THE LINGUISTIC POSITION OF THE WESTERN ISLANDS, PAPUA NEW GUINEA

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1. GEOGRAPHICAL SETTING[1]

The Admiralty Islands lie in the north-western extremity of island Melanesia, between roughly one and three degrees south latitude. Together with the large islands of New Ireland, New Britain and their satellites, they form the Bismarck Archipelago. By far the largest island in the Admiralty group is Manus, with an east-west length (including the contiguous Los Negros Island) of about 100 km, and a maximum width across its hilly, heavily forested interior of about 30 km.

The north shore of Manus is fringed by a chain of populated islets, located generally at a distance of no more than 5 to 7 km, and all within sight of the main island. The most important of these (from west to east) are Harengan, Sori, Ponam, Andra, Hus and Pitjilu. In the same category we should perhaps include Bipi, situated a short distance off the western tip of Manus.

To the south of Manus is a far less compact and orderly collection of volcanic islands, ranging in distance from one or two to 40 km from the main island. The largest of these are Lou, an important source of prehistoric trade obsidian, and Baluan, noteworthy for its extensive disused stoneworks, locally attributed to the 'Mapou men', said to be a vanished race of little people. The nearer islands are occupied by speakers of Titan (the 'true Manus' of Mead 1930), and the Baluan-Pam-Lou group by speakers of south-east Admiralty languages (the 'Matankor' of most earlier writers).

Another congeries of volcanic islands that is also occupied by speakers of south-east Admiralty languages lies to the east of Manus at distances ranging from 15 km (Pak) to 80 km (Nauna) from the main island. The largest of these, second in size only to Manus itself is Rambutyo, located some 35 km south-east of Los Negros Island.

Manus, its immediate satellites, and the south-east Admiralty islands constitute a relatively discrete geographical unit centred just below two degrees south latitude, and except for Nauna bounded within 146'30'' and 148' east longitude. In earlier publications such as Moseley (1877), Ray (1891), and Schnee (1901) these were the only referents of the expression 'Admiralty Islands'. However, since Thilenius (1903), certain other islands to the west and north have been included – usually implicitly – in a larger Admiralty group. In order from east to west these are: 1) the tiny, remote Kaniet Islands, about 180 km north-west of the western tip of Manus, 2) the minute Anchorite Islands, some 40 km to the north-

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[1]   I am indebted to Malcolm Ross, who read and provided valuable commentary on an earlier version of this paper. Any surviving errors of fact or interpretation remain my sole responsibility.

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west of Kaniet, 3) the Agomes, or Hermit group (sometimes called Luf, from the name of the coral-ringed central high island), around 80 km south-west of Kaniet, or 180 km west and slightly north of the western tip of Manus, 4) the numerous atolls of the large Ninigo Lagoon, approximately 60 km further to the north-west, 5) the small island of Aua, Hunt or Durour, about 280 km north-West of Manus, and 6) approximately 40 km to the south-west of Aua the slightly larger island of Wuvulu, or Maty. Thilenius (1903) labelled these islands collectively the 'Western Islands of the Bismarck Archipelago'; other writers, such as Dempwolff (1904) and Grace (1955), have shortened this to the 'Western Islands'. With the exception of the Anchorite and Kaniet Islands, which are slightly north of one degree south latitude, all of the Western Islands (WI) lie between one and two degrees south latitude, and between approximately 143'50" and 145'25" east longitude.

Wuvulu and Aua are closer to the New Guinea mainland than to Manus, the first being less than 200 km from the Sepik coast, and only 180 km from Wogeo in the Lesser Schouten Islands. According to Hambruch (1908) Wuvulu warriors formerly raided the Sepik region, paddling their large war canoes, as they lacked sails.

The languages of the Admiralty Islands, together with numbers of speakers according to Wurm and Hattori (1981) are listed in Table 1. Hyphenated names indicate dialects of the same language; names separated by a slash are alternative designations for the same language. The presentation of language names follows a west-to-east geographical order. All estimates of numbers of speakers are for the mid 1970s.

TABLE 1: LANGUAGES OF THE ADMIRALTY ISLANDS

1.   Wuvulu-Aua (850 speakers)
2.   Kaniet (extinct)
3.   Seimat/Ninigo (some dialect variation; 450 speakers)
4.   Hermit (20 speakers)
5.   Bipi-Sisi (530 speakers)
6.   Lindrou/Salien/Nyada (2,200 speakers)
7.   Sori-Harengan (570 speakers)
8.   Likum (100 speakers)
9.   Levei-Tulu (1,100 speakers)
10.   Ponam (420 speakers)
11.   Andra-Hus (810 speakers)
12.   Ere-Lele-Kele-Kuruti (5 dialects; 4,660 speakers)
13.   Pelipowai/Bohuai/Pahavai (400 speakers)
14.   Nane (300 speakers)
15.   Okro (200 speakers)
16.   E (50 speakers)
17.   Leipon/Pityilu (650 speakers)
18.   Titan/Manus/M'bunai/Tito (2,250 speakers)
19.   Nali/Yiru (1,300 speakers)
20.   Loniu (460 speakers)
21.   Mokerang (200 speakers?)
22.   Papitalai (320 speakers?)
23.   Pak-Tong (970 speakers)
24.   Baluan-Lou-Pam (1,280 speakers)
25.   Lenkau (400 speakers)

26.   Penchal (400 speakers)
27.   Nauna (130 speakers)

2. BRIEF HISTORY OF RESEARCH

The island of Manus and its immediate satellites were discovered for Europe by the Spaniard Alvaro de Saavedra in 1528, and were named after the British admiralty by the English navigator Philip Carteret, who sighted Manus and several smaller islands on September 15, 1767. Four days later Carteret passed Aua, which he named Durour, and Wuvulu, which he named Maty. In 1817 the English sea captain Bristow approached, but did not land on Wuvulu, which he named 'Tiger Island' on account of the perceived ferocity of its inhabitants.

In the latter part of the nineteenth century German economic interest in the area intensified, and in 1885 Manus, its immediate satellites and the south-eastern islands were made a German protectorate. Following the establishment of the German administration scientific interest in the entire area increased markedly. In 1893 the German sea captain Dallmann landed on Wuvulu, and made the first collection of items of material culture, which he sent to Berlin. From 1897 to 1899 the ethnologist Georg Thilenius, working under the auspices of the Prussian Academy of Sciences, visited many parts of the Pacific for ethnological investigations. As part of this work he spent seven weeks in the Admiralty Islands, visiting Manus (which he called 'Taui'), the Agomes and Kaniet Islands and the Ninigo Lagoon. Thilenius was not able to visit Wuvulu (which he called 'Popolo'), but obtained some information from traders familiar with the island, including a vocabulary of 101 words. Somewhat longer vocabularies were collected from the Ninigo Lagoon, the Kaniet Islands, the Agomes Islands and a language called 'Taui', which was spoken on Manus. He published the results of this survey in 1903, referring to the islands in question as 'the Western Islands of the Bismarck Archipelago'.

In 1905 the renowned linguist Otto Dempwolff, who was then a medical doctor concerned with malaria research in New Guinea, published short vocabularies of 28 languages spoken in the New Guinea area. Among these languages were four identified as Wuvulu, Ninigo, Kaniet and Agomes. Much of his material was collected from plantation labourers recruited by the German New Guinea Company.

During this period Thilenius became Director of the Museum of Ethnology in Hamburg, and from 1908 to 1910 he directed the Südsee Expedition, the results of which were published in 12 volumes. Two of these volumes were devoted to the area that concerns us: 1. 'Wuvulu und Aua', by Paul Hambruch (1908), and 2. 'Admiralitäts-Inseln', by H. Nevermann (1934). Hambruch's volume contains vocabularies of Wuvulu and Aua.

Following the First World War German New Guinea (including the Admiralty Islands) became an Australian Trust Territory. Although Margaret Mead did the fieldwork for her well-known book, *Growing up in New Guinea* on the south coast of Manus during the early 1930s, no further information was collected on the languages until the late 1940s, when an Australian District Health Officer, W.E. Smythe, who had an amateur interest in linguistics, collected comparative vocabularies for most of the languages of Manus and the south-eastern Islands, and even more information on the language of the Ninigo Lagoon, which he called 'Seimat'. Most of this information remains unpublished.

Ideas regarding the structure and classification of the languages of the Admiralties were coloured at first by such non-linguistic considerations as physical type and material culture. Generally speaking, the peoples of the eastern Admiralties are dark brown to black, with frizzy hair, whereas the inhabitants of Wuvulu and Aua are light-brown or even olive, with wavy to slightly frizzy hair. Hambruch (1908), citing a certain Captain Andersen, described the Wuvulu-Aua people as 'Polynesians', of lesser physical stature than the populations of Polynesia itself. Dempwolff (1905:196) went so far as to suggest that these islands originally had a Melanesian population which was conquered by Polynesian invaders who slew the men and appropriated the women. In his view (inconsistent with his later view of Oceanic languages, but never formally retracted) Wuvulu-Aua is a 'Melanesian' language which has been modified phonotactically and grammatically by a Polynesian superstratum.

The tradition of appealing to external influence to account for various features of Admiralty language has continued into the present. Smythe (1970), for example, claims to have found linguistic indications of Micronesian influence in the area, although his proposed evidence fails to bear close scrutiny (Blust 1984). Similarly, Z'graggen (1975:117) claims that there is "strong evidence" that the group including Seimat and Kaniet "links with the Austronesian languages of the Lesser Schouten Islands". As shown by Ross (1988:329) there is, in fact, no linguistic evidence for this claim.

Published material on the languages of the Western Islands is summarised in Table 2.[2]

TABLE 2: PUBLISHED MATERIAL ON THE LANGUAGES OF THE WESTERN ISLANDS

SOURCE	Wuvulu-Aua	Seimat	Kaniet	Agomes	Type
Thilenius	101	–	289	296	117	lexical data
Dempwolff	490	–	305	210	361	lexical data
	6	–	–	5	–	verb paradigms
	38	–	–	5	–	toponyms
	88	–	–	28	–	personal names
	X	–	–	–	–	grammar notes
Hambruch	309	595	–	–	–	lexical data
	X	–	–	–	–	grammar notes
Smythe	–	–	X	–	–	sketch grammar
Z'graggen	–	170	186	117	–	lexical data

All numbers refer to number of lexical items, verb paradigms, etc. (not to number of pages). Dempwolff's grammatical notes on Wuvulu (including his ethnohistorical speculation) come to four pages, and Hambruch's to nine. Smythe's still unpublished grammatical sketch of Seimat is 78 typed pages.

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2   Differing referents for the same name, and differing names for the same referent have introduced a measure of nomenclatural confusion into discussions of the Admiralties. Most noteworthy are the following: 1) Thilenius (1903) includes Manus (called 'Taui'), together with its immediate satellites, among the 'Western Islands' of the Bismarck Archipelago. Later writers, as Milke (1958) restrict the term to the sense adopted here, thus defining 'Western' in relation to the island of Manus, rather than in relation to the Bismarck Archipelago as a whole; 2) Thilenius (1903) calls Wuvulu 'Popolo', Dempwolff (1905) writes Wuvulu and Kaniet as 'Wuwulo' and 'Kanied', and the German colonial writers in general call Seimat 'Ninigo'. Following a practice established by Smythe (n.d.) I use 'Ninigo' as a placename, but call the language 'Seimat'; 3) Smythe (1970:1231, fn. 9) maintains that his Kaniet material differs markedly from that of Thilenius. As will be seen, it is likely that more than one language was spoken in the Kaniet group.

From February to May 1975 the writer conducted a historically-oriented linguistic survey of the Admiralty Islands sponsored by the Department of Linguistics, Research School of Pacific Studies at the Australian National University. Material was collected for 27 speech communities, including three from the Western Islands, as follows: 1) Wuvulu (Aunna village): 700 lexical items, 20 sentences; 2) Aua (Pa'a village): 369 lexical items, 13 sentences; 3) Seimat (Awin village): 803 lexical items, 45 sentences. Wuvulu and Seimat data was collected from a single informant each, while Aua data was collected from two informants who worked simultaneously with me. During a brief encounter later in 1975 some 28 words were collected from a second Wuvulu speaker who spent a short time in Canberra. This speaker, for whom only the name 'Noah' was obtained, was born in Onni village, and his speech turned out to differ in some historically interesting particulars from that of my Aunna informant.[3]

Several hypotheses have been advanced concerning the classification of the languages of the Admiralty Islands. Those proposed up to the mid-1970s are usefully summarised by Healey (1976:353), who proposes a classification of his own as a "tentative compromise" between the often conflicting views of other scholars.

Although the languages of the Western Islands are sometimes casually included with those of Manus and its satellites in earlier discussions, this association appears to be based on considerations of geography rather than of language. Grace (1955) assigns Wuvulu and Aua and the languages of the 'Admiralty Islands' to different primary subgroups of the Oceanic branch of Austronesian. Milke (1958:59) includes the languages of the "Western Islands of the Bismarck Archipelago and Admiralty Islands" in his Group A, one of three primary divisions of Oceanic, but does not indicate whether he regards them as forming a genetic unit within this group. Agomes, on the other hand, is assigned by both Smythe (1970) and Healey (1976) to a group that includes many of the languages of western Manus and its northern satellites. Agomes will not be considered further in this paper.

To the extent that scholars concerned with the languages of the Admiralty Islands have been aware of the larger context of Oceanic linguistics, there has been universal agreement that all of these languages belong to the Oceanic branch of the Austronesian family. The theory of an Admiralty subgroup which includes the languages of the Western Islands together with those of Manus and its satellites, but excludes all other languages, was first explicitly proposed by the writer, as quoted by Healey.[4] In his 'tentative compromise' Healey himself rejects this view, suggesting instead that Wuvulu and Aua form a 'Wuvulu isolate' (a proposal very similar to that of Grace 1955), that Seimat and Kaniet form a 'Ninigo Family', and that the remaining languages of the Admiralties form a 'Manus Family' which is further subdivided into four sub-families (North-West Islands, South-East Islands, East Manus, West Manus).

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3   Language informants were: Harry Lopes, born 1952 in Aunna village, and 'Noah X', born about 1954 in Onni village (Wuvulu); Therese Hillard, born 1954, and Omana, born about 1910, both of Pa'a village (Aua); Vincent Tonam, born 1954 in Awin village (Seimat). All data were elicited through Tok Pisin.

4   Other writers, such as Meyer (1932) and Smythe (1970), have discussed the internal classification of the 'languages of the Admiralty Islands', but appear to have defined the sample that is to be subgrouped entirely on geographical grounds. Smythe (1970), for example, although proposing an internal classification that bears some resemblance to that advocated in this paper, believed that "the languages of the Admiralty Islands area have multiple origins or strata, having incorporated in varying degrees vocabulary and grammatical features from Papuan, Melanesian, Micronesian, and Indonesian sources" (Healey 1976:350).

   Healey's classification in general reflects his skill in handling linguistic data, and his care in the use of secondary sources. His material, however, was limited and not always of the best quality. Moreover, lacking direct field experience in the area he did not immerse himself for months in the comparative study of the languages in question. Sound change in many Admiralty languages has been extensive, so much so that the existence of an Admiralty subgroup becomes clear only through careful application of the comparative method to a fairly substantial corpus of accurately recorded material. In examining the evidence for this proposal the reader will be reminded of the scientific value of the comparative method both in dismissing claims of cognation based on mere phonetic resemblance, and in establishing cognation where a lack of phonetic resemblance could give no encouragement to the untrained observer.

   As should be clear from the foregoing remarks, the languages of the Western Islands (or, for that matter, the Admiralty Islands as a whole) are still very imperfectly known. My central aims in the present contribution are: 1) to provide an improved, if still imperfect, phonology of Wuvulu-Aua and Seimat based on my own fieldnotes, 2) to compare this analysis with an interpretation of the early German sources for the same languages, 3) to attempt a phonemic interpretation of the Kaniet material from the German sources, 4) to demonstrate the existence of an Admiralty subgroup based on exclusively shared phonological, morphological and lexical innovations, and 5) to demonstrate that Wuvulu-Aua, Seimat and Kaniet (but not Agomes) form a genetic unit within the Admiralty subgroup.

   The existence of a linguistic subgroup which includes the languages both of the eastern and of the western Admiralties is asserted in Blust (1978:34), with a promise that supporting evidence will be forthcoming. This paper is that (long overdue) promised publication. In the meanwhile Ross (1988) has published arguments in support of the same group. However, seven of the ten exclusively shared innovations which Ross has proposed in support of an Admiralty subgroup either conflict with data that he overlooked, or are so non-distinctive as to have little value as subgrouping evidence. It is thus important that additional arguments be developed to test the validity of the Admiralty hypothesis. None of the exclusively shared innovations that I use here in establishing an Admiralty subgroup appears in Ross. We have thus reached our conclusions largely on the basis of independent lines of evidence, and for this reason it is worth publishing my argument in addition to his.

   The reader will discover that I do not have complete confidence in my phonemic transcription of Wuvulu-Aua. As can be seen already in the vocabulary of Dempwolff (1905), there is an altogether extraordinary amount of free variation in both speech communities, but especially Wuvulu. Where the repetition of morphemes in a corpus is insufficient to establish that phones are interchangeable, variation can be difficult to detect, particularly when a speaker insists that variants are contrastive. Moreover, even when it can be shown that repeated material is phonetically variable, it is not always clear whether recorded variation is due to real differences in speech, or to inconsistency in transcription. In the hope of bringing this situation somewhat more under control my own notes were carefully checked against each other, and against each of the early German sources. It is concluded that free variation may be a more complex phenomenon than has usually been recognised in general linguistic theory. Specifically, the Wuvulu-Aua material suggests that free variation need not imply that variant phones have equal probabilities of occurrence, either in general, or in particular morphemes, even though variation is 'free'.

Apart from the limited materials in Z'graggen (1975), all of which were compiled from earlier sources, nothing has been published on the languages of the Western Islands since the pioneering work of Thilenius (1903), Dempwolff (1905), and Hambruch (1908). In addition to its central aims the present study is intended to stimulate interest among linguists in a group of challenging languages which, although of great importance to the reconstruction of Proto Oceanic, have been very much neglected. Hopefully its shortcomings will spur others who may have access to fuller information into publishing the results of their research.

Ideally, any classification of the languages of the Western Islands should include descriptive sketches not only of these languages, but of selected eastern Admiralty languages as well. However, for reasons of space little information will be given here on the languages of the eastern Admiralties apart from what is essential to the subgrouping argument. For further details the reader is referred to Blust (1978).

3. LANGUAGES OF THE WESTERN ISLANDS

This section will include the following information for Wuvula-Aua, Seimat and Kaniet: 1) phoneme inventories, 2) allophony, 3) morphophonemic alternations. A review of the German sources for Wuvulu-Aua and Seimat will precede the discussion of Kaniet. Where historical information is relevant to understanding synchronic processes it will be mentioned, but is otherwise deferred to §4.

Before discussing the synchronic phonology of the languages a few general remarks on typology may be of some use. All of the languages of the Western Islands appear to be SVO. Compare the following sentences:

WUVULU

(1) *Ina fa-inum-a-u   fei   xanu.*
     he   CAUS-drink-it-me ART/DEM water
     He made me drink the water.

(2) *Matani John (i)   ana-i-a   fei   nia-u?*
     why   John (he) eat-TRANS-it ART/DEM fish-my
     Why did John eat my fish?

AUA

(1) a. *John ina muta ana-u   nia.*
       John he eat   EDIBLE.POSS-my fish
       John ate my fish.

   b. *Ina muta-i-a   John ana-u   nia.*
       He eat-TRANS-it John EDIBLE.POSS-my fish
       John ate my fish.

(2) *Matani ina muta-i-a   fei   ana-u   nia?*
     why   he eat-TRANS-it ART/DEM EDIBLE.POSS-my fish
     Why did John eat my fish?

SEIMAT

(1)   *John (i) aɲiaŋ   hula.*
       John (he) eat.PROG taro
       John is eating taro.

(2)   *Nake   lahan John ani ana-k   xixi?*[5]
       because why John eat EDIBLE.POSS-my fish
       Why did John eat my fish?

Thilenius gives no syntactic information on Kaniet, and Dempwolff supplies only five verb paradigms. These suggest an SVO typology:

KANIET

(1)   *Ɲa cam.*
       I come
       I come/am coming.

(2)   *O   num-i.*
       you drink
       You drink/are drinking.

What little information we have on the grammar of the languages of the Western Islands is concerned primarily with pronouns and numeration (including numeral classifiers).

In Wuvulu *ana* appears to function primarily as a main verb 'eat', but in Aua and Seimat the cognate term is a possessive classifier, that is, a preposed relational marker to which the pronoun is suffixed in relations of 'alienable' possession. The data for Wuvulu, Aua and Kaniet is scanty, but Smythe (n.d.) reports five possessive classifiers for Seimat: 1. *tupo-* 'domesticated animal', 2. *teta-* 'property of any sort', 3. *ana-* 'food', 4. *welu-* 'cultivated plant (except banana, which takes *tupo-*), 5. *unuma-* 'drink'.

Most body part and kinship terms appear to be inalienably possessed, a relationship marked by direct suffixation of the pronoun. Thilenius fails to note this, citing, for example, Kaniet *pulém*, Seimat *pulán*, Wuvulu *pulána* 'eye' without distinguishing the possessive suffixes -*m* '2SG', and -*n/na* '3SG'. Dempwolff indicates the bimorphemic character of some of these forms, but is inconsistent: for example, Wuvulu *rauna* 'leaf' = /rau-na/ 'its leaf', *fuana* 'fruit' = /fua-na/ 'its fruit'; Seimat *axen* 'chin' = /axe-n/ 'his/her chin', *susun* 'breast' = /susu-n/ 'her breast'; Kaniet *susum* 'breast (your)' = /susu-m/ 'your breast', *puðom* 'navel' = /puðo-m/ 'your navel', *auan* 'mouth' = /awa-n/ 'his/her mouth', Kaniet of Allison Island, Ninigo Lagoon *ihoin* 'tooth' = /iho-ñ/ 'his/her tooth'. Hambruch generally separates the pronominal ending of obligatorily possessed nouns, but occasionally includes a third person possessive pronoun as part of his lexical entry, as with *ulina* 'Hülse, Hülle, Haut' = /uli-na/ 'its hull, shell, rind, bark', *vuana* 'Ähre, Knospe, Frucht' = /fua-na/ 'its bud, fruit'.

In all of the languages of the Western Islands numeration appears to be complex, and radically altered from the Proto Austronesian and Proto Oceanic system of decimal counting. Dempwolff recorded distinct sets of Wuvulu numerals used in 1) serial counting, 2) counting

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5   The nasal variation in the Seimat word for 'eat' is unexplained. Both transcriptions appear to be correct, since /aɲiaŋ/ was recorded several times in progressive constructions, /aŋ/ in desideratives, and /ani/ in futures, imperatives and dehortatives.

of coconuts, 3) counting of other fruits, 4) counting of doves/birds in general (?), and 5) counting of pairs. Hambruch further notes that separate (in some cases partially similar) terms are used on Aua for counting 1) fish, 2) teeth in the mouth, and 3) bowls/dishes. Such complexity of numeral classifier systems is reminiscent of some of the languages of Micronesia (see, for example, Benton 1968).

The simple decimal counting system of Proto Austronesian which was retained intact in Proto Oceanic, has been restructured along seemingly more cumbersome lines in all WI languages. Dempwolff (1905) and Hambruch (1908) report the following Wuvulu terms used in serial counting.[6]

TABLE 3: WUVULU NUMERALS USED IN SERIAL COUNTING

	Dempwolff	Hambruch
1.	*ai(ai)*	*(e)ai*
2.	*guai*	*eguai*
3.	*oðuai*	*adluai*
4.	*guineroa*	*guinneroa, chunaroa*
5.	*aipan(e)*	*eipan*
6.	*oðeroa*	*adluroa*
7.	*oðeromiai*	*adluroa meai*
8.	*vaineroa*	*veinoroa*
9.	*vaineromiai*	*veinorou meai, ullaavue*
10.	*(e)vapa ani*	*evapaanye, avue*

Hambruch suggests the following structure for this system: 1=1, 2=2, 3=3, 4=2x2, 5=5, 6=3x2, 7=6+1, 8=4x2, 9=8+1, 10-1, 10=2x5, two hands. This structure cannot be inferred from synchronic evidence, but diachronic considerations do suggest that it is justified. Little information on serial counting could be collected from Harry Lopes, who volunteered only three numerals: /kia/ 'one', /olu/ 'two', /fa/ 'three' (the latter two actually 'three' and 'four' respectively). The Aua system of serial counting is essentially similar to that of Wuvulu.

The following Seimat free numerals from 1-10 were recorded by the early German writers, and by myself.

TABLE 4: SEIMAT NUMERALS USED IN SERIAL COUNTING

	Thilenius	Dempwolff	Blust
1.	*tel*	*tehu*	*tehu*
2.	*huhua*	*huohu*	*hũohu*
3.	*tolu*	*toluhu*	*toluhu*
4.	*hinalao*	*hinalo*	*hinalo*
5.	*tabanim*	*tepanim*	*tepanim*
6.	*tabantel*	*t. tehu*	*t. tehu*
7.	*tabahuhuŋa*	*t. huohu*	*t. hũohu*
8.	*tabamtolu*	*t. toluhu*	*t. toluhu*
9.	*tabamhinalao*	*t. hinalo*	*t. hinalo*
10.	*huabanim*	*huopanim*	*hũo panim*

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6   The German sources (particularly Dempwolff) abound with typographically difficult diacritics, most of which appear to be superfluous. In the rare cases where a diacritic is phonologically significant (as in representing the glottal stop) I transcribe it in phonemic notation. Otherwise only segmental symbols are reproduced here.

The structure of the Seimat system of serial counting is less tortuous than that of Wuvulu and Aua: 1=1, 2=2, 3=3, 4=4, 5 = one hand, 6=5+1, 7=5+2, 8=5+3, 9=5+4, 10=two hands.

Smythe (n.d.) has recorded a somewhat different set of numerals for Seimat (1. *te-*, 2. *hūo-*, 3. *tolu-*, 4. *hinalo-*, 5. *te-pani:m-*, 6. *te-pani:m te-*, 7. *te-pani:m hūo-*, 8. *te-pani:m tolu-*, 9. *tai te- lehe hūo pani:m*, 10. *hūo pani:m*) in which 'nine' appears to be subtractive (10-1). In addition he reports a number of morphophonemically related numeral variants used with different types of objects (dogs, houses, pieces of meat, villages, coconut palms, canoes, things, days, bananas, sheets of paper, persons).

The Kaniet numerals are reported as follows.

TABLE 5: KANIET NUMERALS USED IN SERIAL COUNTING

	Thilenius	Dempwolff
1.	*tef*	*texu*
2.	*ua*	*uafu*
3.	*tohu*	*tohu*
4.	*faf*	*fafu*
5.	*mia*	*himiab*
6.	*tohiniet*	*tohineas(?)*
7.	*koðohu*	*go tohu*
8.	*kouehu*	*go uo*
9.	*koðef*	*go texu*
10.	*hemiðin*	*himisen*

The Kaniet system of serial counting has still another structure, one closely similar to that of many languages of the eastern Admiralties: 1=1, 2=2, 3=3, 4=4, 5=5, 6=6, 7=10-3, 8=10-2, 9=10-1, 10=10.[7] Whereas the Wuvulu-Aua system makes use both of multiplication and of addition, and the Seimat system makes use simply of addition (except in the single subtractive recorded by Smythe), the Kaniet system makes use only of subtraction in deriving numerals. It is noteworthy that in Thilenius's material both 'one' and 'four' contain an apparently meaningless suffix *-f*, while in Dempwolff's material 'two' and 'four' contain a corresponding suffix *-fu*. A cognate suffix *-hu* can be isolated in the Seimat numerals 'one', 'two', and 'three', as recorded by Dempwolff, and by the present writer; this does not appear to be functional, and is not discussed by Smythe (n.d.).

Finally, many of the Seimat adjectives recorded by Dempwolff contain an apparent suffix *-n* which he failed to segment from the stem: *ailan* 'strong', *tian* 'fat, greasy', *ŋoŋolin* 'old', *kokunan* 'short', *polu(n)* 'black, blue', *malavin* 'dirty', *kakan* 'red', etc.

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7   More accurately, the morphological structure of the numerals 7, 8 and 9 might be glossed as 'three taken away', 'two taken away', and 'one taken away', since these forms contain no overt reference to the numeral 10. Greenberg (1978:257) claims that the use of either subtraction or division as a generative mechanism in a numeral system universally implies the use of both addition and multiplication. The basis for this claim is unclear to me, as many Austronesian languages have some numerals between '6' and '9' which are analysable either synchronically or diachronically as subtractives, without the corresponding use of addition in forming any of the primary numerals (1-10).

3.1 WUVULU-AUA

According to the Army General Survey Report of 1943, the population of Wuvulu Island at that time was approximately 300 persons, distributed over three villages: 1) Onne, on the north-west coast, 2) Tumuvalli, on the west coast, and 3) Auna (also written Aunna), on the south-west point. The approximately 225 inhabitants of Aua Island were located in two villages, for which the report provides no names.

All writers on Wuvulu or Aua have recognised that the populations of these two islands speak dialects of a single language. The closeness of this relationship is evident in the appended lexicostatistical lists (see Appendix), and is clearly reflected in the phonology. Table 6 lists the phonemes of Wuvulu.

TABLE 6: THE PHONEMES OF WUVULU

Consonants (14)				Vowels (5)	
p	t	k	?	i	u
b	(d)				
m	n	(ŋ)		e	o
f			(h)		
l					a
(r)					
w					

The labial consonants have their usual phonetic values except that /f/ has allophones [f] and [v] in free variation. Before a high vowel /t/ is realised as a voiceless palatal affricate, varying freely with [s]. Elsewhere it appears as a dental stop, whereas /n/ is alveolar. /l/ has two freely varying allophones [L] and [l]. The former is a voiced interdental lateral, easily confused with /l/, although sometimes heard by English speakers as [ð]. In the German sources it is generally written *dl*. Most distracting of all, /k/ appears to vary freely between [k], [g], [x] and [ɣ].

High vowels occasionally are devoiced in final position, especially after a nasal. A similar devoicing was recorded interconsonantally in a single reduplicated form, /manumanu/ 'tree, wood'. Vowels otherwise have their normal values, except that /e/ generally is lower-mid.

Aua phonology differs structurally from that of Wuvulu in lacking /k/, but including /x/ (which is generally voiced), and /r/, which occurs with high frequency. Consonant allophony differs in a single detail: in Aua /w/ is optionally realised as a labiovelar glide, or as a voiced bilabial fricative. Vowel allophony is identical except that no devoicing was observed.

Although the devoicing of final high vowels may sometimes produce the impression of a final consonant in Wuvulu, underlying canonical shape in both dialects is (C)V(C)V. In this respect Wuvulu-Aua morpheme structure differs from that of Seimat, and of all languages of the eastern Admiralties. As in the much better known languages of Polynesia, a thematic consonant surfaces before the suffix -*ia*: *inu* 'to drink', *inu-(m)ia* 'drink it!' (POc *inum* 'drink'). In the data collected both dialects generally reflect the historically anticipated final consonant (all but 1, 3, 13 and possibly 14 – see Table 7). As in other Oceanic languages, however, there is some skewing of etymologically expected consonants in this position (POc = Proto Oceanic; -Cia forms are imperatives).

TABLE 7: THEMATIC FINAL CONSONANTS BEFORE -*ia* IN WUVULU-AUA

	POc	Wuvulu	Aua	English
1.	*ajok	ato-(f)ia	ato-(f)ia	sniff, smell
2.	*inum	inu-(m)ia	inu-(m)ia	drink
3.	*kanan	ana-ia	-----	eat
4.	*kampit	api-(ʔia)	-----	squeeze
5.	*kulit	uli-(ʔia)	-----	to skin
6.	*mata	maʔa-ia	maʔa-ia	eye/look at
7.	*mate	-----	maʔe-ia	die/kill
8.	*panek	-----	fane-ia	climb
9.	*pani	fani-a	fani-a	give
10.	*paŋun	fu-(n)ia[8]	-----	wake up (transitive)
11.	*puput	fufu-(ʔ)ia	-----	pluck, pull out
12.	*tasim	ati-(m)ia	ati-(m)ia	whet, sharpen
13.	*tonol	ono-(m)ia	-----	to swallow
14.	*tunu	unu-(m)ia	unu-(m)ia[9]	cook
15.	*qutup	uʔu-(f)ia	uʔu-(f)ia	submerge to fill
16.	*taŋis	ʔai-(k)ia		weep, cry

No consonant clusters occur, and a maximum of two vowels were recorded in sequence.

As can be seen, both Wuvulu and Aua possess a comparatively small inventory of phonemes, but a relative wealth of allophones. The principal analytical problems in the phonology of both dialects concern: 1) the assignment of phones to phonemes, 2) the contrastive status of stress, and 3) the systematic status of certain phonemes that appear to be generationally or geographically restricted.

Apart from the complementation of [č] and [s] (before high vowels) and [t] (elsewhere), all allophony in both Wuvulu and Aua involves free variation. Because my elicitation time was limited (about 12 hours for Wuvulu, less than 10 hours for Aua), and because almost all material for the former language was collected from a single, somewhat difficult informant, my fieldnotes contain little repetition of morphemes. It is therefore not always easy to determine whether recorded phonetic differences represent distinct phonemes, or free variants. As one consequence of this indeterminacy it was assumed in Blust (1978:103) that Wuvulu has distinct phonemes /k/, /x/ which exemplify an unexplained phonemic split. I now believe – for reasons to be given below – that [k] and [x] are in free variation. The major problems in Wuvulu involve 1) [f] and [v], 2) [č] and [s], 3) [k], [g], [x], and [ɣ], and 4) [L] (a voiced interdental lateral) and [l].

The phones [f] and [v] were recorded both initially and intervocalically: [fálɛ] 'love', [mɛ́fo] 'beard', [vatálɛ] 'sailing', [mɛvi] 'dream'. While these and other examples suggest an /f/ : /v/ contrast, the limited transcription of repeated material in my notes points instead to free variation. Thus, within the same sentence I recorded: [vɛninainaʔiufɛni] = /feni nainaʔi-u feni/ (this pen-my this) 'this is my pen' (similarly with [fɛna], [vɛna] 'that'). Other instances of [f], [v] variation detectable from multiple recordings are: Wuvulu [lofu], [lovu] 'elder

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8   For deletion of prevocalic *a after the regular disappearance of the velar nasal, compare the similar vowel change in POC *pulaka > Wuvulu fula (Aua fulaa) 'swamp taro', and pre-Wuvulu-Aua *fua-uʔu > Wuvulu fouʔu (Aua fuauʔu) 'louse'.

9   Possibly from POC *qumun 'earth oven', with metathesis: cf. Kaniet (Thilenius) umun-i 'to cook'.

same sex sibling', [nafa], [nava] 'shoot, stab', Aua [rufu] 'village', [paʔaruvu] 'Pa'a village', [aɣaʔuavu] 'lime', [rawɛafu] 'lime spatula'. Similar variation was recorded by Hambruch, as in his Wuvulu transcriptions *rufu* 'village' (Dorf), *ruvu* 'world' (Welt). The phonetic correspondences of labial fricatives that were recorded without a variant pronunciation are listed in Table 8.

TABLE 8: CORRESPONDENCES OF LABIAL FRICATIVES IN WUVULU AND AUA

Wuvulu	Aua	Number
f	f	25
f	v	6
v	f	6
v	v	5
f, v	v	2
f	f, v	2

While these figures may at first suggest that a significant correlation exists between [f] as recorded in Wuvulu and [f] as recorded independently in Aua, closer attention to the totals shows that this agreement can be explained as a product of the greater frequency of [f] in both dialects. It is additionally possible (though unconfirmed) that one or the other variant may occur with greater text frequency in particular morphemes. I conclude, then, that [f] and [v] are variant pronunciations of a single phoneme which I write /f/.

The phones [č] and [s] were recorded in free variation in numerous forms ([uču], [usu] 'elbow', [čuču], [susu] 'breast', [ači], [asi] 'whet, grind', etc.), and require no further discussion. The phone [č] was recorded before a non-high vowel only in the onomatopoetic form [ačoi] 'sneeze', for which a variant [ačio] was also noted. The appearance of orthographic *t* before a high vowel in Wuvulu, Aua *tigo* 'taro axe', and *utu pani* 'elbow', as recorded by Hambruch (1908) suggests that the non-stop allophones of /t/ may be a recent development. Other transcriptions in Hambruch, however, as *juju* 'female breast' show that some allophony was already present by the turn of the century.

Perhaps the most serious problem of free variation in Wuvulu concerns the phonemic status of the velar phones [k], [g], [x], and the rarer [ɣ]. Although [k] and [g] were recorded as free variants in Blust (1978), /x/ was assigned to a separate phoneme, thereby producing an apparently unconditioned phonemic split in the historical phonology of the language. Closer attention to my fieldnotes now suggests that [x] is simply another variant of /k/.

Variation of [k] and [g] was recorded in [aki], [agi] 'younger same sex sibling', [aki], [agi] 'to dig', [maʔiku], [maʔigu] 'to sleep, close the eyes', and in the semantically less direct comparisons [ukuku] 'rumbling belly', [ugugu] 'lightning', [wigugu] 'low rumbling thunder'. Variation of [k] and [x] was recorded in [akɛwa] 'day', [axɛwa] 'light, radiance', [wake] 'say, speak', [waxewaxe] 'talk in one's sleep', [nakanakaya] 'to think' and [naxanaxafafɛlo] 'jealous (= 'thinking no good'). Variation of [k] and [ɣ] was recorded in [paka], [paɣa] 'tree with bark used to make bark cloth', and variation of [x] and [ɣ] in [axaxana], [aɣaɣana] 'black'.

The forms [aki] and [agi] in both meanings cited above were said to be respectively slow speech and rapid speech variants. Despite this admitted variation my informant, Harry Lopes, insisted that certain words could be pronounced only with [x], others only with [k], and others only with [g]. Thus, [agi] 'saltwater' was said to be correct only with [g], and to be homophonous with the rapid speech variants meaning 'younger same sex sibling', and 'to

dig'. Among his examples of purportedly invariant pronunciations, however, he included [kuta] 'sit down', and [guta] 'stay', which appear to be the same morpheme. The voiced velar fricative was acknowledged to be an occasional rapid speech variant of [x], as in [waxa], [waɣa] 'root'.

The Wuvulu-Aua phonetic correspondences, listed in Table 9, which involve a velar obstruent are found in my fieldnotes.

TABLE 9: CORRESPONDENCES OF WUVULU VELARS AND AUA /r/ OR GAMMA

Wuvulu	Aua	Number
k	r	14
k	ɣ	11
g	r	14
g	ɣ	13
x	r	16
x	ɣ	7

Taken at face value these observations suggest an extraordinarily complex system of velar obstruents in the immediate parent of Wuvulu-Aua. However, if we heed the recorded clues to variation and unite Wuvulu [k], [g] and [x] under a single phoneme we will reduce the number of distinct correspondences in question to two. I assume, then, that Wuvulu has a single phoneme /k/ with free variation for the phonological features [voice] and [continuant]. Unlike Wuvulu [k], [g] and [x], Aua [r] and [ɣ] show no recorded tendency to interchange, and so must be regarded as phonemically distinct.

The assignment of voiced allophones to /f/ and /k/ is internally consistent, since voicing appears to be non-distinctive in both cases. By contrast, the voicing distinction in /p/ : /b/ is invariant, neither Wuvulu nor Aua showing any fluctuation between these phones. Moreover, the phonetic correspondence Wuvulu [p] : Aua [p] was recorded in 39 examples, and the phonetic correspondence Wuvulu [b] : Aua [b] in 8 examples, with no exceptions. I conclude, then, that /p/ and /b/ are phonemically distinct in both dialects. Similarly, /p/ and /f/ are never interchanged in my corpus, and clearly contrast in Wuvulu, Aua /pifine/ 'woman'.

The relationship of [L] and [l] poses somewhat different problems. I worked with Wuvulu before working with Aua, and in the beginning wrote both segments as [l]. When the phonetic difference became apparent I rechecked the distribution of the two phones in my data. Some uncertainties remained, as informant reaction in Wuvulu varied from indifferent to confusing. However, both Aua informants firmly distinguished the two laterals, the only recorded inconsistency being [biLoLo] 'butterfly', next to [waʔawaʔafɛnabilolo] 'caterpillar'. The following Wuvulu-Aua phonetic correspondences for laterals were noted.

TABLE 10: CORRESPONDENCES OF LATERALS IN WUVULU AND AUA

Wuvulu	Aua	Number
l	l	20
l	L	13
L	L	6
L	l	3

These inconsistencies are, by and large, what one would expect from error due to mistranscription. When I transcribed [L] in Wuvulu (where there is a greater probability of

error) I generally also transcribed [L] in Aua. Two of the three exceptions are morphemes that contain both laterals in Aua, and these could conceivably involve a regular assimilation in Wuvulu: Aua [walaLo], Wuvulu [waLaLo] 'deep', Aua [laLo], Wuvulu [LaLo] 'inside'. Moreover, both words appear to derive historically from a single base, POc *ralom 'deep; inside'. Although the recorded variation with [L], [l] bears some resemblance to that with [f], [v], and [k], [g], [x], then, one might easily conclude that [L] and [l] are phonemically distinct in both dialects. However, the limited material recorded for the Onni sub-dialect of Wuvulu exhibits further discrepancies in the correspondences for laterals. Moreover, my transcription of [L] and [l] often fails to agree with the orthographic distinction of *dl* and *l* in Hambruch (e.g. Hambruch: W *adlia*, A *allia*, but Blust: W, A [alia] 'ear'; Hambruch: W, A *alo*, but Blust: W, A [aLo] 'sun'; Hambruch: W, A *livo*, but Blust: W [livo], Aua [Livo] 'tooth'). Tentatively I conclude that [L] and [l] are allophones of a single phoneme both in Wuvulu and in Aua.

Given its rarity in Oceanic languages, one of the first things likely to impress the linguist recording Wuvulu or Aua is the presence of prima facie stress contrasts, as in [gúfu] 'island' : [gufú] 'kinsman'. Closer attention to morphology, however, reveals that the phonetic contrast in such forms is not phonemic. Consider the following phonetic transcriptions of obligatorily possessed nouns in Wuvulu:

(1) [páni] 'hand, arm'	(2) [áma] 'father'
SG	SG
1 [paníu]	1 [amáu]
2 [panímu̜]	2 [amámu̜]
3 [panína]	3 [amána]
(3) [núgɛ] 'nose'	(4) [áko] 'spouse'
SG	SG
1 [nugɛ́u]	1 [akóu]
2 [nugɛ́mu̜]	2 [akómu̜]
3 [nugɛ́na]	3 [akóna]
(5) [čuču] 'breast'	(6) [náʔu] 'child'
SG	SG
1 [čuču]	1 [naʔú]
2 [čučumu̜]	2 [naʔúmu̜]
3 [čučuna]	3 [naʔúna]

Paradigms (1) - (4) show that primary stress falls on the penultimate vowel, and that this placement is maintained by a rule of stress shift in suffixed forms. The apparently morphological use of stress in the first person singular of bases ending in [u], then, is due to affixation: [čučú] = /tutu-u/, [naʔú] = /naʔu-u/, etc. Although body parts and kinship terms may occur without a possessive suffix, a suffixed pronoun generally is attached to the base even when the latter is elicited as a simple (non-possessed) form. It is noteworthy that the only cases of phonetically contrastive final stress in Wuvulu occur in /u/-final bases that do not normally occur without a possessive suffix. Given the complementation of final stress with [u] in bases that end in other vowels, it seems clear that [gufú] 'kinsman' is best regarded phonemically as /kufu-u/ 'my kinsman'.

In one known case cognate forms in the two dialects appear to differ in stress: Wuvulu [fúla], Aua [fulá] 'taro'. But closer inspection again shows that the difference is due to vowel length or gemination. POc *pulaka* 'swamp taro: *Cyrtosperma* spp.' became pre-Wuvulu-Aua *fulaa*. Under certain conditions Wuvulu (but not Aua) then dropped the first of two consecutive vowels in words of three or more syllables (see fn. 8).

In trisyllabic bases I recorded primary stress sometimes on the initial and sometimes on the penultimate syllable: [bíLoLo] 'butterfly', [totóna] 'breadfruit sap'. On testing for contrast Harry Lopes suggested a minimal pair in [avέlo] 'rotten (of wood)' : [áfɛlo] 'bad'. No other contrast was found, however, and it is likely that /afelo/ is a single polysemous morpheme. Neither Aua informant insisted on stress contrasts, and although a different form was given for 'rotten (of wood)', the Aua word for 'bad' was recorded as [avέlo].

With one category of exceptions quadrisyllables (some of which may be morphologically complex) were recorded with secondary stress on the initial syllable, and primary stress on the penult: [fàwɛwéni̯] 'heart', [lìlimóka] 'grass', [pòno?ía] 'buy it! (imperative)', [ìnumía] 'drink it! (imperative)'. In vowel-final stems the suffix -/ia/ appears as [ya], and primary stress falls on the last stem vowel: /ma?a-ia/ > [ma?áya] 'look at it! (imperative)', /alo-ia/ > [aLóya] 'sell it! (imperative)'. The stress rules of Aua are essentially identical to those of Wuvulu.

I conclude 1) that in both dialects primary stress falls optionally on the initial or the penultimate syllable of trisyllabic bases, but on the penult of other bases, and 2) that there is a rule of stress shift in suffixed bases that gives rise to surface contrasts in stressed versus unstressed final /u/. It is perhaps worth observing that there appears to be a difference in the stress pattern of trisyllabic bases and trisyllabic words. Thus /mulau/ 'frog' was recorded with stress on either non-final syllable, whereas /pula-u/ 'my eye' was recorded with stress only on /a/.

Finally, the stress rules and morpheme structure constraints enable us to disambiguate high vocoids as phonemic vowels in some forms. Neither [ma?áu] 'right (side)', nor [akúi] 'sandcrab', for example, can contain underlying final or postconsonant semivowels, as no unambiguous consonants occur in these positions, and stress would be incorrectly assigned to the initial syllable.

Four phonemes of questionable status were recorded in Wuvulu. Each is questionable because of its rarity and/or restricted distribution, or because it appears to be characteristic of a different social or geographical dialect than that most clearly represented in the speech of Harry Lopes. These phonemes are /h/, /r/, /d/ and /ŋ/. In addition, an initial glottal stop was recorded in a few forms. Both broader comparative information and Wuvulu dialect data suggest that it is contrastive, but was not transcribed consistently in this position.

Five Wuvulu items collected from Harry Lopes contain [h]: [húa] 'chest (anatomical)', [ho?áki] 'younger sibling of opposite sex (gloss correct?)', [hági] 'handle of axe or adze', [hí?a] 'no, not', and [hái] 'scrape out a coconut'. The first of these items was recorded as [húa], [xúa]. It is thus possible that [h] is a free variant of [x] (hence yet another allophone of /k/). Unfortunately, this possibility was not checked in the field, and cannot be checked now.

In four of the 28 items recorded for the dialect of Onni village [h] appears in initial position, where it corresponds to zero in the speech of Harry Lopes (see Table 11).

TABLE 11: CORRESPONDENCES OF /h/ AND ZERO IN WUVULU DIALECTS

Onni	Aunna	English
hadia	alia	rock cod
halo	alo	sun
humu	umu	house
ha?o	a?o	thatch

Two observations can be made in connection with these Onni forms. Firstly, the [h] was recorded as optional in the words for 'house', and 'thatch'. Secondly, the following forms were tested for the optional presence of an initial [h], and were accepted only if pronounced with an initial vowel: 1) [aɣáya] 'look upward', 2) [adía] 'ear', 3) [agúa] 'we (DU.EXC)', 4) [ína] 'mother', 5) [adíga] 'well water', 6) [ági] 'sea, saltwater', 7) [ági] 'sibling of opposite sex'.[10]

Wherever an etymology is available for any of these forms (all but 1 and 5), it begins with *t. Since *t became glottal stop intervocalically in Wuvulu and Aua, it is reasonable to suppose that it also did so in initial position before disappearing, as it seems to have done in most forms recorded from Harry Lopes. The few examples of initial glottal stop recorded from Harry Lopes are consistent with this view: POc *tian(an) > [ʔía] 'pregnant', *tina > [ʔina] 'mother', *tangis 'weep, cry' > [ʔai] (morphophonemically, in: /ina fa-ʔai-k-i-a/ 'he made him cry'). I recorded no examples of initial glottal stop in the limited data collected from Noah X. Tentatively, I hypothesise that in the dialect of Onni village an epenthetic [h] developed before an initial vowel to facilitate perception of the contrast between zero and glottal stop, the latter disappearing.[11]

In summary, Wuvulu appears to show sub-dialect differences with regard to the distribution of [h] in particular morphemes, and perhaps with regard to its phonemic status as well. In both dialects I write it as it was transcribed. Only two examples of [h] were recorded in Aua: [hubáu(na)] 'fork on the outrigger', [màmahuiána] 'green/blue'.

It is likely that glottal stop reflects *t in all positions in the speech of Harry Lopes, but that in initial position it was not consistently distinguished from zero in my transcriptions. The word for 'mother' was given as [ína], [ʔína], and it is possible that initial glottal stop varies with zero generally. Initial glottal stop was also recorded in two Aua forms with a known etymology: POc *tolu > [ʔolu] 'three', *kiokio > [ʔioʔio] 'kingfisher'. In this description I write initial glottal stop as transcribed, although it is probable that I have inadvertently omitted it in some forms.

Though common in Aua, [r] is rare in Wuvulu. As noted in Blust (1978:103),[r̃] was recorded in a single form: [banúr̃a] 'cape (of land)'. This statement in fact refers only to the speech of Harry Lopes. An effort was made to elicit further examples of [r̃] from Noah X, with the following results: 1) [r̃oa] 'meteor', 2) [r̃o] 'glowing red (of embers)', 3) [banúr̃a] 'cape (of land)'.

Hambruch (1908) does not list the word for 'cape', but writes the others as *roa* 'rot', and *roa* 'Blitz' (I recorded [xóa] 'red' from Harry Lopes). Together with the statement of Noah X that older speakers in Onni village say [ár̃i] where younger speakers say [ági] 'sea,

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10   Older speakers reportedly distinguish 6 and 7 as [ári] and [ági] respectively.
11   A similar phenomenon is seen in colloquial Samoan, where initial vowels sometimes are preceded by [h] when contrasting them with the same vowel preceded by glottal stop: /ulu/ = [ulu], [hulu] 'head', but /ʔulu/ [ʔulu] 'breadfruit'.

saltwater', it seems likely that [r̄] in Wuvulu is characteristic of the older generation. In such cases it corresponds with Aua /r/.

The phone [d] was recorded only from Noah X, and corresponds to [L] in the speech of Harry Lopes: [hadía] 'rock cod', [adía] 'ear', [adíka] 'well water', [púda] 'eye'.

Finally, [ŋ] was recorded from Harry Lopes in a single variant pronunciation: [fua], [fuŋa] 'plant something and look after it'.

The German sources shed some additional light on Wuvulu-Aua, but they raise at least as many questions as they answer. These materials, of course, predate general recognition of the phonemic principle. In the following discussion I will use the distribution of orthographic symbols as a basis for inferring implicit claims about phonemic or allophonic relationships.

For Wuvulu we have three sources in the German literature: Thilenius (1903), Dempwolff (1905), and Hambruch (1908); for Aua we have only Hambruch (1908). Table 12 presents a phoneme inventory for Wuvulu as inferred from the German sources.

TABLE 12: WUVULU PHONEMES INFERRED FROM THE GERMAN SOURCES

Consonants (13)

p	t		?
b		g	
m	n		
f	s		
	l		
	r		
w	y		

Vowels (5)

i	u
e	o
	a

Among the voiceless stops all three German writers recognise /p/, /t/. A contrast of /p/ and /b/ is implied by Thilenius in, for example, *polu* 'earth', *bo* 'canoe', by Dempwolff in *puge* 'navel', *bugoa* 'beetle', and by Hambruch in *palu* 'dove, piegon', *bala* 'rat'. Dempwolff, on the other hand, lists a number of variable pronunciations that differ in *p* versus *b*: *paule*, *baule* 'God', *parafu*, *barafu* 'banana', *pore*, *bore* 'rudder', *pea*, *bea* 'flying fox'. Some of these variable forms correspond to invariant forms with /p/ in my data, others to invariant forms with /b/: *pore*, *bore* 'rudder', next to *poke* 'canoe paddle'; *pea*, *bea*, next to /bea/ 'flying fox'. No such voicing variation appears in Thilenius or Hambruch, nor was free variation between /p/ and /b/ recorded in any lexical item recorded from Harry Lopes.

Hambruch writes a single instance of [č] in *tsura* 'wing feather' (cf. *tulai* 'girdle of mussel shells'). Dempwolff, however, recorded a number of instances of [č] (written sometimes as *ts*, sometimes as *tj*). Apart from *putʃero*, *putʃuro* 'small', and *tʃitʃeri* 'to slurp', all of these appear before high vowels. At first glance this distribution suggests a complementation with [t], but Dempwolff implies a /t/ : /č/ contrast in pairs such as *tipuna* 'leaf decoration on a pandanus headdress': *tʃive* 'to lie (deceive)'. Dempwolff's material is drawn from several sources (which he identifies for each lexical item), and appears to be dialectally mixed, hence complicating the problem of arriving at a satisfactory analysis of the phonology. Repeated forms such as *atu* 'water bailer' and *atju* 'Nautilus shell ladle', and terms which are written differently by Dempwolff and Hambruch, as *tʃulai* 'kind of mussel shell' (D), *tulai* 'girdle of mussel shells' (H), or *tʃigo* 'axe' (D), *tigo* 'taro axe' (H) overshadow the apparent evidence for contrast, and suggest that /t/ was already developing a palatal allophone before high vowels (and /e/?) at the turn of the century, but that some forms had not yet been affected.

Free variation between [č] and [s] is not apparent in Dempwolff's material. Thilenius, however, gives one form with *s* which corresponds to /t/ in my data: *susu* 'milk' (cf. /tutu/ 'breast').

An orthographic *k* appears fairly often in Thilenius's limited material, but only rarely in Dempwolff and Hambruch. Two of the examples given by Thilenius correspond to forms in my data, and in these *k* apparently represents the glottal stop: *mamakilu* (my /maʔiku/ 'to sleep'), *kumu* (Dempwolff's *ʔumu*, my /umu/) 'lip'. The few examples of *k* in Dempwolff appear to be used in a similar way: *ʔari, kari* 'starfish'.

Although Thilenius distinguished the glottal stop from zero in some forms, he wrote it with *k*. Apart from *fu, au, u* (implied /fuʔauʔu/), for what should be /fuauʔu/) Hambruch appears to have ignored it altogether. Only Dempwolff recorded the glottal stop fairly consistently with a distinct symbol, marking it with a diacritic on the following vowel, as in the words for 'star' (/piʔu/), 'monitor lizard' (/waʔi/), and 'to vomit' (/mumuʔa/). However, even Dempwolff's transcriptions are inconsistent, the glottal stop being missed in forms such as *maigu* (/maʔiku/) 'to sleep', and *waa* (/waʔa/) 'snake', and inserted where it does not belong in the word for 'night' (/poi/).

As noted already, /b/ is clearly distinguished from /p/ by all of the German writers, although Dempwolff's transcriptions imply that these phonemes varied freely in a number of forms.

An orthographic *d* does not appear in Thilenius, and is found in Dempwolff only in the form *mundavue* 'sky' (gloss followed by a question mark). Hambruch writes *d* in several cases for the interdental lateral, a sound that he also transcribes with *dl*.

Orthographic *g* does not appear in Thilenius, but is common both in Dempwolff and in Hambruch (where it is sometimes written geminate). This symbol corresponds to all of the allophones of /k/ in my data, as in the following Dempwolff citations (my phonemic transcription appears after the colon): *gua* 'two': -/kua/ 'marker of the dual number', *viga* : /fika/ 'how much, how many?', *vuaga-na*: /waka/ 'root', *uge* 'crayfish, crab' : /uka/ 'shrimp, lobster', *agi* : /aki/ 'younger sibling', *nuge* : /nuke/ 'nose', *puge* : /puke/ 'navel', *aga* : /aka/ 'name'. What is noteworthy is that /k/ in my material corresponds to *g* in these forms, but to *r* in others: *ropa* : /kopa/ 'rain', *muro* : /muko/ 'stone', *aru* : /aku/ 'smoke', *ranu* : /kanu/ 'fresh water', /aro/ : /ako/ 'spouse', *rufu* : /kufu/ 'village', *are* : /ake/'chin', *pore* 'rudder' : /poke/ 'canoe paddle', etc. In a few cases Hambruch gives a form with a velar stop corresponding to a Dempwolff citation with *r*: *kopa* (H), *ropa* (D) : /kopa/ 'rain', *pagavu* (H), *parafu* (D) : /pakafu/ 'banana'. It appears, then, either that the material of the German sources is dialectally mixed, or that earlier /r/ was changing to a velar stop during the period in question.

Dempwolff gives no examples of orthographic *k* or *ch* (voiceless velar fricative) corresponding to *k* in my material, and Hambruch gives only one that I have found (*kopa* 'rain'). This suggests that earlier *r* changed first to [g], the other allophones developing later. However, Thilenius gives *hahua-n* 'forehead', a form that corresponds to /kawa/ in my data, as well as *axu-an* (my /aku/), which suggests that in some form of Wuvulu a fricative allophone of /k/ already existed.

All of the German writers recorded *m* and *n* for Wuvulu, and none recorded the velar nasal.

Among the fricatives all three German writers use both orthographic *f* and orthographic *v*. In Thilenius *f* appears only in *fifina* 'woman', and *v* in just two forms, where it precedes a low vowel. An apparent contrast is found in Dempwolff's *fuana* 'fruit' versus *vuagana* 'root'. The latter, however, represents /waka/ in my data. Moreover, variable transcriptions such as Dempwolff's *fa, va* 'four', *tave, tafi* 'friend', *rufu, ruvo* 'village', and Hambruch's *rufu* 'village', *ruvu* 'world', and *vafi* (my /fafi/) 'evening' make it clear that [f] and [v] were freely varying allophones, just as they are in modern Wuvulu and Aua. On phonetic grounds the choice of a symbol for this phoneme appears to be arbitrary. Dempwolff writes *f* and *v* with approximately equal frequency; Hambruch almost invariably writes *v*. Patterning, however, favours a voiceless fricative.

Thilenius writes *s* in four items: *masani* 'turtle', *susu* 'milk', *samisami* 'drum' and *sipan* 'to hurt'. Dempwolff writes *s* in three other items: *isa* 'lizard', *aso* 'to kiss (?)', and *sale* 'to run'. Hambruch writes *s* in a single form: *wusilapan* 'taro god'. Although *s* before a high vowel might be regarded as an allophone of /t/, this is not possible for *s* before a non-high vowel. Orthographic *s* in the German sources thus appears to represent a distinct, if rare, phoneme – at least before non-high vowels.

Thilenius writes χ (voiceless velar fricative) in five, and *h* in six forms, whereas Dempwolff writes χ in two words, but does not use *h* at all. Hambruch writes *ch* (/x/) as an implied segment in a few forms, but appears to use *h* as a diacritic to express vowel quality, as it appears only preconsonantally or word-finally: *kihbe* 'big', *rahrahna* 'branch', *rireh* 'door' (my /kikei/). One instance of χ, and one of *h*, in Thilenius correspond to /k/ in my data: *aχuan* (/aku/) 'smoke', *hahuan* (/kawa/) 'forehead'. The others (*tehu* 'one', *hinalua* 'four', *haχaχ* 'war', *nemaχ* 'to ebb', *χao* 'feather', *kaχipulan* 'eyebrow', *lihon* 'tongue', *hehe* 'wooden sword') lack known equivalents in other sources for Wuvulu, although *tehu*, *hinalua*, and *lihon* are very similar to known Seimat forms. It is possible that Thilenius inadvertently included some Seimat vocabulary in his Wuvulu list. In any event, there is little basis for positing phonemes /x/ or /h/ for early twentieth century Wuvulu.

Dempwolff frequently writes *ð*, and Hambruch writes *dl* or *d* for the voiced interdental lateral, where Thilenius writes only *l*. However, both Dempwolff and Hambruch also write *l* in the same environment, thus implying a contrast: Dempwolff *ðivo* 'incisors' : *lio* 'vulva', *aðo* 'sun' : *olo* 'spider', Hambruch *udluu* 'kneecap' : *ulu* 'breadfruit tree'. Both writers nonetheless indicate that these segments are in free variation: Dempwolff *oðu, olu* 'three', *pula, puða* 'eye', *bauðe, baule* 'God'; Hambruch *palu, pado* (Aua *padlu*) 'dove, pigeon'. The German sources, then, confirm our interpretation that Wuvulu has only one lateral phoneme /l/ with freely varying allophones [L] (interdental), and [l] (alveolar or post dental).

As noted already, orthographic *r* is a common equivalent, both in Dempwolff and in Hambruch, of my /k/. In Dempwolff's material *r*, *l* and *g* clearly contrast: *aruru* 'coconut crab', *ulu* 'cord made of breadfruit bast fiber', *ogogu* 'thunder'. We must, then, recognise a phoneme /r/ in the Wuvulu of the German sources. In contrast to Dempwolff and Hambruch, Thilenius writes only *l*: *lopa* (Dempwolff: *ropa*) 'rain', *polu* (Dempwolff, Hambruch: *poru* 'woods').

All of the German writers use the symbol *w*, corresponding to /w/ in my data: Thilenius *awi*, Dempwolff, Hambruch *awui* = /awi/ 'fishhook'. Dempwolff, however, sometimes writes *v* for what I transcribed as [w]: *va?i* (/wa?i/) 'monitor lizard', *paiva* (/paiwa/) 'shark'. In one entry (*awui, abui, avui* 'fishhook') Dempwolff transcribed variant pronunciations

which suggest that /w/ may have been optionally realised as a voiced bilabial fricative, as in modern Aua.

In addition to *w* Thilenius uses *j*, and Dempwolff uses *y* to represent a palatal glide: Thilenius *maja* 'big', *kumaloja* 'get a sail', Dempwolff *loya* 'seagull', *yore* 'to buy', *yau* 'I'. Only one likely instance of /y/ (as distinct from /i/) appears in my data: [láya] 'ginger'. Although the German sources do suggest that a phoneme /y/ existed in Wuvulu around the turn of the century, then, with no other examples in my corpus I do not feel justified in positing /y/ for modern Wuvulu.

The vowels of Wuvulu are accompanied by such a wealth of diacritics (especially in Dempwolff's transcriptions) that one is left with little choice but to treat them as meaningless. If we do this all writers agree in recognising a five-vowel system. The German writers also recognise several diphthongs where I prefer on distributional grounds to write vowel sequences.

Finally, Thilenius and Dempwolff both write some final consonants: (Thilenius) *pun* 'moon', *aun* 'wind', *ukup* (misprint for *uku-m*?) 'head hair'; (Dempwolff) *vapanim* 'ten', *uab* 'hole, cave', *ad* 'Nautilus shell'. These transcriptions clearly indicate that final high vowels were optionally devoiced then, as they are now.

As noted earlier, preconsonantal and final *h* in Hambruch can be treated as a diacritic.

In the German sources Aua is represented entirely by the vocabulary of Hambruch. There are very few differences between Aua phonology as represented by Hambruch's transcriptions, and Aua phonology as I recorded it, a remarkable contrast with the Wuvulu material. Hambruch uses *g* for [ɣ], writes *v* where I write /f/ (*ava* : /afaa/ 'north-west wind'), and occasionally writes *b* where I write /p/ (*baiwa* : /paiwa/ 'shark'). As can be seen in the words for 'north-west wind', Hambruch does not distinguish geminate from single vowels.

To sum up, my phonemicisation of Wuvulu and that implied by the German sources circa 1900 differ in the following particulars: 1) I recognise a phoneme /k/ where they imply a phoneme /g/; 2) I recognise a marginal /d/ (probably not found in the Aunna sub-dialect), a unique instance of /ŋ/ (possibly a loan), and a few instances of initial /h/ (again, possibly sub-dialect forms), where the German sources have nothing; 3) the German sources imply /s/ (in Seimat loans?) where I find no evidence for a distinct phoneme; 4) the German sources have a well-attested /r/, while this phoneme is very marginal in my data; 5) the German sources imply /y/, while I find little evidence for it (although /w/ is well attested).

To give a more realistic picture of a single sub-dialect (Aunna), then, /d/, /ŋ/ and /h/ probably should be dropped from Table 6. This yields a phoneme inventory with 11 consonants, one of them (/r/) extremely marginal. But the /p/ : /b/ distinction should perhaps also be questioned. I recorded 109 instances of /p/, and 37 instances of /b/ in my Wuvulu corpus. The Aua data is more limited, but the proportions of /p/ and /b/ are similar. I have regarded /p/ and /b/ as different phonemes in Wuvulu because 1) I recorded no [p], [b] variation from Harry Lopes, while other kinds of free variation (e.g. [f], [v]) were common, 2) seven of the Wuvulu forms that I recorded with [b] have cognates that were recorded independently in Aua, and all of them agree in voicing, and 3) no Wuvulu form that I recorded with [p] has an Aua cognate with [b] in my data.

Together with the fact that [p] and [b] occur in similar environments, the foregoing observations normally would be sufficient evidence that the two phones contrast. However,

as already noted, Dempwolff often has variant transcriptions of Wuvulu that differ in *p* : *b*. Moreover, both Dempwolff and Hambruch sometimes write invariant *b* corresponding to /p/ in my material, as with my Wuvulu, Aua /paiwa/, Wuvulu *paiva* (D), Wuvulu, Aua *baiwa* (H) 'shark', or Wuvulu, Aua /poʔi/, Wuvulu *boʔi-a* (D) 'white', Wuvulu *poi-a* (H) 'yellow'.

There is a good deal of outright error in the early German work, and it would be comforting to simply dismiss these voicing disagreements as erroneous transcriptions. The difficulty with this approach is that we are compelled in any case to recognise a great deal of free variation in connection with /k/, /t/ before high vowels, /f/, and /l/.[12] Since there is no other well-attested voiced stop, and since both /k/ and /f/ have freely varying voiced and voiceless allophones, a phoneme /b/ is automatically suspect.

Perhaps subtler and more pernicious to the general concept of the phoneme, however, is the question how 'free' free variants really need to be. Harry Lopes recognised that [k] and [g] were respectively slow speech and rapid speech variants, and that [x] and the far rarer [ɣ] had a similar relationship. However, he consistently denied that the latter two phones could be interchanged with the former. As seen earlier, despite his denials, there is some evidence from repeated morphemes in my corpus that [k], [g], [x] and [ɣ] all belong to a single phoneme. How can we explain such native-speaker reaction?

One possibility is that a phonemic merger is in progress. Harry Lopes acknowledged that [maʔigu] and [maʔiku] are respectively rapid speech and careful speech equivalents meaning 'to sleep'. However, he insisted that [agi] 'younger same sex sibling' has no other pronunciation. Since the first word derives from POc *matiruR*, and the second from POc *taji*, it is conceivable that this difference in informant reaction reflects a change which has already taken place (POc *s* and *j* > Wuvulu [g]), versus a change which is now in progress (POc *r* > Wuvulu careful speech [k] > rapid speech [g]). The problem with using informant reaction in this case is that the informant is known to have insisted on a unique pronunciation of some other forms, and yet pronounced the forms differently at different times.

The concept of free variation operates with at least two implicit assumptions which have been completely unquestioned in the theoretical literature: 1) all variants have a roughly equal frequency, or likelihood of occurrence in the same style of speech, and 2) all variants have a roughly equal likelihood of occurrence in a given morpheme. It is an empirical issue whether either of these assumption is justified. I have presented what I believe are good reasons for treating Wuvulu [k], [g], [x] and [ɣ] as allophones of a single phoneme. Given this analysis, in examples such as [pugexe] 'bubbles', [ugexe] 'egg cowrie', and [waxaku] 'rotten' it must be concluded that different values of the same phoneme occur in different syllables of the same morpheme. This is, at the very least, rather puzzling. Does each of these words really have sixteen equally likely pronunciations (four phonetic values of the velar obstruent in the first syllable interacting with the same four values in the second syllable)? My contact with the language was simply too brief, and the corpus of material collected too limited to answer such a question, but I suspect that preferences exist for certain pronunciations of given morphemes despite the general interchangeability of the allophones that distinguish phonetic tokens. Whatever the facts turn out to be, it is clear both from the German sources (especially Hambruch 1908) and from my own fieldnotes, that Wuvulu is a language with an

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12   Hambruch (1908:38) claimed much more extensive free variation than I observed, maintaining that *b* could be interchanged not only with *p* but also with *ch* (/x/), that *g* could be interchanged with *r*, *rh*, *ch*, *p* and *w*, and even that *m* could be interchanged with *t* or *v*!

exceptional amount of free variation. A more detailed study of this aspect of the language may well yield valuable theoretical insights into the nature of 'free' variation.

3.2 SEIMAT

As noted earlier, Seimat is the language of the Ninigo Lagoon, an extensive body of water enclosed within a coral reef reaching some 50 km from north to south. Like similar structures elsewhere in the Pacific, this reef forms the foundation for a number of tiny atolls scattered for many miles around the coral rim of the large shallow lagoon. The Army General Survey Report of 1943 divides the population of the Ninigo Lagoon into three groups: 1) the Ninigo group, 2) the Sama group, and 3) the Awin group. The Ninigo group consists of nine atolls: 1.1 Chauch, 1.2 Ami, 1.3 Pihun, 1.4 Ninuch, 1.5 Potaminam, 1.6 Keholl, 1.7 Pingilap, 1.8 Mal and 1.9 Lau. Four villages were then located on Chauch Island, and one each on most of the others. The Sama group consists of Pataku Island, and the Awin group of Maletin Island. The dialect described here is that of Awin village.

The phonemes of Seimat, as determined from my phonetic transcription of the speech of Vincent Tonam, appear in Table 13.

TABLE 13: SEIMAT PHONEMES (AWIN DIALECT)

Consonants (12)   Vowels (5)

p   t   k   i   u
m   n   ŋ
    s   x   h
                   e   o
    l
w   y   a
                (plus nasalisation)

In Seimat /t/ is dental, while /n/, /s/ and /l/ are alveolar. The vowels /i/ and /o/ have lowered allophones in closed syllables, and /e/ appears to be /ɛ/ everywhere except when preceding a vowel.

Seimat phonology presents a distinctly different set of problems than those encountered in Wuvulu-Aua. Firstly, free variation is virtually absent. In four of the 803 words in my corpus I transcribed [h], and in one other [x], only to learn by rehearsal of the transcribed form with Vincent Tonam that I should have written the other symbol. See Table 14 for examples.

TABLE 14: VARIABLY TRANSCRIBED /h/ AND /x/ IN SEIMAT

Initial Form	Corrected	
wah	wax	shoulder
xoixoxin	xoixohin	near
hēhipat	hēxipat	comb
pahaŋoŋ	paxaŋoŋ	dream
tihiŋa	tixiŋa	spill

Contrast is established in pairs such as [koxa] 'phalanger, cuscus' : [kohan] 'rotten (of meat)', and [tax] 'saltwater' : [tah] 'belt'. Nothing else resembling free variation was recorded in Seimat.

A second conspicuous difference between Wuvulu-Aua and Seimat involves the form of morphophonemic alternations before a suffix. Wuvulu and Aua have lost only the final consonant of POc *CVCVC morphemes, producing a canonical form CVCV, and 'thematic' final consonants which appear when such a form is suffixed (Table 7). By contrast, Seimat has lost the entire final syllable, yielding a canonical form CVC. When nouns are suffixed with a possessive pronoun, or when verbs are suffixed with -/wen/, the original last-syllable vowel reappears (but not the consonant which originally followed it), as seen in Table 15.

TABLE 15: THEMATIC VOWELS IN SEIMAT SUFFIXED NOUNS AND VERBS

	POc	Simple Stem	Suffixed Stem	
1.	*qawa	aw	awa-	mouth
2.	*qate	at	ate-	liver
3.	*mputos	put	puto-	navel
4.	*qutin	ut	uti-	penis
5.	*patuk	pat	patu-	head
6.	*malip	mal	mali-wen	laugh/to laugh
7.	*taŋis	taŋ	taŋi-wen	cry/to cry
8.	*matiruR	mati	matihũ-wen	sleep/to sleep

One instance of a thematic vowel was recorded in a derived adjective: *tasik > /tax/ 'saltwater', /taxi-an/ 'salty'.

In a number of reduplicated stems the last-syllable vowel is similarly preserved: *mañur > /manuman/ 'drifting on a current', *taŋis > /taŋi-taŋ/ 'crying', *malip > /malimal/ 'laughing', *roŋoR > /hoŋo-hoŋ/ 'hearing'. In one recorded case the vowel that surfaces before a suffix or reduplicating stem is not the historical final: *mutaq > /mut/ 'vomit', /mutumut/ 'vomiting', /mutu-wen/ 'to vomit'.

In terms of the typology of morphophonemic alternations, then, Wuvulu and Aua are broadly reminiscent of the Polynesian languages, and Seimat of the Nuclear Micronesian languages or Mota (although in the latter languages what resurfaces under suffixation typically is the entire -VC syllable, and not the vowel alone).

The third feature of Seimat phonology that merits some discussion is an alternation which I will call 'genitive assimilation'. Seimat has a number of genitive compounds in which the attribute and head are linked by /i/, as with [pulixíxi] 'corn, callus' (= /pul i xixi/ 'eye of fish'), [kanisús] 'breast milk' (= /kan i sus/ 'water/liquid of breast'), and [kanipúl] 'tears' (= /kan i pul/ 'water of eye').[13] In a small number of genitive constructions the form of the linker is not [i], but rather [ε]. Attention to the available etymologies shows that in all of these cases the attribute ended in *a. Before word-final vowels disappeared in Seimat the

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13   Smythe (n.d.:26) notes that /i/ is used in genitive constructions when the possessing noun "is a class rather than an individual", as with /iŋ i pou/ 'pig-house' vs /iŋa-n pou/ 'the house of some particular pig', or /nat i pou/ 'piglet' vs /natu-n pou/ 'offspring of some particular pig'. This distinction corresponds both formally and semantically with what Hooper (1985:152ff.) calls a "contrast between specific and non-specific genitives" found in many Oceanic languages, as in Lonwolwol (Vanuatu) /alu barbar/ 'pigskin' vs /alu-n barbar/ 'the pig's hide', or /neti vanten/ 'baby' vs /neti-n vanten/ 'the man's son'.

sequence *a-i contracted to /e/, giving rise to a second allomorph of the genitive marker. When final vowels subsequently disappeared this marker survived (since it never occurred word-finally), thereby preserving a trace of the original final vowel of the attribute. As a result it can be argued on the basis of allomorphy in the genitive marker that word-final /a/ is still present in a number of morphemes which appear in attribute position in genitive compounds. Examples are: 1) POc *qawa 'mouth', Seimat /awa i sal/ ([awɛsál]) 'path, road' (lit. 'mouth of path/road'); 2) POc *mata 'eye, face, front', Seimat /mata i iŋ/ ([matɛÍŋ]) 'front of a house'; 3) POc *nanaq 'pus', Seimat /nana i pul/ ([nanɛpúl] 'sleep in eye' (lit. 'pus of eye'); 4) Proto Western Islands *wanda 'root', Seimat /wahã i pahõa/ ([wahẽpahõa]) 'grass roots'. There is one known example which suggests that a similar assimilation and contraction occurred within the sequence *-e-i: 5) POc *ndamwe 'chew betel', Seimat /xame i wap/ ([xamɛwáp]) 'lime spatula'.

Where the attribute in a genitive compound originally ended with a vowel other than *a or *e assimilation and contraction did not occur: 6) POc *qatoluR, Seimat /atol i patu/ ([atolipátu]) 'brain' (lit. 'egg of head'); 7) POc *ndanum 'fresh water', Seimat /kan i tax/ ([kanitáx]) 'saltwater'('water of sea'); 8) POc *kulit 'skin', Seimat /ul i pow/ ([ulipów]) 'skin of a pig'. For reasons that remain unclear, some attributes that originally ended in *a do not show the expected changes in Seimat: 9) Proto Admiralty *pula 'brow', Proto Western Islands *pula 'eye', Seimat /pul i xixi/ ([pulixíxi]) 'corn, callus' (lit. 'eye of fish'); 10) POc *talinga 'ear', Seimat /taxing i paxi/ ([taxiŋipáxi]) 'kind of mushroom' (lit. 'ear of ghost'); 11) POc *puaq 'fruit', Seimat /hua i pata/ ([huaypáta]) 'fruit of a tree'. It is possible that loss of *-a was a lexically gradual change which was incomplete at the time of genitive assimilation, and that only stems which still retained the final low vowel in some environments underwent the latter change.

From a general Austronesian standpoint the most unusual feature of the Seimat phoneme inventory undoubtedly is the presence of phonemic vowel nasality. Even more remarkable from a general typological standpoint is the distribution of nasalised vowels in Seimat, which occur only after /h/ or /w/ (Table 16).

TABLE 16: EVIDENCE FOR SEIMAT VOWEL NASALITY

	Oral Vowels	Nasal Vowels
1.	hua 'crocodile'	hūa 'two (in counting trees)'
2.	hehin 'woman'	pehēhĩn 'grouper sp.'
3.	ho 'mangrove sp.'	hō 'skin mole'
4.	itihi 'caulk'	tihĩ 'to pour'
5.	taha- 'belt'	wahã 'root'
6.	awa-k 'my mouth'	kawā-k 'my forehead'
7.	wat 'monitor lizard'	wāt 'earthworm'
8.	walal 'barbelled fish'	wāluwāl 'boil, abscess'

A count of all stems in my corpus which contain non-final /h/ or /w/ shows the following frequencies of oral and nasal vowels: 1) hV : 126, 2) hṼ : 28, 3) wV : 59, 4) wṼ : 6. All instances of /wṼ/ involve /ã/; all five vowels occur nasalised after /h/, although /ã/ is rare.

Although I have no doubt that these figures are generally accurate, several potentially distorting factors should be mentioned. Firstly, the morphology of many forms is not completely understood, and it is possible that a number of longer verbs which begin with /ha/- contain the causative prefix, as with [haŋaini] 'to sell'. Secondly, I have tried to count

the verbal suffix -/wen/ only once for purposes of the above figures, but may occasionally have misinterpreted it as part of the stem. Finally, all vowels are nasalised next to a nasal consonant, and nasality appears to carry through a following /h/ to the succeeding vowel. In forms such as [hõŋ] 'hear', [mõĩh] 'living, alive', or [nãhĩ] 'to walk', then, the oral/nasal contrast appears to be neutralised, thus eroding an already limited data base relative to determining the historical sources of Seimat vowel nasality.

Stress in Seimat generally falls on the penultimate syllable, although in genitive compounds primary stress was recorded on the first vowel of the head, resulting in some apparent stress contrasts: [pulixíxi] 'corn, callus' versus [kanisús] 'milk'. Although the stress rules of Seimat remain to be worked out in detail, it is clear that stress is not phonemic.

The German sources imply one important difference between early twentieth century Seimat and Seimat as I recorded it. Dempwolff's transcriptions contain orthographic voiced stops *b*, *d*, *g*, and Thilenius writes *b* and *d* (the latter only in final position). Examples are: Thilenius *tabanim* 'five', *boe* 'lava stone', *tueb* 'betel nut', *iad* 'connecting sticks for the outrigger', Dempwolff *bou* 'pig', *bal* 'dove, pigeon', *ub* 'coconut', *kohod* 'star', *gohu* 'thunder'. Since the homorganic voiceless stops are written in similar environments, contrast is implied. The difficulty with accepting this implication is that the transcriptions of Thilenius and Dempwolff often disagree with one another in the matter of voicing: for example, *tabanim* (T), *tepanim* (D) 'five', *pou* (T), *bou* (D) 'pig', *pal* (T), *bal* (D) 'dove, pigeon', *up* (T), *ub* (D) 'coconut', *kohot* (T), *kohod* (D) 'star'. Where the German sources imply a voicing distinction I recorded only voiceless unaspirated stops, as did Smythe (n.d.).

Two features of the German transcriptions are especially noteworthy: 1) the frequency with which /x/ and /h/ are confused, 2) the rarity with which final /x/ or /h/ was transcribed. Examples of the first problem are: a) -*kaha/kaxa*, an apparent body-part marker recorded by Thilenius in a number of words, generally with *h* (*kamakaha* 'forehead', *tumukaha* 'lips', *esukaha* 'teeth'), but once with *x* (*lihokaxa* 'tongue'); b) *peihu* (T) for /pexuh/ 'beach'; c) *xu* (D) for /hux/ 'island'; d) *manihu* (D) for /manexux/ 'bird'; e) *nahon* (D) for /naxun/ 'wound'. Examples of the second problem are: a) *a* (T) for /ah/ 'fire'; b) *ho* (T) for /hox/ 'canoe paddle'; c) *aka* (T, D) for /akah/ 'rain'; d) *lemau* (T), *nemau* (D) for /nemaux/ 'bush, jungle'; e) *xu* (D) for /hux/ 'island'; f) *kanita* (D) for /kan i tax/ 'saltwater'; g; *usu* (D) for /usuh/ 'rat'.

It is puzzling that the first problem should occur, given the importance of the /x/ : /h/ contrast in German. Similarly, although final -/h/ does not occur in German final /x/ is common, yet both segments were generally omitted by both Thilenius and Dempwolff.

As might be expected, neither Thilenius nor Dempwolff transcribed Seimat vowel nasality correctly. However, one inconsistency in Thilenius is revealing in this regard. The set of numerals that he gives for Seimat is that set used in counting children: 1) /tel/, 2) /hūhūa/, 3) /tolu/, 4) /hinalo/, 5) /tepanim/, 6) /tepanim tel/, 7) /tepanim hūhūa/, etc. For 'two' Thilenius writes *huhua*, giving no indication that he heard the contrast of plain and nasalised vowels. But for 'seven' he writes *tabahuhuŋa*, with an inappropriate velar nasal which clearly suggests that he heard the distinctive nasality in this form, although he was unsure how to represent it.

Smythe (n.d.) provides no explicit discussion of Seimat phonology, but his transcriptions imply a phoneme inventory essentially identical to the one I present here, including the recognition of contrastive vowel nasality. The one noteworthy difference is that Smythe recognises contrastive vowel length in some monosyllables, as with *at* 'liver' versus *ha:t*

'stone', or *tin* 'mother' versus *hi:l* 'how much/how many?'. In my Seimat transcriptions all monosyllables, with the apparent exception of those ending in -/h/ or -/x/, contain two moras, at least in citation forms: /hō/ = [hō:] 'skin mole', /ho/ = [ho:] 'fruit sp.', /ka/ = [ka:] 'crown-of-thorns starfish', /wãt/ = [wã:t] 'earthworm', /wat/ = [wa:t] 'monitor lizard', /kah/ = [kah] 'lionfish', /tax/ = [tax] 'sea, saltwater', etc. In addition, sequences of like vowels in reduplicated forms are realised as a long vowel, as with /axaax/ (= [axa:x]). I recorded no length contrasts of any kind.

3.3 KANIET

Thilenius (1903) and Dempwolff (1905) provide our only linguistic data on the now depopulated Kaniet (written 'Kanied' by Dempwolff), or Anchorite Islands. In his 'Ninigo' (= Seimat) vocabulary Dempwolff recorded the entry *kanied* 'seagull', and it is likely that the name of the Kaniet Islands derives from this word.

It is unclear exactly when the language or languages of the Kaniet Islands became extinct or, indeed, whether some native speakers might not survive outside their native archipelago. Based on a two-day stay in the islands late in 1902, Dempwolff (1904) claimed that the Kaniet people were on the verge of extinction. One photograph that he published with his article, however, depicts a group of 14 apparently healthy adult men. The Army General Survey Report of 1943 indicates a population of 5 persons still living on Tatak Island in the Kaniet group. Healey (1976:356) states that Kaniet has been "extinct since about 1950", and Vincent Tonam maintained rather colourfully in 1975 that if one were to sail to Kaniet he would 'find nothing but the trees'.

The picture that emerges from these remarks, however, is in need of some qualification. Firstly, as will be seen in the appendices, Thilenius and Dempwolff apparently described two different languages under the same name. Smythe (1970:1231), who collected some still unpublished Kaniet material, reports a "big discrepancy" between Thilenius's data and his own. However, he does not mention Dempwolff.[14]

Secondly, Dempwolff's Kaniet data was collected in December 1902 from two locations: 1) on the Anchorite Islands themselves, and 2) from Kaniet speakers who resided on Allison Island (Manu=Malu=Mal in Seimat) in the Ninigo group. According to Dempwolff the latter population had then been on Allison Island for some 20 years, and had closer connections with its Seimat neighbours than with the dwindling population of its own home islands. It is thus entirely possible that some Kaniet speakers still survive on one or more atolls in the Ninigo Lagoon. Given his long-term interest in Seimat, it is likely that Smythe's Kaniet material, like Dempwolff's, was collected from speakers residing on Allison Island. Healey's report that the last Kaniet speakers died around 1950 almost certainly was obtained from Smythe. Moreover, if Kaniet still survived in 1975 Vincent Tonam surely would have known about it. It thus appears probable that the Kaniet language is extinct, whatever the fate of the Kaniet people who resettled in the Ninigo Lagoon.

Lexically the Kaniet lists of Thilenius and Dempwolff differ more than one might expect for dialects of a single language. Some 65 lexical items used on a modified form of the Swadesh 200-word lexicostatistical test list (Blust 1981) are found in both Kaniet lists, and

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14   The Kaniet material in Z'graggen (1975) apparently was taken from Thilenius (1903), with minor typographical adjustments.

only 35 of these, or 53.8% are cognate. Given their lexical distinctness, then, it seems best to treat the two lists separately.

Thilenius's 296-word vocabulary of Kaniet contains a number of words that end in a consonant: *ik* '2SG', *tef* 'one', *halaŋg* 'rain', as well as four examples of consonant clusters. It uses 25 symbols or digraphs (diacritics have been ignored): *p*, *t*, *tj* (= [č]), *k*, *b*, *dj* (= [y]), *g*, *m*, *n*, *nj* (= [ñ]), ng (= [ŋ]), *f*, *s*, *x*, *h*, *ð*, *l*, *r*, *w*, *j* (= [y]), *i*, *u*, *e*, *o*, *a*. The following points are noteworthy: 1) *tj* appears only in *kanetje* 'putrified, decayed'; 2) *dj* is rare, and is attested only in non-final position (*djooi* 'day', *djedjeain* 'finger'; 3) *g* is found only intervocalically where, however, it appears to contrast with *k* (*nagai* 'when?' versus *akanu* 'fresh water'); 4) /ñ/ is represented as *nj* non-finally, but as *nj*, *inj*, or *in* (after a vowel) in final position (*njamu* = /ñamu/ 'mosquito', *kanj* = /kañ/ 'smell, have an odour', *foinj* = /foñ/ 'turtle', *djedjeain* = /jejea-ñ/ 'his/her finger' (?)); 5) *ng* is not written in initial position; 6) *x* is rare, being written only intervocalically where, however, it appears to contrast with *h* (*paxai* 'breadfruit' versus *maha* 'Tridacna shell'); 7) *h* is not written word-finally; 8) *ð* alternates morphophonemically with *t*: *tef* 'one', *koðef* 'nine' (= 'one taken away'), *tolu* 'three', *koðolu* 'seven' (= 'three taken away'); at the same time *ð* appears to contrast with *t*: *nunut* 'drum' versus *palauð* 'tapa skirt'. Unlike the similar symbol that Dempwolff uses for Wuvulu, Kaniet *ð* has no historical connection with **l*, and probably was not a lateral; 9) *r* is written only intervocalically in a single morpheme (*sorafu* '20', and the morphophonemically related form *pahimserafu* '70') where, however, it appears to contrast with *g* and *l*; 10) the occasional use of a macron implies contrastive length in the vowels; 11) a number of diphthongs are implied by Thilenius's transcription, but these will not be considered further.

Among the labials /p/, /m/, /f/ and /w/ seem certain: /pani/ 'wing', /mamahu/ 'ash', /faf/ 'four', /sawa/ 'fish spear'. Thilenius's orthography also implies a phoneme /b/: baxu 'dove, pigeon: *Ptilopus* sp.', *babam* 'sweat', *maxeb* 'chief, headman'. Given the confusion surrrounding the contrastive status of orthographic *b* in the German transcriptions of Wuvulu, Aua and Seimat, we can only wonder whether *p* and *b* really contrasted in Thilenius's Kaniet. Without further information it is perhaps best to simply accept the implications of the orthography and recognise /b/. Finally, comparative data make it appear likely that Thilenius's *kamuam* 'forehead' is actually /kamᵂa-m/' your forehead', thus providing evidence for a labiovelar nasal. In light of this interpretation the orthographic sequence labial stop + rounded vowel+ vowel may be analysed as labiovelar stop + vowel: *bobuau* = /bobᵂau/ 'night' (?), *poalo* = /pᵂalo/ 'pig' (?).

Among the dentals /t/, /n/, /s/ and /l/ seem certain: /tama/ 'father', /nasai/ (written *nashai*) 'morning', /salae/ 'path', /lase/ 'coral'. As noted already, Thilenius writes *r* only in *sorafu* '20', and the morphologically related form *pahimserafu* '70'. Without further support *r* is perhaps best treated as a transcriptional error. Most problematic is *ð*, which occurs 23 times in Thilenius's material, but appears to alternate with /t/. Moreover, in forms such as *ðeiana* (POc **tian-an*) 'pregnant', Kaniet *ð* evidently reflects POc **t*. I treat Thilenius's *t* and *ð*, then, as freely varying allophones of a single phoneme /t/.

The languages of Kaniet are the only languages of the Western Islands to preserve the distinction of POc **n* and **ñ*. Since it is a typological universal that no language has more orders of nasals than of stops (Ferguson 1963), the presence of Kaniet /ñ/ clearly implies the presence of a palatal stop or affricate. There are two candidates for such a phoneme in Thilenius's data: /c/ and /j/. The former is implied in only one form (*kanetje* 'putrified, decayed'), and the latter in five. It thus seems reasonably safe to conclude that Thilenius's

Kaniet had a phoneme /j/. Without further information it is perhaps best to regard [č] as an allophone of /j/. Finally, a palatal glide /y/ is implied in *majin* = /mayin/ 'sleep', *kaja* = /kaya/ 'child', *puje* = /puye/ 'beach', and some other forms.

Among the velars /k/ and /ŋ/ seem very likely: /kañ/ 'smell, have an odour', /laŋi/ 'wind'. The relationship of *k* and *g* is uncertain, but a contrast is implied in, for example, *alo-megiab* 'evening' versus *mebakil* 'big'. In Thilenius's data *k* is far more frequent than *g* (44 instances to 8), and the implied voiced stop may well have been a free variant of /k/. But without evidence of free variation or alternation within Thilenius's corpus it is perhaps best to assume a contrast.

The relationship of *h* and *x* is also problematic. Thilenius writes *h* in 21 forms, where it occurs both initially and intervocalically. By contrast *x* occurs only 7 times, and only in intervocalic position. Moreover, it is clear from comparative data that both segments derive from *l. A relationship of free variation seems likely, and I accordingly recognise a single phoneme /h/.

As with the other languages of the Western Islands, a five-vowel system is indicated for Kaniet by Thilenius's orthography. Implied length contrasts are of uncertain status, and will be ignored.

Table 17 presents the phoneme inventory of Thilenius's Kaniet as I have inferred it from his material, sometimes with the assistance of comparative data.

TABLE 17: A PHONEMIC INTERPRETATION OF THILENIUS'S KANIET

Consonants (19)   Vowels (5)

p	*t*		*k*	*i*	*u*
p^w					
b		*j*	*g*	*e*	*o*
b^w					
m	*n*	*ñ*	*(ŋ)*		*a*
m^w					
f	*s*		*h*		
	l				
w		*y*			

As noted earlier, Dempwolff's 210-word vocabulary of Kaniet contains material from two different locations. On December 26, 1902 material was collected in the Anchorite Islands. On December 28, 1902 a few additional forms were collected from Kaniet speakers who had settled around 1880 on Allison Island in the south of the Ninigo Lagoon. Where they differ, forms from the two locations are distinguished. The material from Allison Island consists of only nine lexical items, most of them slightly differing variants of the forms recorded in the home islands. It seems reasonably certain, then, that the rather notable discrepancy between the list of Thilenius and that of Dempwolff reflects linguistic differences that still obtained in the Kaniet and Anchorite Islands around 1900.

A number of the words in Dempwolff's vocabulary end in a consonant, and six implied consonant clusters are found. The following segmental symbols are used by Dempwolff: *p, t, tʃ* (= [č]), *k, b, d, g, m, n, ñ, ng* (= [ŋ]), *f, s, ʃ, x, h, v, ð, l, r, w, y, i, u, e, o, a*. Noteworthy points are: 1) *p* is not found word-finally; in some examples it appears to vary with *b*: *paxin, baxin* 'large'; 2) in some cases *tʃ* appears to vary with *t*: *tohu* 'three', *go-tʃoho*

'seven' (= 'three taken away'); in other cases contrast is implied: *tʃam* 'come' : *tasin* 'water'; 3) *tʃ, k, h* and *ð* do not occur word-finally; 4) *d* and *n* do not appear initially; 5) *θ* is written only in *naθnig* 'my son', and probably should not be distinguished from *ð*; 6) *ʃ* appears to contrast with *s*: *ʃo* 'grass' : *sof* 'island'; in some forms, however, the two sounds evidently vary freely (*ʃeano, senano* 'path, way'); in still other examples *ʃ* seems to vary freely with *ð* (*naʃai, naðai* 'morning'); 7) *x* varies with *g* in *tax(o), tag* 'no, not'; 8) *w* appears to vary with *v*, at least in some forms (*kawo, kauvo* 'wood'); 9) *ɾ̥* (voiceless *r*) was recorded only in *aɾ̥if* 'drum'.

Among the labial phonemes /p/, /m/, /f/ and /w/ seem almost certain: /pafi/ 'ghost', /maña/ 'sail', /fafu/ 'four', /awa-n/ (*auan*) 'mouth'. As in Thilenius's material, the relationship of *p* and *b* is problematic. The two phones evidently varied freely in *baxin, paxin* 'big', and in *pafi* 'ghost', *bafe* 'devil'. However, *b* is written in 16 forms, and appears to contrast with *p* in, for example, *bubuye* 'tobacco' versus *puye* 'spear'. As in Thilenius's corpus, we accept /b/ tentatively, but recognise that [b] may have been an allophone of /p/. A series of labiovelars is also implied by transcriptions such as *mowan* (/mʷan/) 'man', and *poalu* (/pʷalu/) 'pig'. The symbol *v* is written only four times by Dempwolff. As noted above, it appears to represent an allophone of /w/: for example, *auvim, auwim* 'fishhook' = /awi-m/ 'your fishhook'.

Among the dentals /t/, /n/, /s/ and /l/ seem secure: /tasin/ 'water', /natnig/ 'my son', /sami naum/ 'beard', /layeŋ/ 'tail'. Both *d* and *ð* are confined almost exclusively to intervocalic position, where *t* is absent. The known exceptions are *ðitol* 'hungry', *ðangi* 'weep', *salemod* 'fear', and *fefid* 'angry'. The first two items have known etymologies, and based on these it appears likely that *ðitol* was a mishearing of *fitol*, and that *ðaɲi* was phonemically /taɲi/. Given the distribution of symbols in Dempwolff's corpus, and the available comparative information, the orthographic symbols *t, d* and *ð* will all be treated as allophones of a single phoneme /t/. For our purposes the unique instance of *r* in Dempwolff's Kaniet vocabulary will be ignored.

Like Thilenius's Kaniet, Dempwolff's material also contains a palatal glide /y/, and a palatal nasal, although the latter is not always written as such: *niam* = /ñam/ 'mosquito', *kaña* = /kaña/ 'dirty' (or 'sweat'?). The sole candidate for a corresponding stop/affricate is *tʃ* in *tʃam* (/cam/?) 'come', and a few other forms. However, the apparent free variation between *t* and *tʃ* noted earlier raises questions as to whether a phoneme /c/ is justified by Dempwolff's data. Given the universal implication that the number of places of articulation for nasals will not exceed that for stops, a palatal stop/affricate will tentatively be accepted, although /t/ and /c/ may have varied freely in some morphemes. The orthographically implied palatal fricative is rare, and will be considered an allophone of /s/.

Among the velars /k/ and /ŋ/ seem certain: /kami/ 'sea', /aŋiŋ/ 'wind'. More problematic are *g, x* and the glottal fricative *h*. As in Thilenius's data, *g* is less common than *k*. There is some evidence that *g* and *k* are dialect equivalents, as in *goluŋ* (Anchorite Islands) versus *kulun* (Allison Island) 'finger'. However, the first person singular possessive suffix is consistently transcribed as *g*, and it seems best in view of all of the evidence to recognise a contrast. Finally, *x* and *h* seem to contrast (*texu* 'one', *tohu* 'three'); since Dempwolff's transcriptions provide no evidence of variation between them they will be written as different phonemes here.

As with Thilenius's Kaniet, Dempwolff's transcriptions imply a five-vowel system. Table 18 presents the phoneme inventory of Dempwolff's Kaniet as inferred above.

TABLE 18: A PHONEMIC INTERPRETATION OF DEMPWOLFF'S KANIET

Consonants (19)					Vowels (5)	
p	t	c	k		i	u
p^w						
b			g		e	o
m	n	$ñ$	$(ŋ)$			
m^w					a	
f	s		x	h		
	l					
w		y				

4. EVIDENCE FOR AN ADMIRALTY SUBGROUP

Although Blust (1978) was the first to claim that the languages of the Western Islands belong in an immediate subgroup with the languages of the eastern Admiralties, published evidence for such a grouping first appeared in Ross (1988:330-332). Ross bases his argument on the following pieces of evidence, which are cited verbatim, but renumbered:

1) POC *R was lost before high vowels in Proto Admiralty (PAd) and became PAd *R before other vowels (probably *[-x-] or *[-ɣ-] as eastern Admiralty reflexes tend to be -y-, or in some languages -w- before -o-, whilst western Admiralty languages always lose it).

2) POC *p became PAd *-f- word-medially.

3) POC word-final consonants were lost in PAd.

4) Numeral classifiers are used, and occur in the sequence numeral + classifier, the sequence forming a single word phonologically.

5) The numeral one is used as a common article (marking not only indefinite but also specific and definite noun phrases).

6) All POC non-singular possessive pronominal suffixes were lost and replaced by PAd disjunctive pronouns.

7) The POC possessive pronominal suffix *-ña P:3S is replaced by PAd *-na (for expected **-ña).

8) The POC disjunctive pronoun *kita D:1IP is reflected by PAd *ta (for expected PAd **ita).

9) Reduplication of the verb, used to form the continuative aspect in POC, was lost in PAd; in many Admiralties languages it is replaced by the verb *stay* as an auxiliary.

10) The POC common article *na has coalesced with common nouns, resulting in phonological changes in some initial consonants.

Although Ross and I are in agreement not only with regard to the existence of an Admiralty subgroup, but also with regard to almost every detail of its internal structure, there are problems with the evidence he has presented, and I would like to discuss these briefly before presenting my own argument.

1) While it is true that the languages of the Western Islands invariably reflect POc *R as zero, it is not true that the languages of the eastern Admiralties invariably reflect POc *R as

zero before a high vowel. This is perhaps clearest where the high vowel in question is *u*, as with POc **suRuq* 'fluid, liquid, broth' > Loniu, Nauna *cuy*, Bipi, Baluan, Lenkau *suy* 'soup'. However, it is equally true of **i*, as in POc **paRi* > Nali, Baluan *pey*, Bipi, Likum *pay*, Levei *pep*, Nauna *pɨy* 'stingray'. Since the original last syllable of POc forms has regularly disappeared in all languages of the eastern Admiralties the front glide in reflexes of **paRi* can only reflect **R*.[15]

2) Although POc **-p-* has lenited in almost all Admiralty languages it is noteworthy that this is not the case in Sori of north-western Manus, nor in Baluan, Lou, Penchal, and perhaps some other languages of the south-eastern Admiralties: POc **apaRat* 'north-west monsoon' > Nali *n-ohay* 'wind', *hay* 'north-west monsoon', Ere *ahay* 'wind', Bipi, Likum *yahay* 'west wind', Lindrou *jaha* 'north-west monsoon', Nauna *ahay* 'west wind; west', but Sori *japay* 'north-west wind', Baluan *apay* 'east wind', POc **pupu* 'bamboo basket trap for fish' > Loniu, Pak, Nauna *puh*, Leipon *b̄uh*, Lindrou *bu*, but Sori *b̄up*, Lou, Penchal *pup*. In principle, of course, it is possible to argue that POc **p* first lenited to /f/ and subsequently returned to a stop, despite the rarity of such changes (Blust 1991). The difficulty with this explanation is that instances of POc **p-* which did not undergo secondary prenasalisation generally disappeared in those languages which reflect POc **-p-* as /p/: **paŋan* 'to feed' > Sori, Lou *aŋ*, POc **pasok* 'to plant' > Lou *as*, POc **puka* 'to open, uncover', > Lou *uk*. Are we to assume that earlier /f/ which remained prevocalic was further lenited to /h/, and ultimately zero, while an earlier /f/ which became final underwent secondary fortition to a stop? The facts appear to find a phonetically more plausible explanation in a hypothesis that prevocalic **p* and **k* were preserved as stops until the loss of final vowels in eastern Admiralty languages removed them from prevocalic position. The lenition of prevocalic **p* and **k* then followed as a widespread drift throughout the Admiralties. Not only does this hypothesis explain why languages such as Sori or Lou reflect **p-* in non-nouns as zero, and **-p-* which became final as /p/, it also explains why Lou and Baluan reflect **k-* in non-nouns as zero, and **-k-* which became final as /k/.

3) Word-final consonants were, indeed, lost in all Admiralty languages, but this can be said of so many other languages throughout the Oceanic group that it is virtually meaningless for purposes of subgrouping.

4) Constructions of the form NUMERAL + CLASSIFIER do occur both in western and in eastern Admiralty languages. However, the same is true of most if not all Nuclear Micronesian languages, and of various languages of the south-east Solomons, Fijian, and the Polynesian languages (Pawley 1972:59ff.). In the absence of specific Proto Admiralty reconstructions which can be shown to be innovative this observation has no defensible subgrouping value.

5) The historical change of the numeral 'one' to an indefinite article is, of course, a commonplace occurrence in the languages of the world. Its claimed subgrouping value in the present case must, therefore, rest with its additional use in marking specific and definite noun phrases. As Ross himself points out, structurally parallel constructions involving minimally (and in no particular order) ARTICLE + NOUN + DEMONSTRATIVE/POSSESSIVE PRONOUN, in which the article reflects an earlier word for 'one', are also found in Mussau, and in at least some Nuclear Micronesian languages. Under these circumstances convergence is difficult to rule out as an alternative explanation of the facts.

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15   Note that Levei (western Manus), somewhat surprisingly, reflects both **-w* and **-y* as /p/.

6) The replacement of POc non-singular possessive pronominal suffixes with Proto Admiralty disjunctive pronouns, is distinctive, and in my view carries far more weight as subgrouping evidence than any of the other observations examined so far.

7) Although it is true that POc *-ña '3SG possessor' is reflected irregularly as -/n/ throughout the eastern Admiralties, it is not at all clear that this is true in Kaniet. Ross (1988:333) claims that while Kaniet should reflect POc *-ña as -/ñ/, the actual reflex is -/n/. While such a change is reported in Z'graggen (1975:127), it is contradicted by the data both in Thilenius (1903) and in Dempwolff (1905): POc *saman 'outrigger float' > tama-ñ (T), sama-ñ (D) 'its outrigger float' (T), POc *qatop 'thatch, roof' > ato-ñ (D) 'its thatch', POc *raRaq 'blood' > ka-xa-ñ (D) 'his/her blood', POc *ponse 'canoe paddle' > fose-ñ (D) 'its paddle'. In addition to these examples Dempwolff recorded a historically secondary final velar nasal in a number of body-part terms, which probably represents a mishearing of -/ñ/: POc *qaqe 'foot/leg' > ae-ŋ 'his/her foot/leg', *qanse 'chin/jaw' > ate-ŋ 'his/her chin/jaw', *ndamʷa 'forehead' > kamʷe-ŋ 'his/her forehead'.

8) Although the loss of the initial syllable from POc *kita '1PL.INC' is well attested in the eastern Admiralties, the evidence for such a change in the languages of the Western Islands is precariously slim. Ross (1988:333) cites Aua a-hua 'we (DU.INC)', for expected **iʔa-hua, and Seimat ka-lu 'we (DU.INC)', ka-ko 'we (trial/paucal INC)'. The Seimat forms show irregular /k/ for anticipated /t/, but since the same irregular change is seen in -/ko/ (expected **to) 'marker of the trial number' Ross appears to be justified in using these forms as evidence for his claim.

9) Ross claims that the use of reduplication to mark continuative aspect, which is widespread in other Oceanic languages, was lost in Proto Admiralty, and its function represented by an innovated construction using the verb 'stay'. Yet Smythe (n.d.:61) notes that partial reduplication in Seimat 'implies continuous action, or at least action lasting for some time'. Among the examples he gives are: /hani/ 'go to', /hahani/ 'be in a state of going to', /kak/ 'say, speak', /kakak/ 'talk about', /xuali/ 'help', /xuxuali/ 'assist continuously', /tu/ 'stand up', /tutu/ 'stand continuously', /nua/ 'dive', /nunua/ 'swim', and /lua/ 'burn', /lulua/ 'be alight'. The data which I recorded from Vincent Tonam includes additional examples such as /ŋa aŋiaŋ hula/ 'I am eating taro' vs /pahak ŋa aŋ hula/ 'I want to eat taro', /tele-i/ 'kill (someone/something)' vs /teletel/ 'be killing', /nahĩ teletel/ 'to hunt' (lit. 'walk/go killing'), /hoŋ/ 'hear' vs /hoŋohoŋ/ 'hearing', /mal/ 'to laugh' vs /malimal/ 'laughing', and /taŋ/ 'to cry' vs /taŋitaŋ/ 'crying'. Given these examples there can hardly be any question that verbal reduplication marks continuative aspect in Seimat, as it does in many other Oceanic languages.

10) The tenth and last piece of evidence which Ross offers for an Admiralty subgroup is perhaps the most compelling and important. Throughout the Admiralties nouns show a nasal grade reflex of initial consonants which in other Oceanic languages have what is normally interpreted as an oral grade reflex. The explanation for these discrepancies of consonant grade is that the POc common article *na became cliticised to following nouns (as it has in some other Oceanic languages), then lost its vowel and fused with the following consonant. Ross calls this phenomenon 'secondary nasal grade', and presents convincing evidence 1) that it is found throughout the Admiralties with the same distribution in cognate morphemes, and 2) that it is distinctive to this subgroup as opposed to other Oceanic languages.

To summarise, of the ten innovations which Ross proposes as evidence for an Admiralty subgroup, four are contradicted by the data of Admiralty languages themselves (1, 2, 7 and

9), and three are so common outside the Admiralty group as to render their contribution to the argument of little value (3, 4 and 5). The surviving evidence consists of three proposed morphosyntactic innovations: 1) the replacement of POc non-singular possessive pronominal suffixes with the corresponding Proto Admiralty disjunctive pronouns; 2) the likely replacement of POc *kita '1PL.INC' with *ta- in the set of Proto Admiralty disjunctive pronouns; and 3) the development of secondary nasal grade in the reflexes of POc nouns which began with an obstruent consonant.

Ross collected an impressively detailed set of data on the comparative phonology and morphosyntax of Admiralty languages. By contrast my own fieldwork was more heavily biased toward comparative phonology, lexicon and diachronic morphology. Whereas I failed to collect enough syntactic data to test any but the most elementary claims about exclusively shared innovations, I collected sufficient lexical data to enable me to propose a number of innovations in support of the Admiralty hypothesis which are not mentioned by Ross. The lexical innovations which I propose are presented below as L1 - L40, and the morphological innovations as M1 - M9 (W = Wuvulu, A = Aua, S = Seimat, K = Kaniet). Space does not permit a discussion of phonological correspondences here, but a comprehensive tabulation of developments from POc to most of the Admiralty languages is given in Ross (1988:321-325). A few of the comparisons suggested below diverge in minor details from the correspondences set out by Ross, and tentatively I ignore his distinction between Proto Admiralty *dr and *d.

4.1 LEXICAL EVIDENCE FOR AN ADMIRALTY SUBGROUP

The following cognate sets appear to reflect replacement innovations in Proto Admiralty (hereafter PAdm). The symbol *V in PAdm forms indicates an indeterminate final vowel.

L1. POc *siku > PAdm *kusu 'elbow': W/A utu, Lindrou kusuʔu-, Titan kusu-.

L2. POc *qapaRa > PAdm *pose 'shoulder': W foka, A fore, Bipi pose-, Levei pose/pwese-, Nali pwese-.

L3. POc *limas > PAdm *dalopV 'canoe bailer': S kaloh, K kalop, Bipi xaloh, Sori harop, Loniu oloh (< assimilation), Leipon d̄uloh (*a > /u/ unexplained).

L4. POc *lima > PAdm *mina- 'hand': S, Lou, Penchal mina-, Nauna min.

NOTE: Ross (pers.comm.) has noted that this could be a metathesis of POc *nima, a widely reflected variant of *lima. However, even under this interpretation its subgrouping value remains largely unaffected.

L5. POc *kaso > PAdm *kaqopV 'rafter': S kaup, Likum kaʔoh, Leipon kawoh, Lou, Lenkau kop.

L6. POc *que > PAdm *wasiwV 'cane, rattan': S waxu-k 'my cane', Kuruti wisiw, Loniu wesiw 'large rattan', Nali wasiw 'small rattan, cane', Pak wesew 'rattan, cane'.

L7. POc *ñuñum > PAdm *ñup-ia 'wash, bathe': S nuhi 'to wash (transitive)', Nauna ñuhi 'bathe'.

L8. POc *kapika > PAdm *nasi 'kind of Malay apple, Syzygium gomata': W/A nati, Likum nah, Ere, Kele, Kuruti nas, Lou nes.

NOTE: Possibly not a replacement innovation. Ross (pers.comm.) cites Levei *kehip* 'kind of tree with red fruit similar in appearance to the Malay apple, but not edible', and Lou *keik* 'kind of Malay apple' as likely reflexes of POc **kapika* in Admiralty languages.

L9. POc **aRu* > PAdm **mosimo* 'a shore tree, *Casuarina equisetifolia*': W *moki* (loss of last syllable unexplained), A *morimo*, S *moxin* (**m* > /n/ unexplained), Bipi, Sori, Nali *musim*, Lou *m^{w}esim*, Penchal, Nauna *mosim*.

L10. POc **saRum* > PAdm **cawi* 'needle', *cawit-ia* 'to sew': W *tawi* 'needle', S *sawit-i* 'sew', *sa-sawit* 'needle' (with -/t/ by analogical back-formation?), Bipi *sawik* 'sew clothes', Leipon *cewet-i*, Loniu *coet-i* 'sew', Pak *tiw*, Penchal, Nauna *ciw* 'needle'.

L11. POc **kiRam* > PAdm **samenV* 'axe (or spear?)': S *samen* 'spear', Bipi, Lindrou *samen* 'axe, knife', Nali *semen* 'axe'.

NOTE: Also Titan *cimel* 'axe, adze', Ere *samer* 'kind of small axe', Nauna *camel* 'knife'.

L12. POc **kiRe* > PAdm **moña* 'pandanus with long red or yellow fruit, probably *Pandanus conoideus*': W/A *mona*, Likum, Mondropolon, Nali, Pak, Lou, Baluan *mon*, Leipon, Loniu *moñ*, Bipi, Sori, Kele, Kuruti, Lenkau, Nauna *moy*.

NOTE: Ross (this volume) derives the Admiralty forms cited here from POc **m^{w}aŋa* 'a tree: *Pandanus conoideus*', but problems in the sound correspondences remain to be resolved.

L13. POc **ikan* > PAdm **nika* 'fish': W/A *nia*, Bipi, Lindrou, Likum, Kuruti, Leipon, Nali, Loniu, Pak, Nauna *ni*, Sori *niy*, Lou, Baluan, Lenkau *nik*.

NOTE: Possibly a reflex of POc **ikan* with fossilised common noun marker **na-*.

L14. POc **kapika* > PAdm **caRe* 'kind of Malay apple, *Syzygium gomata*': A *tae* 'kind of red *laulau*', Bipi, Sori, Lenkau *say*, Lindrou *sa*, Loniu, Penchal *cay*, Pak *tay*.

L15. POc **Ruap* > PAdm **ulua* 'high tide, flood': W/A *ulua*, Bipi, Titan, Pak *wulu*, Lindrou *wuluw*, Sori *guruw*, Likum *ulu etuh*, Ndrehet *ulup*, Kele, Kuruti, Ere *uluw*, Leipon *ulu*, *ulua-n*, Ahus *mat ulua-n* 'high tide'.

L16. POc **paRaRa* > PAdm **baronV* 'handle of an axe': S *pahon*, Bipi *poxon* (< assimilation), Levei *polon*, Titan *palon*.

L17. POc **kiRe* > PAdm **taopV* 'sleeping mat': S *taoh*, Nauna *taoh*.

L18. POc **kiki*, **rikit* > PAdm **busiko* 'small': W *putiko*, Bipi *pisik* (< assimilation), Lindrou *bwisik*, Ere *pusik*, Penchal *p^{w}icik-In*.

The following items appear to be PAdm lexical innovations, but because a POc equivalent has not been reconstructed they cannot be shown to be replacement innovations.

L19. PAdm **pali* 'laugh, smile': W/A *fali*, K(T) *fahe*, K(D) *fahi*, Sori *pari-h*, Kele, Pak *hal*, Lele, Nali *hay*, Ahus *heli-s*, Loniu *-han*, Lenkau *hal-sek*.

NOTE: cf. POc **malip* 'laugh, smile', a form reflected in Seimat *mal* 'laugh', *mali-mal* 'laughing'. PAdm **pali* thus was not a replacement innovation, and the semantic distinction between PAdm **mali* and **pali* remains unclear.

L20. PAdm **kara* 'fireplough': W *aka-aka*, S *axa-ax* 'fireplough', Leipon *kar*, Loniu *ka*, Penchal *kal* 'fireplough, wood used to make fireplough'.

L21. PAdm *kururV 'thunder': S kuhuh, Bipi kuxux, Lindrou, Likum kuruh, Mondropolon, Kuruti, Lou kurur, Penchal kulul.

NOTE: Ross (pers.comm.) suggests that this may be a rightward reduplication of POc *guru 'thunder'. In any case the distinctive form retains its value for subgrouping.

L22. PAdm *kuñV 'coconut leaf carrying pouch': S kun 'flat coconut leaf basket used to carry small objects', Bipi, Likum kuy, Nali, Lou kun, Loniu, Nauna kuñ.

NOTE: Seimat kun may be a loan from one of the languages of Manus.

L23. PAdm *mʷalutV 'dove, pigeon': S walut, Likum mʷaluk, Baluan mʷalut, Nauna molut.

L24. PAdm *tiwa 'sideboards in mid-section of outrigger canoe': A iwa, S, Nauna tiw.

L25. PAdm *papawV 'oars': S papaw, Levei pʷahap, Loniu pahaw, Baluan papaw.

NOTE: There are disagreements of consonant grade in this form, and it may turn out that Seimat papaw is a loan from one of the languages of Manus.

L26. PAdm *kaŋkV 'crown-of-thorns starfish': S ka 'red spiny starfish', Likum kak 'poisonous brown starfish', Loniu, Nauna kak 'starfish', Lou, Baluan kaŋ 'spiny red starfish'.

L27. PAdm *bata + X 'chest (anatomical)': S pata-nawa (= 'trunk' +'breathe'), Levei poto-lok, Titan pata-lala-, Ere par-waru.

L28. PAdm *mʷane 'straight': W/A wane wane, Bipi, Nali mone-n, Baluan mʷane-nen, Lenkau mʷene-nen.

L29. PAdm *laŋa 'to sail, go sailing': S laŋa-laŋ, Likum laŋa-k, Loniu laŋa-t.

L30. PAdm *kalika 'a fish, grouper sp.': W alia, S ali, Sori ariy, Bipi, Titan kali, Lindrou kalik, Ndrehet kalip, Ere, Nali kaliy, Loniu, Pak, Lenkau, Nauna keli.

L31. PAdm *dar(i/u) 'lionfish': S kah, Sori dah, Ndrehet kʰah, Leipon d̃ar, Ahus nhar, Titan lal, Pak dIh, Nauna cɨl.

L32. PAdm *baraŋa 'kind of black sea bird': W/A paka-ka, Bipi paxak, Lindrou barak, Sori baha, Nali palaŋ, Loniu paʔaŋ, Leipon, Lou, Nauna paraŋ, Lenkau pad̃aŋ.

L33. PAdm *ñapa 'shoot; spear': W nafa(?) 'shoot, stab', S nah 'to spear', Bipi, Lindrou, Titan, Loniu, Nauna ñah, Ere, Nali nah, Lou nap 'fish spear'.

L34. PAdm *watiRi 'monitor lizard, Varanus spp.': W/A waʔi, S wat, Sori gatiy, Bipi, Likum, Leipon, Titan, Loniu, Penchal, Lenkau wati, Lele watiy, Ahus, Kuruti wadiy, Ere, Nali wariy.

L35. PAdm *cilalV 'malevolent bush spirit': S silal, Kele, Kuruti, Ere sinel, Lele siney, Papitalai cinal, Nali sinay, Loniu cinen, Pak tilel, Lou pʷali silal, Penchal, Nauna cilal.

NOTE: There are disagreements of consonant grade in this form, and it may turn out that Seimat silal is a loan from one of the languages of Manus.

L36. PAdm *masawa 'sea anemone': W/A matawa, Lindrou, Sori masew, Likum mʷesew.

L37. PAdm *dame 'to ask': S kame-i, Bipi dame-n, Lindrou d̃eme-na, Titan leme-tay, Ere d̃am-te.

A number of the PAdm reflexes of POc nouns and verbs show partial reduplication of the first syllable. Although no grammatical function or semantic value can be attached to this process now, it is treated here as a morphological innovation.

M1. POc *panako > PAdm *papanako 'to steal': A fafanao, Kuruti pahna, Ere panna, Nali pahana, Lou panak.

M2. POc *maRuqane > *m^waqane > PAdm *m^waqam^waqane 'man, male':W mamane, A wawane, S wawan, Penchal m^wam^wan, Nauna mumuan.

M3. POc *latoŋ > PAdm *lalato 'stinging nettle: Laportea spp.': W lala?o, Kele lulat, Lenkau lalatr.

M4. POc *peke > PAdm *bebeke 'defecate': W/A pepe, S pe-pepe, Ndrehet, Mondropolon pe, Lenkau pehek.

M5. POc *quluŋa > PAdm *quluquluŋa 'pillow; rest the head': S, Titan ululuŋ.

M6. POc *ali > PAdm *alali 'a fish: flounder, Platichthys spp.': W/A alali, S alal, Penchal alil.

In addition to the above examples of innovative partial reduplication, several other diverse types of change shared exclusively by Admiralty languages can be classified as morphological.

M7. POc *salan > PAdm *qawa i sala 'path, road': S awa i sal, Titan p^wan cal, Loniu p^waha can.

NOTE: Literally 'mouth of the road' in all languages. The reconstruction of PAdm *qawa i sala follows from the reconstruction of PAdm *qawa 'mouth'.

M8. POc *kanan > PAdm *kanana 'food': W anana, Mondropolon kanna, Levei, Ndrehet kana.

NOTE: It is not altogether clear that the innovation in this case is morphological. If cognate with Wuvulu anana, the eastern Admiralty forms irregularly retain the last vowel. This may be a result of chronologically prior syncope, and a condition preventing loss of a final vowel following a geminate consonant.

M9. PAdm *-pu 'numeral suffix': K (D) -fu, S -hu, Bipi, Lindrou, Likum, Kele, Lele, Kuruti, Leipon, Ere, Nali, Loniu, Pak, Nauna -h, Sori, Lou, Baluan, Penchal, Lenkau -p.

NOTE: Although not found in Wuvulu-Aua, this innovation is one of the most persuasive pieces of evidence for an Admiralty subgroup, since 1) it is clearly innovative, 2) it is fossilised in all of the contempory languages, and 3) borrowing does not offer a serious alternative to shared innovation. Ross (1988:329) segments the final consonant of Lou um si-p 'one/a house', and glosses it as a 'classifier'. However, based on the material available to me, Lou -/p/ 1) is not synchronically segmentable, 2) clearly is the same morpheme which appears in the numerals for 'two' (ruep) and 'three' (tellp) used in serial counting, and 3) has no obvious function. Dempwolff recorded Kaniet -fu only in ua-fu 'two', and fa-fu 'four' (POc *rua, *pa), and Thilenius recorded the cognate morpheme only in Kaniet te-f 'one', and fa-f 'four'. Seimat reflects the same suffix in te-hu 'one', hūo-hu 'two', and tolu-hu 'three' (POc *tolu), and in each case it has irregularly retained the final vowel. Throughout

the eastern Admiralties reflexes of PAdm *-*pu* appear as a single consonant which cannot be explained from the POc reconstructions *sa* 'one', *rua* 'two', *tolu* 'three', *pa/pati* 'four', *lima* 'five', *onom* 'six', *pitu* 'seven', *walu* 'eight', *siwa* 'nine', *sa-ŋapuluq* 'ten': Bipi *si-h*, *xuo-h*, *talo-h*, *ha-h*, *lime-h*, *ono-h*, Sori *si-p*, *huo-p*, *taro-p*, *papu-w*, *lime-p*, *gono-p*, Leipon *ti-h*, *ma-rwe-h*, *ma-culo-h*, *ma-ha-h*, *ma-lme-h*, *ma-wno-h*, Lou *si-p*, *rue-p*, *tellI-p*. It is likely that PAdm also innovated numerals for 6-9, as POc *pitu*, *walu* and *siwa* have been replaced in Seimat by 6 + 1, 6 + 2, 6 + 3, and throughout the eastern Admiralties by subtractives.

In addition to the above exclusively shared lexical and morphological innovations there are some lexical items which show irregular phonological changes that are widely shared within the Admiralties. These will be labelled IPC (irregular phonological change).

IPC 1. POc *latoŋ* > PAdm *ñalato* 'stinging nettle, *Laportea* spp.': S *nalat*, Bipi, Lindrou *ñalak*, Sori *ñara*, Likum, Ndrehet *nalat*, Levei *nolok*, Mondropolon *lanak* (met.), Lele, Nali *nayat*, Ahus *ñarat*, Leipon *ñilet*, Loniu *ñalat*, Pak *nalar*.

NOTE: Also see M3.

IPC 2. POc *mipi/nipi* > PAdm *mepi* 'dream': W *mefī*, Lindrou -*mmah*, Sori *me-mep*, Pak *mehe-meh*, Lenkau *mep-mep*, Nauna *mehi-meh*.

IPC 3. POc *tam^wata* > PAdm *damata* 'person, human being': W *kamaʔa*, A *ramaʔa*, Bipi *xamak*, Nali *d̃amat*, Loniu *amat*, Nauna *camat*.

IPC 4. POc *papine* > PAdm *pepine* 'woman, female': W/A *pifine*, S *hehin*, K *fefin*, Bipi, Lele, Leipon, Ere, Nali, Loniu *pihin*, Sori *bibiŋ*, Titan, Lou, Baluan *pein*, Penchal, Lenkau *pehin*.

NOTE: Both Wuvulu-Aua, and a number of languages in the eastern Admiralties show a secondary assimilation of PAdm *e* to the following *i*. This change is assumed to be convergent.

IPC 5. POc *kianso* > PAdm *kayaco* 'connecting sticks for outrigger': W *ato*, S *ayas*, Titan *kacac*, Nali *kayas*, Papitalai *kayac*, Pak *kayat*.

IPC 6. POc *qayawan* > PAdm *qaiwa* 'banyan, *Ficus* spp.': W *aiwa*, Lindrou, Likum *ew*, Titan, Nali, Loniu *yew*, Penchal, Nauna *kew*.

NOTE: Many of the languages of Manus have lost a vowel in the environment VC...CV, but the change is regular and took place after the break-up of PAdm. By contrast, the loss of the medial vowel of POc *qayawan* in PAdm *qaiwan* appears to be unique.

IPC 7. POc *qasawa* > PAdm *qasoa* 'spouse': W *ako-*, A *aro-*, S *axoa-*, Lou *asoa-*.

NOTE: The sporadic change of *-aw-* to /o/ in this form is also found in Numbami *asowa*, and in some of the languages of Vanuatu, including Raga *ahoa-* 'husband' and South-East Ambrym *asou-* 'spouse'. However, other Oceanic languages retain the original sequence of vowel and glide (Motu *adava-*, Mekeo *akafa-* 'spouse'). Tentatively I view this shared sporadic change in the Admiralties as more likely the result of a single change than of several parallel changes.

Finally, many of the languages of the eastern Admiralties reflect POc *kandoRa* 'cuscus' with metathesis of the vowels, such as PEAdm *godaRa*: Bipi *koxa*, Sori *ohay*, Lou *ŋora*, Lenkau *ŋohay*, Penchal *kotay*, Nauna *kocay*. Since a similar metathesis appears in Seimat

koxa we might attribute this change to PAdm. However, the Seimat word does not exhibit regular phonological correspondences and, moreover, the cuscus is not native to the Ninigo Lagoon. Seimat *koxa*, then, is best attributed to borrowing from Bipi.

5. EVIDENCE FOR A WESTERN ISLANDS SUBGROUP

Ross (1988:341-342) proposes three phonological innovations which define a 'Western Admiralties Family':

(1) POC/PAd medial *-s-* underwent lenition in Aua, Wuvulu and Seimat, but possibly not in Kaniet Ø.

(2) POC/PAd *j* merged with the *fortis* grade of POC/PAd *s* as PWAd *s*.

(3) POC/PAd *r* was apparently backed to PWAd *x*, to judge from its reflexes Aua, Seimat *h*, Wuvulu *k* and Kaniet Ø.

Since innovation (1) apparently does not include all of the languages of the Western Islands (WI) it cannot serve the purpose of demonstrating a WI subgroup. Although innovation (2) does seem to be shared by all WI languages, it is hardly distinctive, since a similar merger is found in many other Oceanic languages. The weight of Ross's evidence for a WI subgroup thus appears to fall on a single phonological innovation, the backing of POc *r* to what probably was a velar fricative.

The existence of a WI subgroup within the larger Admiralty group is supported by a number of lexical or semantic innovations which strengthen the argument presented by Ross. Among those noted in a casual inspection of the available material are the following apparent lexical innovations, of which L1-L7 are treated as replacement innovations:

L1. POc *nraun ni qulu* > PWI *urou* 'hair of the head': W *uko*, S, K *uku* (<assimilation).

L2. POc *maya* > PWI *lexo* 'tongue': S *leho*, K *leholeho*.

L3. POc *mata* > PWI *pula* 'eye': W/A, S *pula*, K *pule*.

L4. POc *panij* > PWI *pau* 'wing': W/A, S *pau-*.

L5. POc *moñak* > PWI *wia* 'fat, grease': A, S *wia*.

L6. POc *qusan* > PWI *maunu* 'rain': W/A *maunu* 'rain', S *maun* 'sky; raincloud'.

L7. POc *tokon* > PWI *fao* 'punting pole': W/A *fao*, S *ha*.

L8. PWI *sisi* 'swim': W *tiki*, A *tixi*, K(D) *le-sisi*.

L9. PWI *loloa* 'dirty': W/A *loloa*, S *lolo*.

L10. PWI *saloa* 'firewood': W/A *taloa*, S *salo i ah*.

L11. PWI *tua* 'coconut flower spathe': W *tuatua*, S *su*.

L12. PWI *wasusu* 'blow the nose': W *wasusu*, S *wasu-ini*.

L13. PWI *sawa* 'fish corral': W *tawa*, S *xaw*.

A single semantic innovation can be added to the above examples:

S1. POc *panij* 'wing' became PWI *pani* 'hand': W/A, K *pani*.

6. THE INTERNAL RELATIONSHIPS OF THE LANGUAGES OF THE WESTERN ISLANDS

Space does not permit an extensive discussion of the internal relationships of the languages of the Western Islands. Blust (1978:34) provisionally suggested a binary division, with Wuvulu-Aua in one branch, and Seimat-Kaniet in the other. Ross (1988:316) instead proposes a three-way split, with Wuvulu-Aua forming the only clear-cut group.

I now agree with Ross that there is little evidence for a subgroup containing Seimat and Kaniet. Rather, the languages of the Western Islands appear to divide into three primary branches: 1) Wuvulu-Aua, which are either divergent dialects of a single language, or two very closely related languages (roughly on the order of Malay and Minangkabau in western Indonesia), 2) Seimat, and 3) two distinct languages which were earlier spoken in the Anchorite and Kaniet Islands. These groupings are justified both by lexicostatistical percentages derivable from the Appendix, and by evidence of exclusively shared innovations. The lexicostatistical percentages, for whatever they are worth, appear in Table 19.[16]

TABLE 19: LEXICOSTATISTICAL RELATIONSHIPS OF WESTERN ISLANDS LANGUAGES

	Kaniet (D)	Kaniet (T)	Seimat	Aua
Wuvulu	31.1	25.5	28.6	69.1
Aua	30.2	27.3	30.2	
Seimat	30.4	32.6		
Kaniet	53.8			

As can be seen, the only groups that emerge clearly from these percentages are 1) Wuvulu-Aua, which consists of two communities that score very near the 'language limit' (the boundary between language and dialect), and 2) the two Kaniet lists, which appear to be closely related, but unquestionably distinct languages. There thus appears to be justification only for proposing a Western Islands subgroup which consists of three primary branches: 1) Wuvulu-Aua, 2) Seimat, and 3) the languages that for want of further information must be known to history as Kaniet (T) and Kaniet (D).

7. CONCLUSIONS

It should be obvious from the remarks made here that further work is needed on the phonology of Wuvulu and Aua, both of which show an exceptional amount of variation, including some features of 'free' variation that may turn out to have interesting consequences for general linguistic theory. Nothing further can be done on Kaniet, which evidently is extinct, but further checking is needed to distinguish nasal from oral vowels in Seimat. With regard to subgrouping, seven of the ten innovations which Ross (1988) proposes in support of an Admiralty subgroup do not bear close scrutiny, including all three of his proposed phonological innovations. This leaves just three morphosyntactic innovations from his original set. However, the existence of an Admiralty subgroup is not in dispute, since at least 37 PAdm lexical innovations, nine PAdm morphological innovations (or lexical items reflecting a morphological innovation), and seven PAdm lexical items with idiosyncratic

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16   Based on the following cognate counts: 1. W:K(D) 28/90, 2. W:K(T) 24/94, 3. W:S 53/185, 4. W:A 121/175, 5. A:K(D) 26/86, 6. A:K(T) 24/88, 7. A:S 54/176, 8. S:K(D) 29/89, 9. S:KT 28/92, 10. K(T)/K(D) 35/65.

phonological changes from POc can be added to the published morphosyntactic evidence. Contrary to the views of some earlier writers, the languages of the 'Western Islands' – despite their superficial distinctness – clearly shared an immediate common ancestor with the languages of Manus and its satellites in the eastern Admiralties.

APPENDIX: COMPARATIVE WORD LIST

This appendix provides the equivalents of 196 meanings on a modified 200-word Swadesh list for 1. Wuvulu, 2. Aua, 3. Seimat, and 4. Kaniet, as recorded both by Thilenius (T), and Dempwolff (D). The orthography follows from the analysis provided in the main body of the paper. Cognate decisions are coded by letter and tabulated at the end of the data set. In general, names for body parts and kinship terms require a possessive suffix, and transitive or imperative verbs take -/ia/. The thematic consonants which appear on such forms in Wuvulu and Aua, and the thematic vowels which appear in Seimat are given in parentheses.

		WUVULU	AUA	SEIMAT	K (T)	K (D)
001.	hand	pani (A)	pani (A)	mina (B)	pani (A)	pani (A)
002.	left	mawi (A)	mawi (A)	kalamaw (A)	mʷaw (A)	——
003.	right	maʔau (A)	maʔau (A)	manaw (B)	ayi (C)	——
004.	foot/leg	pine- (A)	piai- (B)	ae- (C)	ae- (C)	pañae (D)
005.	walk	oʔa-lii (A)	poporei (B)	nahĭ (C)	laulauu (D)	le-au (E)
006.	road	tala (A)	tala (A)	awa i sal (A)	sala-e (A)	senano (B)
007.	come	mai (A)	no-mai (A)	nahĭma (A)	——	cam (B)
008.	turn	fanunumai (A)	pixupixui (B)	toheni (C)	——	——
009.	swim	tiki (A)	tixi (A)	nunu (B)	——	le-sisi (A)
010.	dirty	loloa (A)	loloa (A)	lolo (A)	——	——
011.	dust	luafu (A)	pora (B)	axuan (C)	——	——
012.	skin	inu (A)	uliinu (A/B)	uli (B)	hui (C)	anowa (D)
013.	back	uku (A)	uxu (A)	tehĭto (B)	——	lohu (C)
014.	belly	ali (A)	loxi (B)	tia (C)	ja (D)	ace (E)
015.	bone	kui (A)	ruiinu (A)	kui (A)	kui (A)	mabo (B)
016.	guts	pepea (A)	laloiau (B)	puhūa (C)	——	——
017.	liver	patio (A)	aʔe (B)	ate (B)	——	——
018.	breast	tutu (A)	tutu (A)	susu (A)	susu (A)	susu (A)
019.	shoulder	foka (A)	fore (A?)	wahe (B)	safo (C)	safo (C)
020.	know	apa(?) (A)	naxamu (B)	tioi (C)	kemeo (D)	——
021.	think	nakanaka (A)	naxa-u (A)	namiloi (B)	——	——
022.	fear	maʔau (A)	maʔau (A)	mamata (A)	——	salemot (B)
023.	blood	kaka (A)	rara (A)	kaka (A)	——	kaha (B)
024.	head	taba (A)	taba (A)	patu (B)	sao (C)	saueŋ (D)
025.	neck	ua (A)	ua (A)	kinawe (B)	putuu (C)	pucu ua (A/C)
026.	hair	uko (A)	paloa (B)	uku (A)	uku (A)	uxu (A)
027.	nose	nuke (A)	nuxe (A)	weixu (B)	matasu (C)	——
028.	breathe	ona fawenau (A)	fawenau (A)	hanaw (A)	ñoamu (B)	——
029.	smell	ato (A)	ato (A)	aso-i (A)	kañ (B)	——

No.	gloss				
030.	mouth	*umu* (A)	*umu* (A)	*awa* (B)	——	*awa* (B)
031.	tooth	*lifo* (A)	*lifo* (A)	*nisu* (B)	*ihoñ* (C)	*ifo* (A)
032.	tongue	*kawe* (A)	*rawerawe* (A)	*leho* (B)	*lewolewo* (B)	*leholeho* (B)
033.	laugh	*fali* (A)	*ina fali* (A)	*mal* (B)	*fahe* (A)	*fahi* (A)
034.	cry	*ai* (A)	*ina ʔai* (A)	*taŋ* (A)	*taŋe* (A)	*taŋi* (A)
035.	vomit	*mumuʔa* (A)	*mumuʔa* (A)	*mutumut* (A)	——	*mutam* (A)
036.	spit	*ui* (A)	*ui* (A)	*puke* (B)	*tuhayu* (C)	*moloam* (D)
037.	eat	*anana* (A)	*muta* (B)	*aŋ* (A)	*sio* (C)	*siau* (C)
038.	chew	*kawe(ʔ)* (A)	——	*naket-i* (B)	——	——
039.	cook	*unu* (A)	*unu(m)* (A)	*salek-i* (B)	*umun-i* (A)	——
040.	drink	*inu* (A)	*inu* (A)	*un* (A)	*numam* (B)	*num* (B)
041.	bite	*talu* (A)	*talu* (A)	*atalah-i* (B)	*ole-an* (C)	——
042.	suck	*inu* (A)	*inu* (A)	*susu-i* (B)	——	——
043.	ear	*ali(a)* (A)	*alia* (A)	*taxiŋa-* (A)	*kahiña* (A)	*kahina* (A)
044.	hear	*kuai* (A)	*u-ruai* (A)	*hoŋ* (B)	*meyoŋ* (C)	——
045.	eye	*pula* (A)	*pula* (A)	*pula* (A)	*pule* (A)	*pule* (A)
046.	see	*maʔa* (A)	*maʔa* (A)	*paha-i* (B)	*kileŋa* (C)	——
047.	yawn	*mamawa* (A)	——	*maw.* (A)	——	*memawa* (A)
048.	sleep	*maʔiku* (A)	*mefi* (B)	*mati* (A)	*ole-masa* (C)	*matu* (A)
049.	lie down	——	*eno* (A)	*eŋ* (A)	——	——
050.	dream	*mefi* (A)	*mefi* (A)	*paxaŋoŋ* (B)	——	——
051.	sit	*kuta* (A)	*xuta* (A)	*to* (B)	——	*uta* (C)
052.	stand	*ufalakai* (A)	*ufalaxai* (A)	*tu* (B)	*ole-tutun* (C)	——
053.	person	*kamaʔa* (A)	*ramaʔa* (A)	*seilon* (B)	——	——
054.	man	*mamane* (A)	*wawane* (A)	*wawan* (A)	*mʷane* (A)	*mʷan* (A)
055.	woman	*pifine* (A)	*pifine* (A)	*hehin* (A)	*fefin* (A)	*fefin* (A)
056.	child	*naʔu* (A)	*naʔu* (A)	*natu* (A)	*kaya* (B)	*aga* (C)
057.	husband	*ako* (A)	*aro* (A)	*axoa* (A)	——	——
058.	wife	*ako* (A)	*aro* (A)	*axoa* (A)	*fefin* (B)	*fefin* (B)
059.	mother	*ina* (A)	*ina* (A)	*tina* (A)	*tinian* (A)	*tinea* (A)
060.	father	*ama* (A)	*ama* (A)	*tama* (A)	*tama* (A)	*tama* (A)
061.	house	*umu* (A)	*umu* (A)	*iŋ* (B)	*ama(hi)* (C)	*ama* (C)
062.	roof	*boboʔai* (A)	*aʔo* (B)	*kai api* (C)	*tonae* (D)	*ato* (B)
063.	name	*aka* (A)	*axa* (A)	*axa* (A)	——	——
064.	say	*wake* (A)	*wareware* (A)	*kakak* (B)	*kuakua* (C)	*geiu* (D)
065.	rope	*wau* (A)	*wao* (A)	*tal* (B)	——	——
066.	tie	*kokoʔin* (A)	*xoxoʔin* (A)	*hiot-i* (B)	——	*le-kauusi* (C)
067.	sew	——	*tama(?)* (A)	*sawit-i* (B)	——	——
068.	needle	*tawi* (A)	——	*sasawit* (A)	——	——
069.	hunt	——	*tete* (A)	*nahĩ teletel* (B)	——	——
070.	shoot	*nafa(?)* (A)	*nafa(?)* (A)	*hapiki* (B)	——	——
071.	stab	*otome* (A)	*patararu* (B)	*tapuhĩ* (C)	——	——
072.	hit	*afu(k)* (A)	*afu(r)* (A)	*xai* (B)	——	——
073.	steal	*topaʔai* (A)	*fafanao* (B)	*xuxuina* (C)	——	*mafana* (D)
074.	kill	*foʔa* (A)	*foʔa famaʔe* (A)	*telei* (B)	——	——

No.	gloss					
075.	die	ma?e (A)	ma?e (A)	mat (A)	memat(A)	memat(A)
076.	live	mama?a(A)	a?inama?e(B)	moihin (C)	——	——
077.	scratch	nefi (A)	pote (B)	axut-i(C)	——	——
078.	cut	oko(f) (A)	folo?o(f) (B)	kot-i (C)	hamati(D)	——
079.	wood	manumanu (A)	aiai (B)	pata (C)	——	——
080.	split	fala(k)(A)	fala(r)(A)	saŋa-i (C)	——	——
081.	sharp	talu (A)	wararo (B)	aɲi-an (C)	——	——
082.	dull	lo?etalu (A)	ia?a wararo (B)	tumuku (C)	——	——
083.	work	biki (A)	biri (A)	nahĩ (B)	——	——
084.	plant	fako (A)	——	seini (B)	——	——
085.	choose	ma?i (A)	——	——		
086.	grow	amapu(A)	——	xelexele (B)	——	——
087.	swell	popola (A)	popola (A)	hulo (B)	——	——
088.	squeeze	api(?)(A)	petu (B)	hunu-i(C)	——	——
089.	hold	paloko (A)	uto(n) (B)	akeken-i (C)	——	——
090.	dig	aki (A)	axi(f)(A)	tahĩwi (B)	——	——
091.	buy	pono(?)(A)	——	kahu-i(B)	——	——
092.	open	onolao (A)	——	——	puet (B)	——
093.	throw	tumi(n)(A)	tixi(n)(B)	to-i (C)	fataam(D)	——
094.	fall	pati (A)	pati (A)	putaput (B)	——	xobu (C)
095.	dog	pono (A)	puopi (B)	sinen (C)	——	bïlu (D)
096.	bird	fifilau (A)	manumanu (B)	manexux(B)	manu (B)	pahu (C)
097.	egg	a?olu(A)	a?olu(A)	atol (A)	atahu-l(A)	atohu-n (A)
098.	feather	pukuo (A)	lami(B)	ole (C)	ugu-ñ (D)	——
099.	wing	pau (A)	pau (A)	pau (A)	pani (B)	——
100.	fly	fïlau(A)	fïlu (A)	ŋoŋ (B)	——	——
101.	rat	balafai(A)	balaa(A)	usuh (B)	——	——
102.	meat	pikio (A)	pirio (A)	xixio (A)	——	——
103.	fat	pau (A)	wia (B)	wia (B)	——	——
104.	tail	wawa (A)	wawa (A)	koloh (B)	——	——
105.	snake	wa?a (A)	wa?a (A)	weiko (B)	——	——
106.	worm	wa?a maunu (A)	wa?a wa?a(A)	wāt (A)	——	——
107.	louse	fou?u (A)	fua u?u (A)	lil (B)	——	uto (A)
108.	mosquito	baibai (A)	namu(B)	nam (B)	ñamu (B)	ñam(B)
109.	spider	ulo (A)	——	pulil (B)	——	——
110.	fish	nia (A)	nia (A)	xixi (B)	i (C)	kaña (D)
111.	rotten	wakaku (A)	wafa (B)	kohan (C)	——	——
112.	branch	kaka (A)	rara (A)	pehe (B)	——	——
113.	leaf	kau (A)	rau (A)	kay pata (B)	——	kau-n (A)
114.	root	waka (A)	waxa (A)	wahā(A)	——	——
115.	flower	ape (A)	fota (B)	palawa (C)	——	——
116.	fruit	fua (A)	fua (A)	hua (A)	——	——
117.	grass	lilimoka (A)	xua (B)	pahōa(C)	——	——
118.	earth	pie (A)	pie (A)	pekeun (B)	seano (C)	sean (C)
119.	stone	muko (A)	muro (A)	hat (B)	fatu (B)	fatu(B)

120.	sand	*pie* (A)	*pie* (A)	*pekeun* (B)	*seano* (C)	*xealo* (D)
121.	water	*kanu* (A)	*ranu* (A)	*kan* (A)	*a-kanu* (A)	——
122.	sea	*aki* (A)	*ari* (A)	*tax* (A)	*tasi* (A)	*tasi-n* (A)
123.	salt	*aki* (A)	*ari* (A)	——	——	——
124.	forest	*polu* (A)	*polu* (A)	*nemaux* (B)	*lobon* (C)	*leponu* (D)
125.	sky	*pafea* (A)	*monurawe* (B)	*maun* (C)	*aon* (D)	——
126.	moon	*pula* (A)	*pula* (A)	*paŋapaŋ* (B)	*paŋapaŋ* (B)	*pagepaŋ* (B)
127.	star	*pi?u* (A)	*pi?u* (A)	*kohot* (B)	*lamat* (C)	*halaŋ* (D)
128.	cloud	*u?ukafu* (A)	——	*maun* (B)	*bulubuel* (C)	*woxewoxe* (D)
129.	fog	*hau* (A)	*pora ?ano* (B)	*oah* (C)	——	——
130.	rain	*maunu* (A)	*maunu* (A)	*akah* (B)	*halaŋ* (C)	——
131.	thunder	*wikuku* (A)	*paxaxa* (B)	*kuhuh* (C)	*nunut* (D)	*bafe* (E)
132.	lightning	*ukuku* (A)	*utila* (B)	*usil* (B)	*uti* (C)	——
133.	wind	*apitilo* (A)	*auna* (B)	*aupol* (C)	*aŋi* (D)	*aŋiŋ* (D)
134.	blow	*uku(f)* (A)	*ixu(f)* (A)	*ahoah* (B)	——	——
135.	hot	*babai* (A)	*tilatila* (B)	*kekean* (C)	*afiafi* (D)	——
136.	cold	*waiwa* (A)	*maxixi* (B)	*makian* (B)	*uasisi* (C)	——
137.	dry	*mamaka* (A)	*mamaxa* (A)	*paxepaxen* (B)	——	——
138.	wet	*kokofa* (A)	——	*waxexan* (B)	*mabu* (C)	——
139.	heavy	*kakapa* (A)	*raraba* (A)	*kawatan* (B)	——	——
140.	fire	*afi* (A)	*afi* (A)	*ah* (A)	*afi* (A)	*afi* (A)
141.	burn	*alu-ia* (A)	*ru?a* (B)	*lu-i* (A?)	——	——
142.	smoke	*aku* (A)	*aru* (A)	*axu-an* (A)	*asu-i* (A)	*mamahu* (B)
143.	ash	*walu* (A)	*ma?u?u afi* (B)	*paloŋ* (C)	*mamahu* (D)	*asuiŋ* (E)
144.	black	*akaka-na* (A)	*axaxa* (A)	*polun* (B)	*bokobok* (C)	*poebog* (D)
145.	white	*po?i* (A)	*po?i* (A)	*papaxaxun* (B)	*lauta* (C)	*susum* (D)
146.	red	*koa* (A)	*roa* (A)	*kakan* (B)	*lelef* (C)	*laula-n* (D)
147.	yellow	*poia* (A)	——	*aŋoaŋon* (B)	——	*aŋanŋana* (B)
148.	green	*mali-ana* (A)	*mamahuiana* (B)	*koki* (C)	——	——
149.	small	*putiko* (A)	*tariri* (B)	*kokol* (C)	*makole* (C)	*koxole* (C)
150.	large	*bawa-na* (A)	*bawa-na* (A)	*lalap* (B)	*mebakil* (C)	*bakin* (C)
151.	short	*weloku* (A)	*taru* (B)	*kukunan* (C)	*botobuat* (D)	*wutuwuatu* (D)
152.	long	*mala* (A)	*mala* (A)	*weluwelun* (B)	*naunau* (C)	*nau-na* (C)
153.	thin	*apapa* (A)	*lalaxia* (B)	*maelu* (C)	——	——
154.	thick	*aka?aka* (A)	——	*kilakilan* (B)	——	——
155.	narrow	*putiko* (A)	*tariri* (B)	*omiomin* (C)	——	——
156.	wide	*litatana-a* (A)	*bawa-na* (B)	*mamanahan* (C)	——	*sau* (D)
157.	sick	*uki* (A)	*fi?i* (B)	*moloan* (C)	*heis* (D)	*heis* (D)
158.	shy	*mafa* (A)	*mafa* (A)	*hĩena* (B)	*oatu* (C)	——
159.	old	*lapunu* (A)	*mina* (B)	*salaimat* (C)	——	——
160.	new	——	*nupela* (A)	*haun* (B)	——	*tefaun* (B)
161.	good	*nakawani* (A)	*fai?a-na* (B)	*solian* (C)	*loalo* (D)	*magaña* (E)
162.	bad	*afelo* (A)	*afelo* (A)	*lialun* (B)	*maitie-n* (C)	——
163.	true	*fa?ua* (A)	*fa?ua* (A)	*salan* (B)	——	——
164.	night	*poi* (A)	*poi* (A)	*i-poŋ* (A)	*bobuau* (B)	*fueñ* (C)

165.	day	akewa (A)	axewa (A)	ŋain (B)	jooi (C)	yoŋiye (D)
166.	year	—	—	ahaŋ (A)	—	—
167.	when?	aika (A)	aira (A)	lokon (B)	—	—
168.	hide	opaʔai (A)	—	mumuna (B)	—	—
169.	climb	fane (A)	fane (A)	han (A)	—	—
170.	at/on	—	—	patul (A)	—	—
171.	in/inside	lalo (A)	lalo (A)	leili (B)	—	—
172.	above	—	—	patul (A)	malagañ (B)	—
173.	below	—	—	ahitake (A)	—	—
174.	this	fe-ni (A)	fe-ni (A)	ie (B)	—	—
175.	that	fe-na (A)	fe-na (A)	io (B)	—	—
176.	near	kafiʔi (A)	paʔimai (B)	xoixohin (C)	—	—
177.	far	kao-a (A)	rau-a (A)	xauxauan (A)	sai (B)	—
178.	where?	ia (A)	ia (A)	ia (A)	—	keano (B)
179.	I	au (A)	au (A)	ŋa (A)	—	ŋa (A)
180.	you	o (A)	oi (A)	o (A)	—	o (A)
181.	he/she	ina (A)	ina (A)	i (B)	—	i (B)
182.	we (INC)	aia (A)	aia (A)	kako (B)	—	—
183.	you (PL)	ama (A)	ama (A)	mu-to (B)	—	—
184.	they	lao (A)	lao (A)	la-to (A)	—	—
185.	what?	tamanu (A)	tani (B)	la (C)	—	seno (D)
186.	who?	ini (A)	ini (A)	aita (B)	—	xalo (C)
187.	all	koʔou (A)	minaraʔou (A)	hatesol (B)	—	—
188.	and	ma (A)	ma (A)	ma (A)	—	—
189.	if	—	—	na (A)	—	—
190.	how	bata nai (A)	—	ukekia (B)	—	—
191.	no/not	loʔe (A)	—	tap (B)	tago (C)	taxo (C)
192.	count	wakei (A)	wa-warei (A)	wexei (A)	lebonot (B)	—
193.	one	kia (A)	e-ai (B)	tehu (C)	tef (C)	texu (D)
194.	two	-kua (A)	e-xua-i (A)	hūo-hu (A)	ua (A)	ua-fu (A)
195.	three	olu (A)	olu-ai (A)	tolu-hu (A)	tohu (A)	tohu (A)
196.	four	fa (A)	unaroa (B)	hinalo (C)	fa-f (A)	fa-fu (A)

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