mother tongues. The hypothesis is that the two types of language are prone to change in different ways. Whereas speakers of an esoteric language tend gradually to add structural complexity that makes the language more efficient as a vehicle of communication among native speakers (esterogeny), speakers of an exoteric language tend to simplify its structure because the language must be easily learned by outsiders (exoterogeny).

At different times in its history a language (L) may change from one to the other function. During a period when L serves as an exoteric language it may undergo quite abrupt simplification of structure and lexical items may be borrowed freely from other languages that are spoken in the area where it is a *lingua franca*. Over several millennia a language may go through periods of relative stability punctuated by episodes of rapid change. Furthermore, from time to time small communities who speak a complex esoteric language will choose to abandon their mother tongue in favour of an exoteric language that is more useful to them because it is a regional *lingua franca*. It can be seen that Thurston's model gives a place to pidginisation, in the sense that a new, simpler variety of a language develops as a result of its use by non-native speakers.

Thurston seeks to explain the pattern of linguistic diversity in northwest New Britain largely in terms of these socio-linguistic processes but admits (Thurston 1994:604) that without a magic window on the past it is hard to know how well the model accounts for the linguistic history of this or other regions. Malcolm Ross (pers. comm.) finds that the data Thurston presents for the Lamogai languages are consistent with his claim of esterogeny, but his data for Lusi do not support the claim of exoterogeny. For a wide-ranging review of Thurston (1987) see Bradshaw (1995).

It is reasonable to suppose that changes will spread through very small speech communities faster than large communities. Furthermore, in small language communities surrounded by larger ones a high proportion of spouses are likely to come from outside, speaking a different mother tongue. It follows that languages that have been through several population bottlenecks as a result of episodes of migration, warfare, disease, etc. can be expected to have changed faster than others. The Austronesian dispersal offers a fine laboratory for studies of population bottleneck effects but most linguistic studies touching on this matter (e.g., Blust 1991, Pawley 1970, Ross 1991) have not treated lexicon. Clark (1994) and Ozanne-Rivierre (1994) are exceptions—both look at borrowing by small communities speaking Polynesian Outlier languages from their Melanesian neighbours. In the case of Fagauvea, lexical borrowing has led to a spectacular increase in the number of phonemes (from five vowels to nine and from 10 consonants to 27) and to a change in syllable structure.

## 2.5 Blust 2005: *Were there pre-Austronesian populations in Southeast Melanesia?*

In a recent review article a leading Austronesian historical linguist does a surprising thing. Robert Blust (2005) seeks to resurrect the notion that Papuan languages were spoken in Vanuatu and in what he calls "Southern Melanesia" (the Loyalties and New Caledonia) long before the arrival of

Oceanic languages. He is led to this view by four observations. First, some of the languages of Vanuatu and Southern Melanesia have two structural features that are present in many Papuan languages but are said to be rare in Austronesian languages spoken elsewhere, except for those spoken in regions where there are Papuan languages.

Currently accepted views of Pacific prehistory leave the distribution of quinary number systems and serial verbs in Oc [Oceanic] languages unexplained. Papuan languages that might have served as sources of these structural features are spoken in New Guinea, the Bismarck Archipelago, and the Solomons chain (Bougainville, Vella Lavella, and the Russell islands), but nowhere east or south of Santa Cruz Island. (Blust 2005:554)

Second, there is a piece of evidence from language family distributions against the view that pre-Austronesians lacked the seafaring technology to reach and settle any part of Remote Oceania.

... the Papuan languages of Santa Cruz themselves raise questions that have never been satisfactorily answered: if the settlement of the Pacific Islands beyond the Solomons chain required navigational skills that were introduced with the arrival of AN [Austronesian] speakers, how did Papuan speakers reach Santa Cruz, which required an open sea crossing of more than 200 miles, with a small and unknown landfall?

... The simplest conclusion... is that Papuan speakers preceded AN speakers in Santa Cruz by many millennia, long enough for all traces of their relationship to languages in western Melanesia to be eradicated by accumulated change.

Blust acknowledges that this conclusion sits awkwardly with the archaeological evidence.

The problem with this conclusion is that the currently accepted archaeological baseline in Santa Cruz begins with the arrival of the Lapita pottery complex (hence speakers of AN languages) no earlier than 3,200 BP (Kirch 2000:94). In short, the archaeology and the linguistics do not add up to a consistent interpretation of the settlement history of this area. (Blust 2005:554)

The third and fourth arguments are biological and cultural. Blust assumes on distributional grounds “that POc speakers were southern Mongoloids who... lacked such cultural characteristics as piercing of the septum or the use of penis sheaths” (554-55). However, speakers of Melanesian languages generally have physical traits, such as dark skins and frizzy hair, which resemble those of Papuan speakers. On Espiritu Santo and Malakula in Vanuatu, he writes:

the prominent noses and full beards of many men are strikingly similar to features common among New Guinea highlanders. These physical traits agree with cultural traits that in some cases are highly distinctive in global perspective, as the insertion of decorative objects through the pierced septum and the use of penis sheaths in both northern Vanuatu and interior New Guinea. (554-55)

Blust (2005) considers three possible explanations of the presence of “rather distinctively Papuan traits of phenotype, language, and culture” in areas where Papuan languages are not spoken.

1. All Oceanic speakers who moved eastward into the uninhabited Pacific had acquired these traits through contact with Papuan communities in western Melanesia.
2. The preceding, but both “mixed” and “unmixed” Oceanic speakers moved out of western Melanesia together.
3. Oceanic speakers in central and southern Melanesia acquired them from Papuan speakers via contact *in situ*.

He rejects the first and second hypotheses. Hypothesis 1 cannot be correct because if these Papuan physical, cultural and linguistic traits were carried by the first Oceanic speakers to settle Remote Oceania some 3000 years ago they would have been part of linguistic communities ancestral to those of Micronesia and Polynesia. But this is not the case, because Papuan phenotypic, cultural and linguistic traits are essentially absent in Micronesia and Polynesia. Hypothesis 2 is said to be implausible because it requires us to suppose that the Oceanic speakers who first settled Remote Oceania

... consisted of disparate groups, some showing strong evidence of physical, cultural, and linguistic contact with Papuans, but others retaining their southern Mongoloid phenotype, decimal counting systems, and so on.... To make an implausible scenario even more implausible, only that part of the migrating population that was southern Mongoloid and that lacked Papuan cultural and linguistic traits was able to reach Micronesia and Polynesia. (555)

That leaves hypothesis 3, that “the Papuan features of language, culture, and physiognomy” that are common to Oceanic speakers in Vanuatu and Southern Melanesia must have been acquired by contact *in situ*. The adoption of this position, however, leads to a crisis of evidence, because there are no Papuan languages spoken south of Santa Cruz, and the archaeology of central and Southern Melanesia has to date yielded no indication of a pre-Lapita population. Yet, Blust concludes:

There is only one obvious way out of this dilemma, and that is to abandon the prevailing orthodoxy, which holds that the first settlers of all parts of the Pacific east of the Solomons were the bearers of the Lapita pottery complex, hence speakers of AN languages. Instead, it appears almost certain that Papuan languages were spoken in Vanuatu and Southern Melanesia at the time of initial AN contact, and that the Papuan features in the AN languages of this region were acquired locally, rather than mysteriously imported from areas where Papuan languages are still spoken today. The relative sizes of the two populations may be roughly estimated by the physical and cultural types that have survived, and the degree of structural convergence in language. In the Southeast Solomons, where historical populations are relatively light-skinned, and Papuan linguistic and cultural features are moderate, the early AN-speaking population presumably was relatively large in relation to the Papuan substrate, while in Espiritu Santo or Malakula in Vanuatu the reverse appears to be true. Whatever the details, Papuan languages eventually disappeared throughout Vanuatu and Southern Melanesia, but left traces of their former presence in the form of typological skewing. (2005:555)

Blust's reasons for rejecting hypothesis 1 are sound. However, his arguments for preferring hypothesis 3 to 2 appear to be frail. First, Blust underestimates the amount of archaeological work done in Vanuatu and New Caledonia. Both regions have been quite intensively surveyed by archaeologists over the past 40 years. With every passing year the case for positing a pre-Lapita occupation of these regions has grown weaker (Bedford 2003, 2006; Sand 2003; Spriggs 1997). If there was such a population, it must have been small enough to be archaeologically invisible. On these grounds hypothesis 3 must be rejected as unlikely.

Second, the presumption that the famously aberrant languages of the Reefs-Santa Cruz area are Papuan is unjustified. Their status as Austronesian or otherwise has long been in dispute (Lincoln 1978, Wurm 1978) and remains so, but the availability of better descriptive data now tends to favour the view that they are fundamentally Oceanic (Ross pers. comm.). As for positing pre-Austronesian (i.e., Papuan) languages in Vanuatu, the Loyalties and New Caledonia, Blust is aware of the objection that not a single such language has survived. He might reasonably point to parallels in parts of Northwest Melanesia where all or almost all pre-Austronesian languages have disappeared on certain large islands: none are left in the Admiralties, only one on New Ireland and only four in the main Solomons group east of Bougainville. But the firm view of archaeologists that the Lapita people were the first permanent settlers of Southeast Melanesia makes the mass extinction hypothesis considerably less plausible for this region.

The arguments from linguistic typology are also not compelling. There are two problems with the argument concerning serial verb constructions



(SVCs). First, SVCs are not particularly rare in Austronesian languages outside of Oceanic. Certain types of SVCs are present in Taiwan, in Western Malayo-Polynesian and Central Malayo-Polynesian, and they must be attributed to POc itself (Ross 2004b). Second, the types of SVC found in Vanuatu and Southern Melanesia are structurally unlike those found in the Papuan languages of New Guinea. The history of serial verb constructions in Oceanic merits further study.

The case for quinary numeral systems is hard to evaluate. Blust observes that quinary systems are absent from Micronesia and Polynesia and very rare in Island Southeast Asia. He points to reasons why quinary systems must have developed independently, i.e., post-POc, in Oceanic languages of the New Guinea area and in languages of the Vanuatu-Southern Melanesia area. One problem here is that it is unclear whether the quinary systems found in some Papuan languages are original or come from Austronesian sources. I think of typical counting systems of Papuan languages as (a) one, two, many systems, and (b) body-parts (not just hands) systems, which almost always have uneven base numbers. Two possibilities merit further consideration: (i) That quinary systems existed in POc alongside decimal systems, and (ii) that quinary counting systems spread into parts of Vanuatu and southern Melanesia some time after Lapita settlement of the region.

We are left to consider hypothesis 2: that the bearers of the Lapita culture who settled Southeast Melanesia were a diverse population, including individuals of both "Southern Mongoloid" and "Papuan" phenotype. The notion that Lapita canoes from the Bismarck Archipelago carried some people of "Papuan" as well as "Southern Mongoloid" phenotype does not seem at all far-fetched. The Lapita colonisation of Remote Oceania was astonishing in its speed and scale. Dozens of new settlements were founded in different parts of Remote Oceania within a century or two, and this must have involved the movement of considerable numbers of people organised by ambitious and adventurous leaders. It is hard to imagine that the Oceanic-speaking Lapita migrants could have accomplished this rapid colonisation without recruiting men and women from non-Oceanic speaking communities that they came in contact with in Northwest Melanesia. Whether they were recruited as spouses, as slaves or in some other role, we may never know. That is not to say every Lapita canoe setting sail for Remote Oceania carried some passengers of Papuan stock, only that some vessels did.

Why did the Southern Mongoloid phenotype predominate in the founding populations of Western Polynesia? Perhaps the first Lapita canoes to reach Remote Oceania contained people who were of this phenotype. (One school of thought favours the view that the first Lapita movements bypassed the main Solomons group (Sheppard and Walter 2006), but evidence to the

contrary is emerging (Felgate 2001).) At any rate, this was the population that reached Tonga, presumably via Vanuatu and Fiji. As movements of Lapita peoples from Northwest Melanesia to Southeast Melanesia continued over the next few generations it may be that canoes carrying mixed populations came to predominate. At some point, though not necessarily in the Lapita era, populations of mixed descent reached the main islands of Fiji but not Rotuma or Western Polynesia. Comparative evidence from Lapita skeletal material, together with other evidence from population genetics, may in due course settle this issue.<sup>10</sup>

#### 4. CONCLUSIONS: WHAT HAVE WE LEARNT?

Grace has written that the aberrant languages of Melanesia provide a “special opportunity for Austronesian linguistics to make a theoretical contribution to general linguistics” (1997:18). By this he means that these languages seem to have developed in ways that were not foreseen in standard models of linguistic change and the challenge is to understand what these ways were.

What have we learnt? After 150 years of research and debate there are still many questions to be answered in understanding how the aberrant languages of Southeast Melanesia got to be the way they are. Still, a great deal has been learnt on some important issues. It has been established that all the languages in question are members of the Oceanic branch of Austronesian that have, for whatever reasons, changed much more than the conservative members of the family. Reconstructions of the phonology, morphology and lexicon of POc have allowed us to identify the ways in which particular languages have been conservative or innovative. The phonological histories of some (by no means all) of the aberrant languages of Southeast Melanesia are now reasonably well understood in the sense that the most probable sequence of structural changes has been worked out. There has been rather less progress in reconstructing the sequence of changes that have produced grammatically aberrant languages. In regard to basic vocabulary, it has been possible to measure rather precisely the rates of change of particular languages since the breakup of Proto Malayo-Polynesian and to show there has been enormous variability in retention rates among the Melanesian languages.

More progress has been made in understanding what linguistic changes occurred than in understanding why they occurred. In particular, why have some languages of Southeast Melanesia changed much, much more than others? The pidginisation hypothesis has been discredited. And while bilingualism between autochthonous Papuan speech communities and immigrant Oceanic communities has been an important factor in Northwest

Melanesia there is little reason to think this occurred in Southeast Melanesia. Thus, scholars have been led to look for social and demographic mechanisms that may have hastened or constrained linguistic change in particular cases. Historical linguists are not well equipped to investigate social and demographic mechanisms but it is fair to say that their best chance of achieving insights in this domain is by means of systematic studies of contemporary Oceanic speech communities, using the methods of ethnography and modern sociolinguistics. However, there remains considerable doubt that such mechanisms are enough to wholly explain the extent and nature of the change exhibited by the most pervasively aberrant languages of Southeast Melanesia, such as those of the Santa Cruz area, and Dehu and Nengone of the Loyalties.

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#### NOTES

1. Green (1991) argues forcefully that it is not very useful to think of "Melanesia" as a culture area or as a biogeographic region. He points out that a much more important biogeographic boundary is that between Near Oceania and Remote Oceania, and that human populations did not cross this boundary until some three millennia ago.
2. Although the first published use of the terms "aberrant" and "exemplary" to refer to Melanesian languages I have found is in Grace (1981), Grace made the same conceptual distinction in several earlier papers, such as Grace (1971a). He points out that there are some aberrant Austronesian languages in other regions but the majority are in Melanesia.
3. The data for the Solomon Island languages are from Tryon and Hackman (1983).
4. In addition to the 140 or so Melanesian languages spoken in Southeast Melanesia, about 60 are spoken in the main Solomons group, 24 in Bougainville, 40 in New Britain, 18 in New Ireland and Mussau, 29 in the Admiralties and about 150 in New Guinea or offshore Islands, including a number in Irian Jaya that do not belong to the Oceanic subgroup. It is pointless to claim exactness for these figures or for estimates for Southeast Melanesia because in many cases there are no clear grounds for deciding whether two speech traditions should be called distinct languages or merely dialects. However it is fair to say that these totals represent conservative estimates. If highly divergent dialects were to be distinguished consistently the numbers would be much higher.

5. We now know that humans reached New Guinea, New Britain and New Ireland around 40,000 years ago (Specht 2005 and various other contributions in Pawley *et al.* 2005, also Kirch 2000, Spriggs 1997). In New Guinea alone, according to the most recent classification, there are no fewer than 18 unrelated families and a number of isolates (Ross 2005). At least another six families have surviving representatives in Northern Island Melanesia. It is very likely that at least some of the Papuan families continue languages that were spoken in New Guinea and Northern Island Melanesia in the late Pleistocene.
6. After this paper was completed Diana Carroll (pers. comm.) pointed out to me that around the same time as Forster William Marsden (1782) tabulated lists of cognates and provided analysis that demonstrated the existence of the Austronesian family. He went beyond Forster in noting certain sound changes holding between the Austronesian languages in his sample and in including some languages of Melanesia in Austronesian. Marsden's linguistic work is reviewed in detail in Carroll (2005).
7. Ray's early and middle years as a scholar coincided with an era when diffusionism was highly fashionable in British ethnology, with scholars preferring to attribute local differences in custom and language to the effects of migrants rather than to *in situ* change.
8. The term "Oceanic" gained general acceptance as the name for the subgroup defined by Dempwolff following its use by Wilhelm Milke in the 1950s (Milke 1958a, 1958b, 1961), although it was probably first applied to a linguistic grouping several decades earlier by Wilhelm Schmidt (1899b).
9. It might be objected that the sample of Melanesian languages in Dempwolff's (1934-38) three volume work was too small for him to make the sweeping claim that all Melanesian languages belong to the Oceanic subgroup. It is true that in these three volumes Dempwolff cites evidence from just two Melanesian witnesses: Fijian and Sa'a (Malaita). However, such an objection would be based on a misperception. Dempwolff's actual sample of Melanesian witnesses was at least 30 and was taken from many regions. In his final work he chose for illustrative purposes just two languages for which data were particularly rich: he found more than 300 reflexes of Proto Austronesian etyma in each of Fijian and Sa'a. As Chrétien (1962) has observed, the full range of Melanesian languages examined by Dempwolff is evident from a reading of his earlier papers on Austronesian historical phonology, published between 1920 and 1929. On p.164 of volume 2 of Dempwolff 1933-38, 1934, Dempwolff writes, "I investigated material from all Melanesian languages following the method set forth in this volume", and he goes on to say that the innovations shared by Fijian and Sa'a "are common to all Melanesian languages" [my translation from the German: AP]. Of course, Dempwolff did not investigate every single language and he is at fault here for using "all" rather than identifying his sample precisely. But on the same page he singles out Tuna and Pala (Bismarck Archipelago), Lau (Malaita), Mota (N. Vanuatu), Aneityum (S. Vanuatu), Motu (south coast of New Guinea) and Gedaged (north coast of New Guinea) as languages with relatively large numbers of reflexes (at least 100-200) that show regular correspondences and these are among the languages cited in his earlier works.

10. A recent paper by Kayser *et al.* (2006) indicates that on their way through Melanesia the founding settlers of Polynesia recruited few women but more men from Papuan populations. Whereas 93.8 percent of mtDNA in Kayser *et al.*'s large sample of Polynesians is of Asian origin, only 28.3 percent of Polynesian Y-chromosomes is of Asian origin. The abundant skeletal material from the Teouma site in Vanuatu is consistent with this finding in that it contains, predominantly, robust males and gracile females (Stuart Bedford pers. comm.).

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