

**LANGUAGES  
OF THE UPPER SEPIK  
AND CENTRAL NEW GUINEA**

Report prepared by

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September 2005

Edits and Appendix 9.2 by B. Craig 2011

# CONTENTS

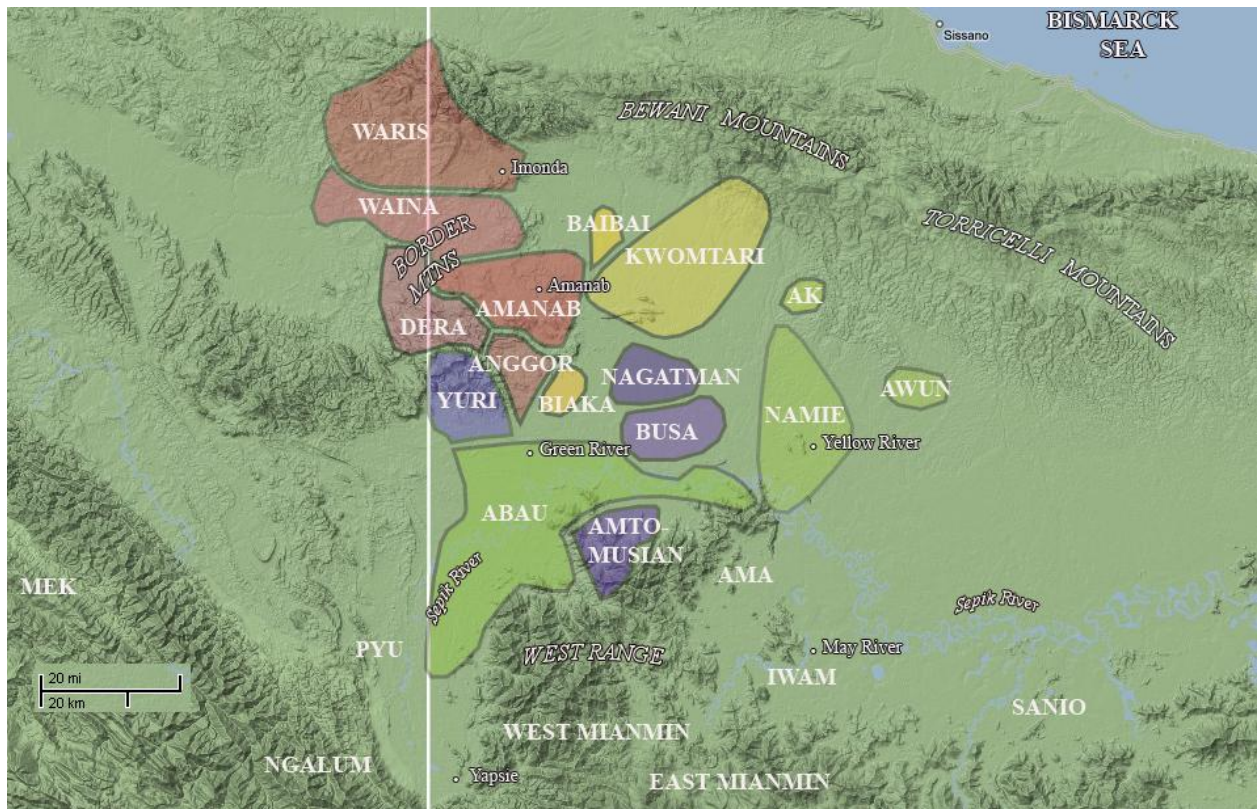
<b>1. Introduction</b>	<b>5</b>
1.1 Overview	5
1.2 Methods of comparison	6
1.3 Structure of the report	9
<b>2. Amto-Musian Family: Amto</b>	<b>10</b>
<b>3. Border Stock, Waris Family: Amanab and Waina</b>	<b>11</b>
<b>4. Kwomtari Stock: Baibai, Biaka and Kwomtari</b>	<b>15</b>
<b>5. Senagi Family: Anggor</b>	<b>18</b>
<b>6. Sepik Phylum</b>	<b>24</b>
6.1 Abau	24
6.2 Yellow River Family: Ak, Awun, Namie	26
<b>7. Trans New Guinea Phylum</b>	<b>28</b>
7.1 The Mountain Ok family	28
7.2 The Mountain Ok languages	31
7.3 Lexical comparisons	34
7.4 Phonology and morphology	36
7.5 Discussion	38
7.6 Oksapmin	39
<b>8. Isolates/Ungrouped</b>	<b>40</b>
8.1 Busa	40
8.2 Yuri/Karkar	41
8.3 Nagatman/Yale	42
<b>9. Appendices</b>	<b>44</b>
9.1 Percentages of Cognates - Amanab sub-district and Upper Serpik	44
9.2 Data relating to Tifal and Faiwol language boundaries (by B.Craig)	45
<b>10. Bibliography</b>	<b>53</b>

## List of Tables

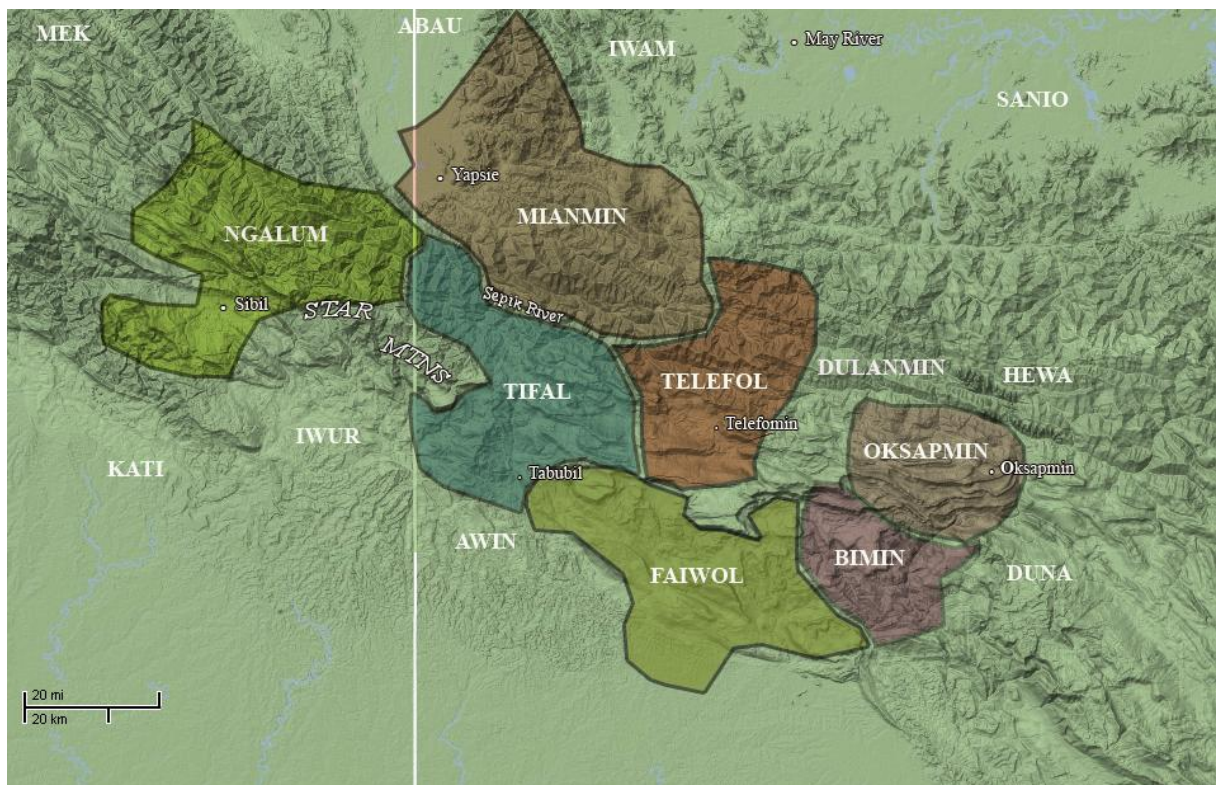
1. Languages of the study area	5
2. Populkation of the study area	6
3. Relatedness of languages	8
4. A scale of relatedness	9
5. Codification of relationships	10
6. Amto	10
7. Amanab and Waina	11
8. Some Waris pronouns	12
9. Baibai, Biaka and Kwomtari	16
10. Some Kwomtari pronouns	17
11. Anggor	18
12. Dera versus languages to the north and west	20
13. pTNG and Dera	22
14. Anggor villages and dialects	23
15. Ak, Awun and Namie	26
16. Yellow River pronouns	27
17. Villages belonging to Namie subjective dialect groups	28
18. Mountain Ok languages according to LAP	29
19. Mountain Ok languages according to Eth05	30
20. Lexicostatistical comparison of Mountain Ok languages (Healey 1964a: 104)	34
21. Lexicostatistical comparison of Mountain Ok languages (Conrad & Dye 1975: 31)	35
22. Lexicostatistical comparison of Mountain Ok languages (Healey 1964a: 103)	36
23. Mountain Ok consonant phonemes	36
24. Ok pronoun roots	37
25. Some Mountain Ok tense markers	38
26. Scale of relatedness of Mountain Ok languages	39
27. Busa, Yuri/Karkar and Nagatman/Yale	41
28. Amanab Sub-district: Cognate percentages according to Loving & Bass 1964	44
29. Upper Sepik Area: Cognate percentages according to Conrad & Dye 1975	44

## Figures

1. Language map of the Upper Sepik region	4
2. Language map of Central New Guinea	4
3. LAP classification of the Waris family	13
4. Simple classification of the Waris family	14
5. Kwomtari sub-groups (Loving & Bass 1964)	16
6. Kwomtari sub-groups (Laycock 1973)	17
7. Abau within the Sepik hierarchy of languages	25
8. The Yellow River Family within the Sepik hierarchy of languages	26
9. Alternative classifications of the Ok Family of languages	31
10. Map showing Nagalum-Tifal boundary according to Conrad and Dye (1975: 2).	48
11. Map showing correct location of Smol and Nim rivers	48
12. Map showing Faiwol-Bimin boundary according to Eggertsson	52



*Figure 1. Language map of the Upper Sepik region*



*Figure 2. Language map of Central New Guinea*

## 1. Introduction

### 1.1 Overview

The classification of the languages of the upper Sepik was first attempted by Loving and Bass (1964), and of central New Guinea by Healey (1964a). The classifications were revised by Laycock (1973) and Wurm and Hattori (1981) (LAP)<sup>1</sup> and the higher level groupings are still being revised.

The languages of the upper Sepik and of central New Guinea differ markedly in the character of their genetic relationships. The Sepik catchment exhibits a degree of genetic diversity unequalled anywhere in the world, with 200 languages belonging to perhaps as many as ten unrelated families<sup>2</sup> together with several genetic isolates;<sup>3</sup> the upper Sepik has diversity commensurate with this. The central New Guinea region, by contrast, is linguistically relatively homogeneous.

In the current study there are languages of six unrelated families and three isolates. Of these families only one, the Trans New Guinea phylum, is in central New Guinea. The study area therefore faithfully reflects the picture of heterogeneity versus homogeneity noted above. The languages and the classifications used here are shown in **Table 1**.

*Table 1. Languages of the Study Area*

Amtó-Musian Isolate	Amtó
Border Stock, Waris Family	Amanab, Waina
Kwomtari Stock	Baibai, Biaka, Kwomtari
Senagi Family	Anggor, Dera
Sepik Phylum, Upper Sepik Family	Abau
Sepik Phylum, Yellow River Family	Ak, Awun, Namie
Trans New Guinea Phylum, Ok Family	Bimin, Faiwol, Mianmin, Ngalum, <sup>4</sup> Tifal, Telefol
Trans New Guinea Phylum Isolate	Oksapmin
Other Isolates	Busa, Nagatman, Yuri

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<sup>1</sup> Two sources are cited repeatedly in this paper. They are Wurm & Hattori (1981: *Language Atlas of the Pacific*) and Gordon (2005: *Ethnologue*). For these respective sources, the abbreviations LAP and Eth05 are used.

<sup>2</sup> Amtó-Musian, Border, Kwomtari–Left May, Piawi, Ramu–Lower Sepik, Senagi, Sepik, Trans New Guinea, Torricelli and Yuat (Ross, in press).

<sup>3</sup> Busa, Taiap, Nagatman (Yale), Yuri (Karkar) (Ross, in press).

<sup>4</sup> B. Craig: See **Appendix 9.2**. The boundary between Ngalum speakers and the Tifal-speaking Atbalmin on the northern slopes of the central range is disputed and, recently, fluid but for our purposes is approximately at the International Border. Also my 1965 research at Kawolabip suggests that Kawol is not a separate language as in LAP but a dialect of Tifal.

In terms of distribution, the maps (**Figures 1, 2**) show the language areas to be clusters, except for the Abau area, which extends linearly along both sides of the Sepik for some 100 kilometres. The boundary of no upper Sepik language group is further than 80 kilometres from the boundary of any other (I am referring only to the languages of the study area) and for central New Guinea there is no separation greater than 120 kilometres.

With regard to the numbers of speakers, the upper Sepik languages are somewhat smaller than those of central New Guinea, although Abau is the largest language of all. The figures below are based on the population data in Gordon (2005) (Eth05). The data comes mostly from census and SIL sources and is dated 1981 or later, except in the case of the figures for Kauwol (1964).

*Table 2. Population of the Study Area*

Area	Range	Average	Total	
Upper Sepik	Ak 80 – Abau	7,267	1,665	23,314
Central NG	Kauwol 500 – Telefol	5,400	3,786	25,800

The central New Guinea results do not include the figures for Ngalum, at 18,000 (8,000 in PNG).<sup>5</sup>

## 1.2 Methods of Comparison

Comparative linguists distinguish between genetic groupings established on the basis of the standard comparative method and those not so established, which they generally view as probabilistic or speculative or even fanciful (Nichols 1996: 39). Summarised below are some of the methods which might be used to ‘establish’ a genetic relationship between languages. It is provided as background to the discussion in subsequent sections.

**The comparative method** This is the fundamental technique of historical linguistics.

Nichols (1996) identifies the following steps in its application:

- Assume relatedness of a set of languages, based on diagnostic linguistic evidence;
- Work out sound correspondences and cognate sets, thereby establishing an internal classification of the family;

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<sup>5</sup> **B. Craig:** See **Appendix 9.2**. These figures for Ngalum are highly suspect. In particular, there cannot possibly be 8000 such speakers in PNG.

- Uncover and reconstruct more diagnostic evidence;
- Bring more languages into the family as ‘daughters’.

Crucial to the method is the nature of the diagnostic evidence in the first step. Of most value are structures or sets which have sufficient internal complexity and formal similarity to demand a common origin. According to Ross (1996: 182):

Under the comparative method, evidence of genetic relatedness . . . consists in (i) cognate paradigms of grammatical morphemes and (ii) sets of cognate lexical items. ‘Cognate’ means that the items resemble each other both in form and in meaning.

A paradigmatic set of pronouns or tense-marking suffixes would be good evidence of this type if found to be common to a number of languages.

The comparative method has been applied in a thorough way only to one of the language groups of the current study – the Mountain Ok family, reported in Healey (1964a).

**Typological comparison** Typology is concerned with structural systems in language, and the correlations between them. For example, many Papuan languages can be characterized as ‘right-headed’: they have basic OV (object-verb) word-order and postpositions rather than prepositions (Foley, 2000: 382f). Such typological features are highly susceptible to change under areal influence. According to Anttila (1989: 321), ‘geographically close languages are likely to share typological features, and related languages can also be close both in geography and typology’. Typology is therefore inconclusive as to genetic affiliation. Typological (dis)similarity is one kind of evidence used in Wurm (1975) to classify Papuan languages.

**Lexicostatistics** What follows is a summary of the discussion of lexicostatistics which appears in Crowley (1992: 168–183), to which the reader is referred for more information. Lexicostatistics is a method of comparing languages using wordlists of ‘basic’ or ‘core’ vocabulary. The percentage of basic vocabulary shared by two languages is taken to reveal how closely they are related.

A number of assumptions underlie the method, the first being that it is possible to isolate a set of basic lexical items which is resistant to change (through borrowing, for example) and which is (more or less) universal.<sup>6</sup> According to Crowley (1992: 168f), this ‘universal core vocabulary’ includes such things as ‘pronouns, numerals, body parts, geographical features, basic actions, and basic states’. A commonly used wordlist, known as the Swadesh list, contains 200 items of basic vocabulary. A second assumption is that core vocabulary changes at a (more or less) stable rate, so that the unchanged shared percentage is proportional to the amount of time that two languages have been separate and therefore reflects the closeness of their genetic relationship. Lexicostatistics makes the further assumption that a stable rate of change results in the loss of about 20% of the core vocabulary every thousand years. This figure was obtained from examining a number of languages with long written records.

The following table (from Crowley 1992: 170) shows the sub-grouping levels associated with different shared percentages of core vocabulary.

*Table 3. Relatedness of Languages*

<b>Level of subgrouping</b>	<b>Core vocabulary (shared %)</b>
Dialects of a Language	81-100
Languages of a Family	36-80
Families of a Stock	12-35
Stocks of a Phylum	4-11
Microphyla of a Mesophylum	1-3
Mesophyla of a Macrophyllum	<1

Lexicostatistics is not a particularly rigorous method. Shared core vocabulary (often referred to as ‘cognate’) is usually determined merely by inspection; of itself the method has no means of distinguishing, for example, between true cognates and borrowings or chance resemblances.<sup>7</sup> It has however been widely used and is very useful where there is limited data, and as an adjunct to other methods. Much of the evidence considered in this paper is of the lexicostatistical kind.

<sup>6</sup> Were it not universal, we could not be sure that we were using the correct set for some particular language family.

<sup>7</sup> Although core vocabulary is assumed resistant to borrowing, it is not immune to it. Pawley (1998: 66), for instance, cites two areas of PNG where there has been significant borrowing of core vocabulary between Papuan languages.



### 1.3 Structure of the report

The purpose of this report is to critically review the genetic classification of the twenty-two languages in the study. It takes as its starting point the classifications found in LAP, the rationale for which is put forward in Wurm (1975). There is a separate section for each language or language family, at the end of which is a short list of references. The general sources, Eth05 and LAP, are not listed there, though pertinent. Two SIL surveys, Loving & Bass 1964 and Conrad & Dye 1975, are cited repeatedly. The percentages of lexical resemblances reported in each of these surveys are given in full in an appendix, **9.1** (p.44). Following the discussion of each section, each pair of languages or dialects is given a value representing their degree of relatedness. The seven point scale used is set out in **Table 4**. The definitions imply a relative chronology, from unrelated pairs of languages through to closely related dialects.

*Table 4. Scale of Relatedness*

1. Unrelated
2. Very distantly related (not enough putative cognates to establish sound correspondences or to reconstruct the phonological history or a proto-lexicon).
3. Belonging to the same sub-group but extremely disparate, indicating at least 3000 years of separation.
4. Belonging to the same sub-group and showing systematic similarities in numerous sub-systems, indicating separation within the past 1500 to 3000 years.
5. Belonging to the same sub-group and showing evidence of having been mutually intelligible as recently as 500 to 1500 years ago.
6. Well-differentiated dialects of the same language.
7. Little-differentiated dialects of the same language

It is thought more useful to present here the full table of the values given, than to hold them back to the end of the paper (which therefore lacks a concluding section). The results are shown in **Table 5**.

*Table 5. Codification of Relationships among Languages*

Amto	<b>AMTO-MUSIAN</b>
1 Amanab	<b>BORDER</b>
1 4 Waina	
1 1 1 Baibai	<b>KWOMTARI</b>
1 1 1 2 Biaka	
1 1 1 2 3 Kwomtari	
1 1 1 1 1 1 Anggor	<b>SEPIK</b>
1 1 1 1 1 1 1 Abau	
1 1 1 1 1 1 1 2 Ak	
1 1 1 1 1 1 1 2 3 Awun	
1 1 1 1 1 1 1 2 3 3 Namie	
1 1 1 1 1 1 1 1 1 1 1 1 Oksapmin	<b>TNG</b>
1 1 1 1 1 1 1 1 1 1 1 2 Ngalum	
1 1 1 1 1 1 1 1 1 1 1 2 4 Mianmin	
1 1 1 1 1 1 1 1 1 1 1 2 4 4 Bimin	
1 1 1 1 1 1 1 1 1 1 1 2 4 4 5 Telefol	
1 1 1 1 1 1 1 1 1 1 1 2 4 4 5 5 Tifal	
1 1 1 1 1 1 1 1 1 1 1 2 4 4 5 5 5 Faiwol	
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 Busa	<b>ISOLATES</b>
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 Yuri (Karkar)	
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 Nagatman (Yale)	

## 2. Amto-Musian Family: Amto

Amto is spoken in the Rocky Peak District of the West Range, Sandaun (West Sepik) Province. The territory is south of the upper Sepik River, toward the headwaters of the Arai River<sup>8</sup> (Eth05). The neighbouring languages are Abau (west and north), Musian (east), the Arai family (further east) and Mianmin (south) (LAP). Wurm (2001: 392) gives the population as 200.<sup>9</sup> Language and dialect names are given in **Table 6**.

*Table 6. Amto (Sources: Eth05, LAP)*

<b>Language</b>	Amto
<b>Alternate Names</b>	Ki, Siwai, Siawi, Siafli
<b>Dialects</b>	Amto, Siawi

Information about Amto is poor. Loving and Bass (1964) placed it in a small phylum with Busa, which is about 15km further north and on the other side of the Sepik River (their results are shown in **Table 28**). However, a later survey by Conrad and Dye (1975) does not support

<sup>8</sup> Formerly: Left May River

<sup>9</sup> 208 in 1975 (Conrad & Dye 1975: 11)

an Amto-Busa group; that survey instead found a 29% similarity between Amto and its immediate neighbour Musian (Musa)<sup>10</sup> and is the basis for the classification in LAP, where Amto-Musian is a small separate phylum. The results of these surveys are briefly discussed in **Section 8.1**, Busa.

Amto and Musian show lexical resemblances in the range of 4–10% with languages of the neighbouring Arai family (see **Table 29**).<sup>11</sup> Conrad and Dye (1975: 11) attribute this to borrowing; Laycock (1973: 53) had earlier suggested that Musian might be shown to be related to that family. For the time being, there is insufficient data to link Amto to any language except Musian, and vice versa. Amto is accordingly given a value of 1 in relation to all other languages in the present study, indicating no discernible relationship. Eth05 lists two Amto dialects, Amto and Siawi, but no further information is available.<sup>12</sup> Pairwise comparison of these two dialects is given a conservative value of 6.

*References:* Conrad & Dye 1975 - wordlist; Healey 1962 - not sighted; Laycock 1973, 1975a; Loving & Bass 1964.

### 3. Border Stock, Waris Family: Amanab and Waina

Amanab and Waina are spoken north of the Sepik River, primarily in Sandaun Province, Papua New Guinea, along the border with West Papua. Amanab is wholly within PNG, while Waina speakers live on both sides of the border. Population figures are Amanab 4,419 (2003 SIL), Waina 1,212 (1982 SIL). The latter figure includes 212 in West Papua (Source Eth05). Dialect and language names are given in **Table 7**.

*Table 7. Amanab and Waina*

Language	Amanab	Waina†
Alternate Names	Dera Eri*	Sowanda, Wanja, Wanya, Wina
Dialects	Eastern, Northern, Western	Punda-Umeda (Umada), Waina

Sources: Eth05, LAP, Minch (1992: 105); \*Carrington (1996); †Waina (LAP), Sowanda (Eth05).

Amanab and Waina belong to the Waris family of the Border Stock. The eight languages of the family are Amanab, Daonda, Manem, Senggi, Simog, Waina and Waris. They form an

<sup>10</sup> Musian was not surveyed by Loving and Bass.

<sup>11</sup> Ama, Bo, Iteri, Nimo, Owiniga and Rocky Peak.

<sup>12</sup> Laycock (1973:53) records Seiawi as the single Musian village.

uninterrupted cluster in the northern half of the Border Mountains, straddling the International Border (see LAP and Seiler 1985: 211). Waina is at the central southern edge of the cluster. The languages neighbouring Amanab, which is immediately south of Waina, are Baibai and Kwomtari (north-east, east), Anggor (south) and Dera (south and west).

The Waris family was originally proposed by Loving and Bass (1964) in their report of the earliest comprehensive survey of the languages of the Amanab subdistrict. From ‘a selected list of 180 words, phrases and sentences’ (ibid.: 1), they found that Amanab and Waina had 26% of resemblant forms. Their results are reproduced in **Table 28**. The family was subsequently extended by Voorhoeve (1971: 60ff) and by Laycock (1973: 48f). Imonda is added as a distinct language by Seiler (1985: 3).

It seems likely that Loving and Bass’s figures understate the closeness of the Waris languages. A short wordlist of mostly basic vocabulary in Seiler (1985: 212f) shows a majority of similar forms for five of the languages.<sup>13</sup> For instance, Daonda/Waris at least 59% (39/66) (versus Loving and Bass 36%) and Simog/Waina at least 56% (37/66) (versus Loving and Bass 25%). The almost identical pronominal paradigms in **Table 8** are witness to the closeness of a number of the languages of the family.

*Table 8. Some Waris pronouns*

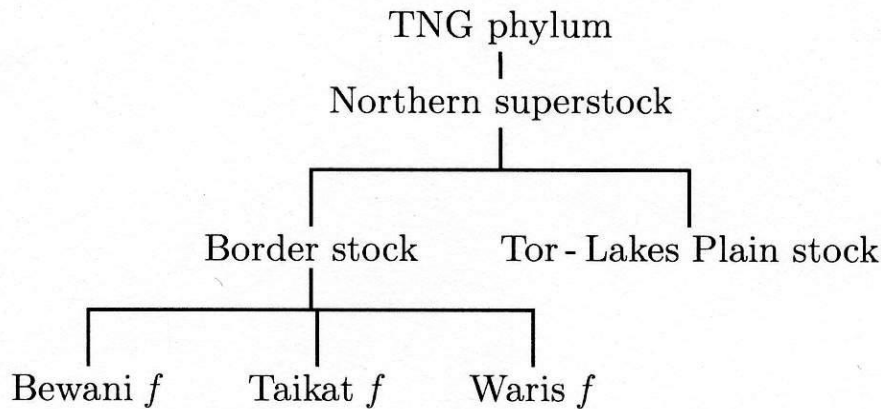
	Amanab	Daonda	Imonda	Simog	Waina*	Punda	Waris
<b>1s</b>	ka	ka	ka	ga	ka	ka	kë
<b>2s</b>	ne	nè	ne	nè	iè	iè	iè
<b>3s</b>	ehe	èhè	ehe	èk	èh	èh	hè
<b>1p inc</b>	bi-ger	bè	pël	bè	pièrri (?)	pe	piè

Sources: Amanab (Minch, 1992: 123), other (Seiler, 1985: 213). \*Sowanda in original.

The table includes a ‘language’ called Punda. This is either a dialect of Waina or a distinct language. According to Seiler (1985: 3) the latter is the case but he fails to say why. On his short wordlist, Waina and Punda have about 83% (55/66) of very similar forms. Punda is spoken in the villages of Punda and Umeda.

In LAP, the Waris family is part of the Border stock within the Northern (sub-phylum level) superstock of the Trans New Guinea phylum, as shown in **Figure 3** below.

<sup>13</sup> Daonda, Imonda, Simog, Waina and Waris.



*Figure 3. LAP classification of the Waris family*

The Taikat family adjoins the north-west part of the Waris family. A stock-level relationship (the Tami stock) between the families was first proposed by Voorhoeve (1971: 60–62), on the basis of lexical resemblances of around 30%. The larger Border stock adds the Bewani family, which adjoins the Waris family to the north-east. This group was proposed by Laycock (1973: 45ff) but without any supporting evidence. However, according to Ross (in prep.*b*: 64), who has recently looked at the pronouns of these languages, ‘the integrity of the Border family [stock] . . . is reasonably obvious’. He also adds Morwap to the family. While it may be the case that the Border group, and thus the Waris family, belongs to the TNG phylum, this has not been adequately demonstrated. Instead, the proposition relies upon a series of possibilities which stretch out from the north coast of New Guinea to the south coast across ‘very rough mountainous country in which the central ranges rise in places as high as 15,000 feet’ (Voorhoeve 1969: 466).<sup>14</sup> The proposed relationships are shown below.

Border → Tor → Sentani → Asmat (TNG)

The link between the Border and Tor-Lakes Plain stocks was made by Voorhoeve (1971: 66ff). He compared wordlists of 70 items and obtained highest percentages in the range of 8% (Itik vs Waina) to 19% (Itik vs Manem, 14 resemblant forms), which he says ‘are sufficient to establish a phylum level relationship between the two stocks’ (p. 66).<sup>15</sup>

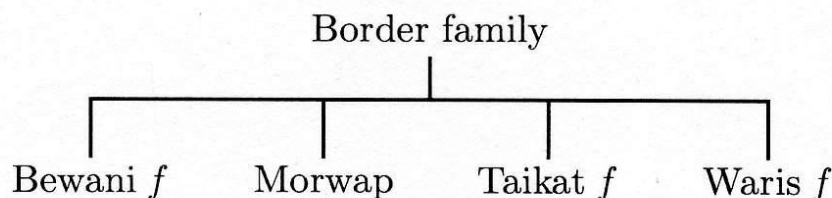
<sup>14</sup> The ‘Northern superstock’ was in fact dubbed a sub-phylum precisely because its membership of the TNG phylum was open to doubt but on the basis of typological features (Voorhoeve 1975a: 411).

<sup>15</sup> See also Voorhoeve 1975a: 414f: ‘. . . the closest relative of the Tami Stock appears to be the Tor Family: the cognation percentages between the Tor and Tami languages partly fall within the stock-level range’.

The further link between the Northern superstock and the TNG phylum apparently depends upon resemblances between the Tor group of the Tor-Lakes Plain stock and the Sentani languages, in the range of 3–10% (using 70-item lists). These ‘point to the possibility of a distant genetic relationship’ (Voorhoeve 1971: 69).

In LAP, the Sentani family is part of the TNG phylum. This classification is apparently based on lexical resemblances (a total of 45) between Eastern Sentani and Flamingo Bay Asmat, which were pointed out by Voorhoeve (1969).<sup>16</sup> That evidence alone, however, is insufficient to establish the relationship. According to Osmond et al. (in prep: 76), ‘The Sentani stock . . . we would with reasonable conviction exclude from the TNG family. The languages lack reflexes of pTNG pronouns and appear to be more closely related to various non-TNG groups’.<sup>17</sup>

Instead of the LAP classification, the simplified one put forward by Ross (in prep: 78) is used here, with the possible higher affiliations of the Border family set aside. It is shown in **Figure 4**. It is essentially based on the evidence from pronouns, which according to Ross do not to support the larger grouping, nor suggest that any one of the Border, Tor or Lakes Plain groups are TNG (ibid.: 68).



*Figure 4. Simple classification of the Waris family*

There are no clearly demonstrable genetic links between the Waris family and any of the other languages in the current study area. Amanab and Waina are therefore each given a value of 1 in relation to those languages.

<sup>16</sup> The original report concludes, ‘The lexical evidence presented above appears to be strong enough to propose a genetic relationship between the Sentani and Asmat languages’ (Voorhoeve 1969: 479); Voorhoeve (1975a: 419) says that the report ‘showed that genetic relationships existed between Sentani and Asmat’.

<sup>17</sup> The last is a reference to a suggestion made by Ross (in prep: 71ff) of a link between the Sentani family and a number of more westerly languages of [West] Papua.

On the evidence of the comparative material in Seiler (1985), the Waris languages appear to be quite closely related. The pronominal paradigms show that Amanab and Waina are clearly in the same subgroup and probably not very disparate, so an appropriate value for the relationship is  $> 3$ . It is therefore set, conservatively, at 4.

Amanab has three dialects. The Eastern and Western dialects are more similar to each other than either is to the Northern form. The latter, which has ‘significantly fewer’ speakers than the other two dialects, is most similar to the Western form (Minch 1992: 105).

As noted above, Waina has two dialects, Waina and Punda, which may be sufficiently different to be classed as distinct languages. Punda is spoken in the villages of Punda and Umeda, in the east of the Waina area (Loving & Bass 1964). In the absence of further information, pairwise comparison of Waina and Punda is given a value of 6, indicating well-differentiated dialects. Pairwise comparison of the three forms of Amanab is also set at 6.

*References:* A general source of information on the Waris family is Silzer & Heikkinen 1984. Bibliographic notes for Amanab and Waina are online at Hays 2003-04. Other materials, relating in particular to the classification of the family, are Barr & Barr 1978, Laycock 1973, Loving & Bass 1964, Osmond et al. in prep., Ross in prep, Voorhoeve 1971 and 1975a, b. There are village lists in Laycock 1973. For Amanab, the only published description is Minch 1992. Unpublished SIL materials are Graham 1969‡, Graham & Graham 1968a, b and 1980‡. There is also unpublished Amanab data in Laycock nd‡. For Waina, Seiler 1985 contains short wordlists and there is unpublished Waina data in Laycock nd‡. (‡ = not sighted).

#### **4. Kwomtari Stock: Baibai, Biaka and Kwomtari**

Baibai, Biaka and Kwomtari are spoken north of the Sepik River, in the upper Sepik basin, Sandaun Province. Baibai adjoins Kwomtari in the territory between the Bapi and Wuro Rivers. At its broadest point, this area is about 40km wide. Biaka is about 15km south-west of Kwomtari.

The neighbours of this group are Anggor and the Border languages (west), the Torricelli languages (north-east and east), the Yellow River family (south-east), Nagatman/Yale (south of Kwomtari, east of Biaka) and Abau (further south) (Source: LAP). Population figures are

Baibai 345 (2000 census), Biaka 595 (2003 SIL) and Kwomtari 600 (1998 SIL) (information from Eth05). Alternate names and dialects are given in **Table 9**.

**Table 9. Baibai, Biaka and Kwomtari**

Language	Baibai	Biaka*	Kwomtari
Alternate Names		Amini, Nai	
Dialects			Northern, West Central

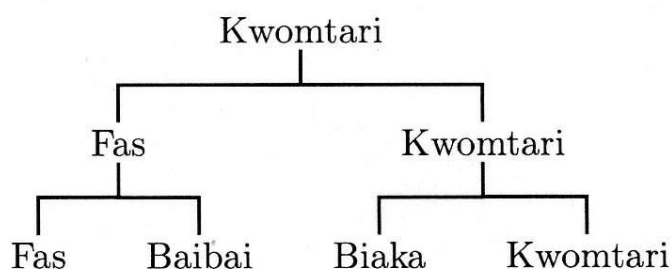
Sources: Eth05, LAP, Loving and Bass (1964)

\* Biaka (LAP), Nai (Eth05)

According to Laycock (1973: 42), the Kwomtari ‘phylum’ was first documented by Loving and Bass (1964). Their lexical comparisons yielded the percentages shown below, which are reproduced from **Table 28**.

Fas  
 12 Baibai  
 3 14 Kwomtari  
 3 6 30 Biaka

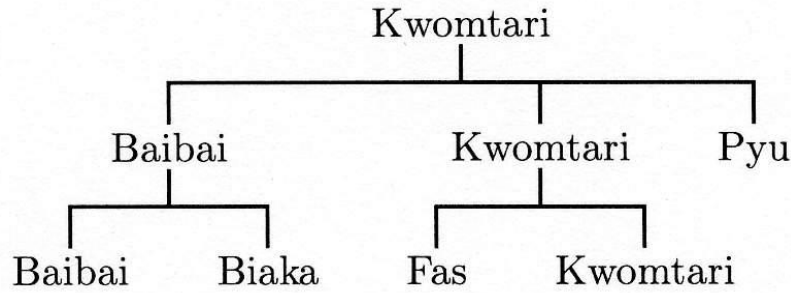
On the basis of these figures they grouped the languages of the family as shown in **Figure 5**. They note that the low percentage of resemblances between Baibai and Biaka led them to place Baibai in a separate stock with Fas (1964: 3).



**Figure 5. Kwomtari sub-groups (Loving & Bass 1964)**

Laycock’s grouping of the family is shown in **Figure 6**. It is different from that of Loving and Bass, although claimed to be essentially the same (Laycock 1975c: 853). This is also the grouping in LAP.





*Figure 6. Kwomtari sub-groups (Laycock 1973)*

Laycock (1973, 1975c) offers no evidence for his regrouping, so it is difficult to see why it has been accepted. Then, as now, knowledge of the languages was poor, with Laycock having only his own survey lists and those of the Summer Institute of Linguistics (Laycock 1975c: 854). The Kwomtari pronouns in **Table 10**, which are taken from Laycock’s fieldnotes, do not appear to strongly favour either the original or Laycock’s grouping (used by Ross in *prepb* and therefore followed in **Table 10**).

*Table 10. Some Kwomtari pronouns*

	1s	2s	3s	1p	2p	3p
<i>Baibai</i>						
Baibai	ati	aŋgi	wɔʔ	atiaru	atiʔ	aniʔ
Biaka	nombwirə	wana	mane	təmwo/mone		mowei
<i>Kwomtari</i>						
Fas	tɛ	ay	fa	anu	yari	
Kwomtari	[i]nɛ	wunu		maru	du pəra	may

Source: Ross (in *prepb*: 59), from the data in Laycock (nd).

About the external relations of the Kwomtari family, not much can be said beyond stating that there is little to link them to any other language of New Guinea (Wurm & McElhanon 1975: 156). Ross (in *prepb*: 58) has suggested a possible relationship to the Left May (Arai) family because of small resemblances in the pronouns of the two groups. This is not important here, however, as the Left May family itself is irrelevant to the current study, having no demonstrable link to the other languages in the study area.

Based on the percentages reported by Loving and Bass, the Kwomtari languages belong to the same subgroup, with Biaka and Kwomtari closer to each other than either is to Baibai.

Biaka/Kwomtari is given a value of 3, the maximum on our scale of relatedness for a subgroup about which little is known. Baibai/other Kwomtari is given 2, the minimum for languages in the same subgroup. These numbers are speculative, given the absence of good data. Pairwise comparison of the Kwomtari family with other languages of the study is given a value of 1, indicating no known relationship.

Loving and Bass (1964: 2) record their informants' perception that the northern form of the Kwomtari language, spoken in Ekos, Maragin and Yenabi villages, is different to the language as it is spoken elsewhere. These two 'dialects' are given a conservative comparative value of 6.

*References:* Laycock 1973 (which includes village lists), Loving & Bass 1964, Ross in prep*b*, Wurm & McElhanon 1975. The Baibai counting system is mentioned in Laycock 1975*b*. See also Landweer 2000‡ (Baibai) and Laycock (nd)‡. (‡ = not sighted).

## 5. Senagi Family: Anggor

Anggor is spoken in the Amanab District of the Border Mountains, Sandaun Province. The population was 1,266 in the 1990 government census (Eth05).<sup>18</sup> Language and dialect names are given in **Table 11**.

*Table 11: Anggor*

<b>Language</b>	Anggor
<b>Alternate names</b>	Angor, Senagi, Watapor
<b>Dialects*</b>	Wai (Central Anggor), Samanai (Southern Anggor)

Sources: Eth05 (Angor); LAP (Anggor). \* R. Litteral 1980 has an additional western dialect.

Anggor's immediate linguistic neighbours are Dera<sup>19</sup> (north-west), Amanab (north), Biaka (east) and Yuri (south-west) (LAP). Anggor and Dera together form the Senagi family; there is no obvious relationship between this family and any other language in the Amanab area. The family was first proposed by Loving and Bass (1964).

<sup>18</sup> Estimated at 1,250 in R. Litteral 1980.

<sup>19</sup> More correctly, Dla (the 'e' in 'Dera' represents an epenthetic vowel -Hilario de Sousa, pers. comm. Loving & Bass 1964 refer to Dera as Kamberatoro. Dera is used here, simply to avoid a proliferation of names.

Anggor and Dera were grouped together on the basis of a comparison of a ‘selected list of 180 words, phrases and sentences’, which showed 33% of resemblant forms. The percentages found between this pair and the other fifteen languages in Loving and Bass’s survey were all  $\leq 5\%$ . The actual data used in the comparison were not reported.<sup>20</sup> The percentages obtained by Loving and Bass are reproduced in **Table 28**.

It seems from what is said by R. Litteral (1978) that Anggor and Dera in fact represent two halves of a dialect chain that runs east to west, from PNG into West Papua.<sup>21</sup> According to Hilario de Sousa (pers. comm.), now working on Menggwa Dla, ‘the genealogical relationship between Dla [Dera] and Anggor is transparent’.<sup>22</sup>

LAP has the Senagi family within the Trans New Guinea phylum, at the sub-phylum level. The designation ‘sub-phylum’ indicates a part of a phylum which is markedly different.<sup>23</sup> The classification of the family was apparently a cooperative effort, one which is difficult to disentangle, but the references given in LAP are to Laycock (1973) and Voorhoeve (1975a, b), with Laycock being the LAP compiler for the Sepik provinces.<sup>24</sup>

Laycock (1973: 49) places the Senagi family in the TNG phylum but without justification beyond the claim that Anggor has ‘many more cognates’ with languages of the phylum than it does with the Ndu family.<sup>25</sup> He says of Loving and Bass that they ‘did not appear to recognize the relationship of languages in [the Senagi family] to those of the Waris family’. However, their published data do not suggest such a relationship (**Table 28**).<sup>26</sup>

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<sup>20</sup> The data was gathered in the field, correlated and assembled in a period of just three weeks.

<sup>21</sup> ‘The Anggor form a loosely defined linguistic aggregate that is clearly separated from other linguistic aggregates in the north, east and south. To the west, however, there is a dialect that continues across the Irian Jaya border with no definite boundary of mutual unintelligibility separating villages’ (R. Litteral 1978: 25). As depicted in LAP, the Anggor area falls about 10km short of the Indonesian border.

<sup>22</sup> The Dera (Dla) dialect Menggwa Dla is spoken in five villages on both sides of the West Papua/ PNG border. In LAP it is designated as Duka-Ekor. It is close enough to Dera proper to be (just) mutually intelligible (de Sousa, pers. comm.).

<sup>23</sup> Whether ‘through greater distance in relationship between members of the sub-phylum and the remaining members of the phylum, or through special characteristics of the members of the sub-phylum which sets them apart’ (Wurm & McElhanon 1975: 154).

<sup>24</sup> R. Litteral (1980: 38ff) gives a short critical discussion of the literature on the Senagi family, largely in relation to its classification.

<sup>25</sup> He is responding to a suggestion that Anggor is related to the Ndu family. See below.

<sup>26</sup> The five Waris family languages in their survey are Amanab, Daonda, Simog, Waina and Waris. Following Swadesh, Loving and Bass (1964: 3) assume that languages belong to the same phylum if they share at least 4% of cognates. The percentages they obtained in comparisons between Senagi and Waris family languages are  $\leq 3$ .

Senagi is a TNG ‘stock-level family’ in Voorhoeve (1975b: 44).<sup>27</sup> The claim is based on the lexical comparison of 100-word lists but no evidence is shown. A Dera wordlist of 39 items appears in an appendix. Voorhoeve (1975a: 418) recapitulates and provides a list of Anggor and Dera phonemes and some grammatical information on Dera. The Dera data had already appeared in Voorhoeve 1971 but there the Senagi family is said to occupy ‘an isolated position’. He states (Voorhoeve 1971: 73):

Nowhere in its environments are languages found with which it can be united into one stock or even one phylum. The cognation percentages shared by Dera, Senagi and the languages surrounding them east of the border do not exceed 4% (Bass and Loving). On the western side of the border the situation is not much better.

Then follow the results of a comparison with some languages of [West] Papua, which are reproduced in **Table 12**. The Dera wordlist used had 107 items.<sup>28</sup> All of these languages are TNG in LAP. The 10% obtained for Dera/Waris may be compared with the 1% got by Loving and Bass (1964) with a list almost twice as long. The percentage for Dera/Dubu is similar. As noted above, the author himself was not originally convinced by these figures.

**Table 12. Dera versus languages to the north and west**

	TNG subphyla*									%
	Border†			Pauwasi						
	Waris	Manem	Awji	Yafi	Dubu	Molof	Usku	Tofamna	Kaure	
Dera	10	5	7	6	9	2	5	2	1	%
	82	76	84	82	77	75	75	75	75	#

Source: Voorhoeve (1971: 73), but unless otherwise noted, names and classification follow LAP. % percentage of resemblant forms; # is ‘number counted’.

\* In the source: Pauwasi Phylum (Yafi, Dubu) and the rest ‘unclassified’.

† TNG in LAP. In the source: Tami Stock.

The classification of the Senagi family within the TNG phylum is discussed briefly by Wurm and McElhanon (1975: 158). The evidence they call in favour is the presence in the languages of the family of a ‘fair number’ of pTNG reflexes (see below) and the fact that typologically the languages ‘seem to follow the general Trans-New Guinea Phylum pattern without major

<sup>27</sup> A stock-level family is not part of any higher level group below the level of phylum (Voorhoeve 1975b: 16).

<sup>28</sup> Wordlists, with resemblant forms marked, are included in an appendix (Voorhoeve 1971: 99ff).

deviations'. However, in what is no doubt a reference to the results in **Table 12**, they say, 'Lexical agreements between Senagi family languages and member languages of neighbouring Trans-New Guinea Phylum stocks such as the Border and Pauwasi Stocks are of a rather low order'. They also admit to a paucity of information. In keeping with this lacklustre defence, they conclude that it seems justifiable to place the family in the TNG phylum, but with the caveat of subphylum status.

Although it was thought important by Wurm and McElhanon, typological similarity is now not considered indicative of genetic relationships but rather to be a consequence of areal contact (Ross, in press).

With respect to pTNG reflexes in the Senagi languages, Wurm and McElhanon draw attention to a number of nouns, the verb for 'sleep', and some pronouns. The nouns (in the sense of meanings) are *arm/hand, bone, breast/female, ear, eye, fire, louse, mother, skin* and *water*. It had been observed that in related Papuan languages these concepts were frequently realised by cognate forms (the last three being less important than the others) (Wurm & McElhanon 1975: 150). All but a few of them occur also in a list of the most stable etyma (by meaning) in the TNG data now available (Pawley 1998: 679). Stability here means the 'breadth of distribution of reflexes across [established] sub-groups'.

Wurm and McElhanon found pTNG reflexes in the Senagi family for eight of their ten selected nouns (not for *breast* or *ear*), and for the verb *sleep*. A comparison of recently proposed pTNG forms with items from the Dera (Amgotro dialect) in Voorhoeve 1971 doesn't appear to support their claims but does show one nice match in *katəbu* 'ashes' (\*k(au)t(a,u)(mb,p)u) and a promising resemblance in *manə* 'louse' (\*[n]iman) (**Table 13**).

As for the evidence from pronouns, as part of a large-scale survey Ross (in *prepb*: 57) has recently compared the available Anggor and Dera material with the pronouns he reconstructs for pTNG. His conclusion is that the Senagi pronouns do not reflect pTNG forms.<sup>29</sup> Instead, some similarity with the pronouns he reconstructs for Proto Sepik lead him to suggest an 'ancient [genealogical] relationship' between the Senagi languages and his proposed Sepik family.

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<sup>29</sup> In fact, they 'show no sign' of doing so (in *prepb*: 26).

Table 13. *pTNG and Dera*

English	pTNG	Dera (Amgotro)
arm/hand	*(ka)bena	wada
ashes 1	*k(au)t(a,u)(mb,p)u	katəbu
bone 1	*kwa(nd,t)aC *ko(nd,t)aC	gemda
breast	*amu	toto
ear 1	*ka(nz,t)(i,e)[C]	kumbo-keda
ear 2	*tVmV[d]	
eye 1	*(ŋg,k)iti, (ŋg,k)iti-maŋgV	kumba-kwada
eye 2	*(ŋg,k)amu	
eye 3	*nVpV	
fire 1	*kend(o,u)p	kai
fire 2	*inda	
fire 3 <sup>†</sup>	*ŋga(mb,p)u	
louse	*[n]iman	manə
mother	*am(a,i,u) *na-	mi
skin, bark	*(ŋg,k)a(nd,t)apu	kueda (skin)
sleep, lie down	*kinV-	apo (sleep)
sleep	*p(e,i)t(e,i)o-	
water 1	*ok[V]	kue
water 2	*nok	
woman, female	*pan(V)	kuadedebo (woman)

Sources: Pawley (2000), Voorhoeve (1971).

<sup>†</sup> Fire, hot ashes, embers.

The Sepik family includes languages of the upper Sepik, such as Abau, which is in the neighbourhood of Anggor, as well as the Ndu family of the middle Sepik, amongst others (Ross in prep*b*: 27). As R. Litteral (1980: 39) reports, a connection between the Senagi family and the Ndu family had already been proposed by Robert and Shirley Litteral, mostly on the basis of unpublished lexicostatistical data, said to indicate that Anggor and the Ndu languages are at least 10% cognate (S. Litteral 1972: 42). R. Litteral (1980: 357) lists 30 possible cognates.<sup>30</sup> Laycock (1973: 49) also claims to have found resemblances between the families, which he suggests are borrowings. For him they are of less significance than resemblances to TNG languages.

<sup>30</sup> The nearest Ndu language (Ngala) is 150km to the east of Anggor. Although he does not use linguistic arguments, Huber (1973: 37f) suggests a north-west origin, in Dera territory, for the present day Anggor.

Loving and Bass (1964) identified fourteen Anggor villages in four dialect areas: western, central, eastern and southern, with ‘definite dialectal changes between the centre of the area and its outer extremities’. However, R. Litteral (1980: 38) says that isoglosses indicate only three dialects: western, central and southern, with the boundary between the western and central dialects varying according to the isoglosses used. The fourteen villages from Loving and Bass are listed in **Table 14**. The most western village is Mongo, the most southern is Samanai. These presumably do indeed belong to the western and southern dialect areas, respectively. At least some of the villages of the central west, and perhaps some of the central east, are also sometimes within the area of the western dialect; ie. according to Litteral, its extent is greater than Loving and Bass thought. The remaining villages belong to the central dialect. R. Litteral does not give village names in this context. Laycock (1973: 48) lists seventeen Anggor villages, adding Pananggau, Tengirabu and Terauwi.<sup>31</sup>

*Table 14: Anggor villages and dialects*

<b>Dialect</b>	<b>Villages</b>
Western	Mongo
Central west	Amandan, Fisi, Kwaraman, Puramen
Central east	Akrani, Baribari, Bibriari, Merere, Nai, Senagi, Unupuwai, Wamu
Southern	Samanai

Source: Loving & Bass 1964.

There is insufficient available evidence to place Anggor within the TNG phylum and furthermore its pronominal system suggests that it is not TNG. It has been suggested, but not demonstrated, that Anggor instead belongs with some non-TNG group of the Sepik. The only demonstrable relationship it has is with Dera in the Senagi family. It is therefore given a comparative value of 1 (unrelated) with respect to every other language in the current study. Information on the dialects of Anggor is slight. Dialect pairs are therefore given a conservative value of 6.

*References:* Up until recently, the only detailed investigation of a language of the Senagi family was work done by an SIL team (Robert and Shirley Litteral) on Anggor.<sup>32</sup> The major work is R. Litteral (1980). It includes a critical history of attempts to classify the Senagi

<sup>31</sup> B. Craig: Laycock was incorrect; Pananggau (ie. Panangan), Tengirabu and Terauwi are Yuri speaking. See also Loving & Bass 1964:2.

<sup>32</sup> In recent times, Hilario de Sousa has begun an investigation of a Dera (Dla) dialect, Menggwa Dla.

languages (pp. 39–41), which provided most of the sources for the discussion above. Other published work is R. Litteral 1972a, b, 1978, 1981‡ and S. Litteral 1972 and 1981‡. Unpublished work includes R. Litteral (*nda*, *ndb*)‡ and Litteral & Litteral *nd*‡. (‡ = not sighted). Other Anggor resources are Laycock 1973 (with village lists), Loving & Bass 1964, Voorhoeve 1971 (with wordlists) and Voorhoeve 1975a, b. Some remarks on the classification of the Senagi family are in Wurm & McElhanon 1975. There is a brief mention of the ancient relationships of the Senagi family by Ross (in press: 18); the family is discussed more fully by Ross (in prep*b*: 57f). For Dera (Kamberatoro) there is a listing in Hays (2003) as well as some material in Silzer & Heikkinen 1984.

## 6. Sepik Phylum

### 6.1 Abau

Abau is spoken in the southern part of the Amanab subdistrict of Sandaun Province. The language extends along the Sepik River from near the junction of the Sepik and Yellow Rivers in the east to just west of the border with [West] Papua, and from the lower Green River in the north to the floodplains of the August River in the south.<sup>33</sup> The population in the 2000 census was 7,267 (information from Craig 2002,<sup>34</sup> Eth05, LAP and Martin 1981). The name ‘Green River’ has in the past been used for Abau. The neighbouring languages are Pyu (south and west, mainly in [West] Papua); Biksi (west); Yuri/Karkar, Anggor, Biaka, Nagatman/Yale and Busa (all north); Namie (north-east); the Arai family, Amto-Musian and Mianmin (south) (LAP).

LAP places Abau within the Upper Sepik stock of the Sepik-Ramu phylum, as in **Figure 7a** below. The grouping in Ross (in prep*b*: 38ff) is only slightly different (**Figure 7b**). The only other languages in the current survey which are members of the Sepik family (or Sepik-Ramu phylum) are Ak, Awun and Namie.

Abau was included in the survey of Loving and Bass (1964), who found nothing above a 2% resemblance to any other language (**Table 28**) but that was because there were no other members of the Sepik family in their sample. The highest figures obtained by Conrad and Dye (1975) for Abau were a 24% resemblance to May River Iwam and a 12% resemblance to

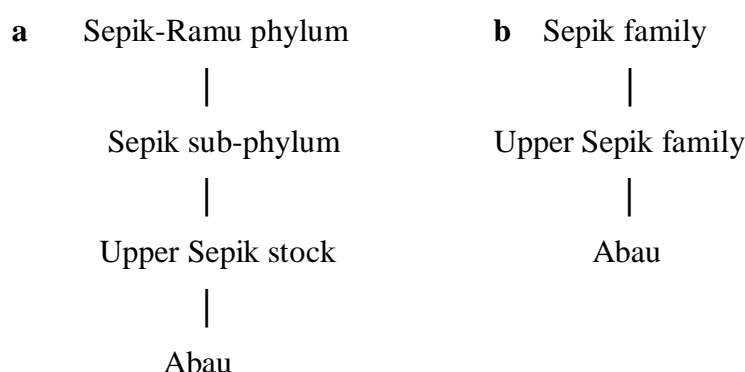
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<sup>33</sup> Martin (1981: 211) and others record the presence of some Abau speakers inside [West] Papua but Eth05 says that the language is not spoken there. B. Craig: The Abau village of Hufi in 1968 was right on the border and they had territory in [West] Papua.

<sup>34</sup> Quoted in Hays (2003–04).



Namie (**Table 29**). The latter figure, also obtained by Laycock (1968), is consistent with an ancient relationship (see Section **6.2**).<sup>35</sup>



*Figure 7. Abau within the Sepik hierarchy of languages*

An SIL survey of Abau (Martin 1981) identified three large dialect areas. From what is said in that report, there appears to be a dialect chain with only minor variation between the central dialect and each of the two extrema, such that ‘one [bible] translation would probably be sufficient if done in the Central Dialect’ (1981: 228). The latter is in the Green River area; the downriver dialect is east of and (probably) including the village of Mahani on the Sepik River; the upriver dialect is about the August and Idam Rivers, south of the village of Bisiaburu on the Idam River.

The distant relationship between Abau and the Yellow River family corresponds to a value of 2 on our scale; pairwise comparisons of Abau and the other languages in the present study, with which no genetic links are evident, have a value of 1. Dialect differences, which are slight, are set at 7.

*References:* The classification of Abau is dealt with in Conrad & Dye 1975, Laycock 1968, Laycock & Z’graggen 1975, Loving & Bass 1964 and Ross in prep*b*. Limited early documentation is in Laycock 1965 and 1973. Laycock & Z’graggen 1975 has some grammatical information. Publications by SIL teams are Bailey 1975 and Lock & Lock 1993 and nd.)‡. Martin 1981 provides an introduction to the language, its location and speakers; he includes village lists. Village lists are also in Laycock 1973 (‡ = not sighted). Laycock 1968 has a wordlist of 50 items in (language No 42). Hays 2003 provides bibliographical notes.

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<sup>35</sup> The surveys used wordlists of 102 items (Conrad & Dye 1975), 50 items (Laycock 1968) and 180 items (Loving & Bass 1964).

## 6.2 Yellow River Family: Ak, Awun and Namie

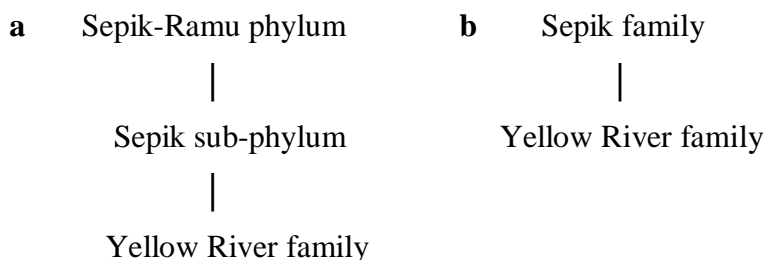
The three members of the Yellow River family are Ak, Awun and Namie. Namie is spoken in an area between two northern tributaries of the upper Sepik River: the Sand and Yellow rivers. Ak (north) and Awun (east) are neighbouring languages. Surrounding the group are Busa and Nagatman/Yale (west), Kwomtari (north-west), languages of the Torricelli group (north and east), and other Sepik family languages (east, south and south-west). The Arai (Left May) family is also to the south of Namie, on the other side of the Sepik River. Speaker populations are Ak 80 (Wurm 2001), Awun 400 (2003 SIL) and Namie 4,944 (2003 SIL) (information from Eth05 and LAP). Alternate names are given in **Table 15**; dialect names are in **Table 17**.

*Table 15: Ak, Awun and Namie*

Language	Ak	Awun	Namie*
Alternate names	Kwieftim	Auwan, Awon	Edawapi, Lujere, Namia, Nemia,, Watalu

Sources: Eth05, LAP, Laycock (1973). \*Namie (LAP), Namia (Eth05).

In the LAP classification, the Yellow River languages are within the Sepik-Ramu phylum, as in **Figure 8a**. Ross (in *prepb*: 27; 38ff.), who doubts the integrity of the Sepik- Ramu phylum, dispenses with that higher level group (**Figure 8b**).<sup>36</sup>



*Figure 8. The Yellow River family within the Sepik hierarchy of languages*

Of the other languages in the present survey, only Abau is also within the Sepik family (or sub-phylum). There is no solid evidence of a genetic relationship between the Sepik family and the TNG phylum, nor of relatedness to any other language family (Ross in press: 19), which of course includes those in the present survey.<sup>37</sup> Comparisons of Namie and Abau by

<sup>36</sup> Foley (in press) sets out evidence for the same basic position.

<sup>37</sup> There may be an ancient relationship between the Sepik and Senagi families (Ross, in *prepb*: 57f). Some reconstruction of Proto Sepik, the language from which the Sepik family is descended, has recently been done. Foley (in press: 26) proposes nine lexical items (breast, come, dog, faeces, go, louse, pig, tongue and tree) which seem to be fairly well supported, and Ross (in *prepb*: 43) has reconstructed the system of independent pronouns.

Laycock (1968: 48) and by Conrad and Dye (1975: 12) have each yielded a 12–13% lexical resemblance. While Laycock thought that the percentage indicated borrowing (1968: 46f), Conrad and Dye were confident that it did not. In any case, the relationship is an ancient one.

The Yellow River family per se is first mentioned in Laycock (1973: 23) and again by Laycock and Z'graggen (1975: 748), who note that the family 'has so far been recorded only in fieldnotes'. They say that the family shares many cognates with other languages of the Sepik family and that it resembles them in phonology, in the forms of its pronouns and in its gender system. Tentative phonemes and independent pronouns are given but only for Namie. Ak and Awun are amongst the worst documented of the languages in the current study. There appears to be no published data. They are mentioned in Laycock (1968: 47) as 'unnamed' languages (Nos 60 and 61) and reappear as members of the Yellow River family, with Namie, in Laycock (1973: 23). Ross (in *prepb*: 42) has ten Ak pronouns taken from Laycock (nd). As can be seen in **Table 16**, they are quite similar to the Namia forms. With this exception, at least as far as the public record is concerned, the place of Ak and Awun in the Yellow River family is a matter of faith.

**Table 16. Yellow River pronouns**

	1s	2s	3sm	3sf	1p	2p	3p	1d	2d	3d
Namia 1*	won	ney	lə	eo	e-m	wo-m	lə-m	ey-ra	wu-p-li	lə
Namia 2†	an	nei	lugu	eigu	ei-mə	u-m	lə-m	...	...	...
Namia 3‡	ona	ne/am	lo-ko	e-ko	e-ma	wa-m	lo-m-ko	e-ra	wa-p-li	la-p-li
Ak†	wun	ni	ar	er	i-n	kɛ-m	tə-m-uk	i-t	kə	tuk

Source: Ross (in *prepb*: 42).

\* Following Laycock (1968), Laycock and Z'graggen (1975).

† Following Laycock (nd).

‡ Following Feldpausch and Feldpausch (1992).

The Yellow River languages are given a comparative value of 1 with respect to all other languages of the present study except for Abau. This reflects the fact that the only discernible genetic link is to Abau. Yellow River/Abau is given a value of 2, for a very distant relationship. Pairwise comparison within the family is set at 3, the maximum for a subgroup about which little is known. It corresponds to a separation of at least 3,000 years.

A dialect survey found no lexicostatistical evidence of dialect differences within Namie but, on the basis of speaker judgements, four dialects were proposed (Pappenhagen & Pappenhagen 1981: 170). The listing in **Table 17** is copied from the original report. As the dialects appear to be little-differentiated, they are given a pairwise value of 7.

**Table 17: Villages belonging to Namie subjective dialect groups**

*Ailuaki	*Amani	*Wiari	*Lawo
Yegarapi	Augwom	Alai	Mokwidami
Yaru	Iwani	Nami	Mantopai
Norambalip	Pabei	Worikori	Yawari
	Panewai	Akwom	Aiendami
	Tipas	Naum	

Source: Pappenhagen & Pappenhagen 1981. \* Dialect names given by speakers

*References:* There is a little discussion about the classification of the Yellow River family in Laycock & Z'graggen 1975 and more in Ross in prep. Roberts (1992: iii-iv) provides a brief introduction to the family.

For Ak and Awun, there is no published data. Some material is present in Laycock (nd)‡. The languages are mentioned but not named by Laycock (1968: 47). Laycock 1973 includes village lists. Pappenhagen & Pappenhagen 1981 is an SIL sociolinguistic survey of Namie which provides an introduction to the language and the area in which it is spoken.

Unpublished SIL materials are Feldpausch & Feldpausch 1987, 1989, 1992 and nd‡. There is a short wordlist in Foley in press, sourced from Laycock 1968 and Feldpausch & Feldpausch 1992. The wordlist of 50 items in Laycock 1968 is considered untrustworthy by the author himself (Laycock & Z'graggen 1975: 748). The allegedly better material in Laycock nd has not been sighted. (‡ = not sighted).

## 7. Trans New Guinea Phylum

### 7.1 The Mountain Ok family

The Mountain Ok languages occupy a large area of central New Guinea and are bordered on the south by Lowland Ok languages. Ok languages, part of the large TNG phylum, are present in both Papua New Guinea and in [West] Papua. The Ok languages in the present study (Bimin, Faiwol, Ngalum, Telefol, Tifal, Mianmin)<sup>38</sup> all belong to the Mountain Ok subgroup. In physical terms these six languages form an uninterrupted cluster in the central highlands.

The Ok family was identified by Healey (1964a), who surveyed the languages of the family and proposed the Mountain and Lowland Ok subgroups, as well as further divisions within

<sup>38</sup> B. Craig: See **Appendix 9.2**. Kauwol is almost certainly a western dialect of Tifal and not a separate language. Also, some researchers have suggested that Setaman is a separate language located between Bimin and Faiwol, others that it is an eastern dialect of Faiwol. The weight of evidence suggests the latter is the case.

Mountain Ok. He identified resemblances in the phonology, lexicon and morphosyntax of the Ok languages and worked out many of the sound correspondences for a subset of each of Mountain and Lowland Ok.<sup>39</sup> He then reconstructed a number of morphemes for Proto Mountain Ok and Proto Lowland Ok.<sup>40</sup>

Because the six languages of interest to us all belong to the Mountain Ok group, the main task here is to determine what can be said about the relations within that group. For the time being that still depends mostly on the material adduced by Healey.

According to LAP, there are eight languages in the Mountain Ok group, these being the six languages noted above, plus the disputed Kauwol and Setaman. The classification of the group in LAP is based on the work of Healey (1964a) with minor additions from Voorhoeve (1975a) and some extra material from Conrad and Dye (1975) for Ngalum, Mianmin and Tifal. The information in LAP is summarised in **Table 18** (omitting Kauwol and Setaman). The names used there are used here also, except that, to avoid confusion, a distinction is made between ‘Tifal’ (language) and ‘Tifalmin’ (dialect), where LAP uses ‘Tifal’ for both.

Because Eth05 has a somewhat different record, the language and dialect names used there are summarised in **Table 19**. Notable differences are the addition of a language called Nakai (located in West Papua) and the listing of ‘Kauwol’ merely as an alternate name for Faiwol. The record also has separate entries for the mutually intelligible ‘languages’, Mian (South or East Mianmin) and Suganga (North or West Mianmin), and an entry for Urapmin.<sup>41</sup>

**Table 18. Mountain Ok languages according to LAP (omitting Kauwol and Setaman)**

Language	Dialects
Bimin	[Eggertsson: Kwermin is a dialect of Bimin]
Faiwol	[B. Craig: probably a dialect chain]
Mianmin	North Mianmin (Wagarabai), South Mianmin
Ngalum	Apmisibil, Ngalum, Sibil
Telefol	Feramin, Telefol (Telefolmin)
Tifal	(Lower) Atbalmin, Busilmin, Tifal (Tifalmin)

<sup>39</sup> The Mountain Ok subset was Bimin, Faiwol, Telefol, Tifalmin and South Mianmin (=East Mianmin).

<sup>40</sup> Despite what Voorhoeve (1975a: 381) says, Healey made no attempt to reconstruct Proto Ok.

<sup>41</sup> Tifalmin-Ulapmin is posited as a Tifal dialect by Healey (1964a: 40).

*Table 19. Mountain Ok languages according to Eth05*

Language	Alternate names	Dialects
Bimin		
Faiwol	Faiwolmin, Fegolmin, Kauwol, Kawol, Unkia	Ankiyakmin, Wopkeimin
Nakai		
Ngalum	Kiwi,* Sibil	Apmisibil, Ngalum, Sibil
Setaman		
Mian	Mianmin	Mianmin, Upper August, Usage
Suganga†	North Mianmin, Wagarabai	
Telefol	Teleefool, Telefolmin, Telefomin	Feramin, Telefol
Tifal	Tifalmin	Asbalmin, Tifal
Urapmin‡		

\* Carrington 1996; † Said to be mutually intelligible with Mian; ‡ Said to be ‘geographically and linguistically’ between Tifal and Telefol.

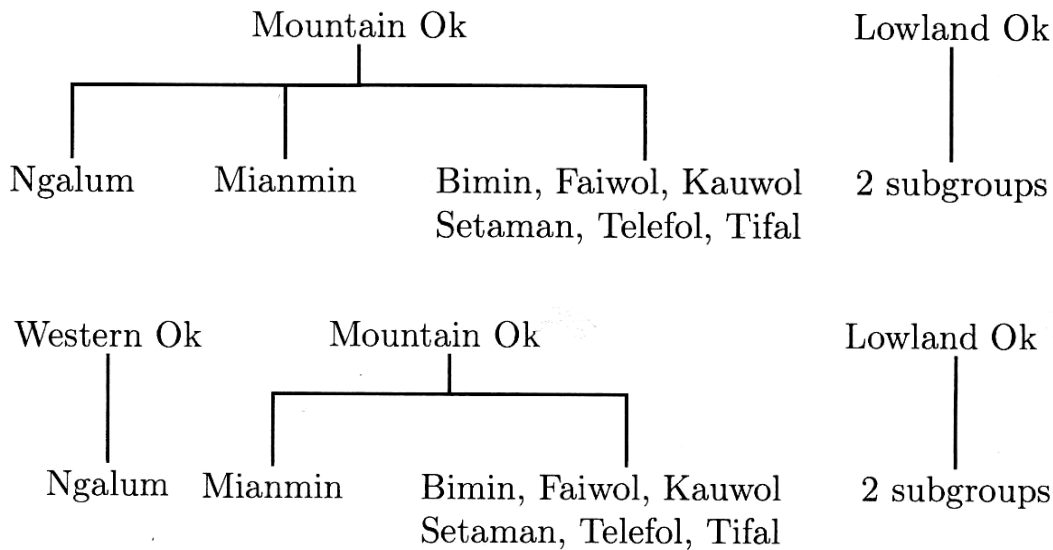
Healey recognized five minimal subgroups within the Ok family and proposed two different classifications of them (1964a: 38f).<sup>42</sup> The alternate classifications reflect his uncertainty, due to limited data, about where to place Ngalum.

In the first classification there are two branches, Mountain Ok and Lowland Ok, the former with three minimal subgroups, the latter with two; in the second classification there are three branches, with Ngalum in a separate group (**Figure 9**).

Healey doesn’t recognize either classification as definitive but finds the second to be slightly better supported by his lexicostatistical and comparative work (1964a: 102f, 189). However, the classification with two branches (Mountain Ok/Lowland Ok) has become accepted, apparently following the summary of Healey’s work in Voorhoeve (1975a).<sup>43</sup>

<sup>42</sup> The five groups he refers to as ‘divisions’. They comprise groups of languages which he does not further divide, hence ‘minimal subgroup’ appears to be an appropriate term.

<sup>43</sup> Voorhoeve had access to some additional Ngalum data, not available to Healey, which perhaps was decisive.



*Figure 9. Alternative classifications of the Ok Family of languages*

## 7.2 The Mountain Ok languages

This section provides information on each Mountain Ok language in the study. In the bibliographical listings, material deemed not useful in the current context, or which is very old, limited or unavailable, has not necessarily been included. More complete bibliographies are available in Carrington 1996 and Hays 1990 and 2003–04, together with Eth05. References marked with ‡ have not been sighted. Voorhoeve 1975a and LAP are published sources of information on each of the languages but they largely summarise the material in Healey 1964a. Where they simply fill that role, mention of them is suppressed below.

### **Bimin**

Bimin is spoken in Sandaun and Western Provinces in the region between the Murray and Strickland rivers (Healey 1964a: 42). The population (1991 SIL) was 2,000. The language is said to be related to Faiwol but there is ‘much intermarriage and cultural exchange with Oksapmin’ (information from Eth05).

*References:* The primary source of published information on the language is Healey 1964a. Unpublished SIL language materials are Healey nd‡ and Weber & Weber 1992‡. There appears to be no ongoing work. There are a number of publications on Bimin-Kuskusmin society by Fitz John Porter Poole, an anthropologist. Poole 1976 contains a Bimin-Kuskusmin glossary of about 1500 words.

## **Faiwol**

Faiwol is spoken at the headwaters of the Fly, Palmer (Wok Luap) and Murray (Wangop and Sey) rivers in Western Province. The population (1987 SIL) is 4,500 (Information from Eth05). As noted elsewhere, there is dispute as to whether Setaman<sup>44</sup> is a separate language or a dialect of Faiwol (see **Appendix 9.2**). From Ok Menga in the west to the Wangop and Sey in the east, there is probably what could be described best as a dialect chain.

*References:* Published sources of information on the language are Healey 1964a and Mecklenburg 1974. Unpublished SIL material includes Healey & Healey 1966‡, F. Mecklenburg 1969 and 1970‡, Mecklenburg & Mecklenburg 1967, 1970, 1974‡ and 1977.

## **Kauwol**

In 1964, Kauwol was estimated to have as many as 500 speakers in the upper Kauwol valley in West Papua and PNG (Healey 1964a: 41). There is no independent entry for the language in Eth05, where ‘Kauwol’ is listed as an alternate name for another Ok language, Faiwol.<sup>45</sup>

*References:* The only significant source of information on Kauwol per se is Healey (1964a) (based on a wordlist of 60 items).

## **Mianmin**

Mianmin is spoken in Sandaun Province, in a territory bordered on the west by the Sepik River and extending from the headwaters of the August River in the west to the upper May River in the east. The population (1981 LAP) was 2,200. Eth05 has separate (language-level) entries for the ‘mutually intelligible’ Mianmin dialects Suganga (North or West Mianmin) and Mian (South or East Mianmin).

*References:* SIL work and publication has focused on the latter. Published sources on Mianmin include Clifton (1988)‡, Healey (1964a), Laycock (1973) (village lists), Smith (1977), Smith and Weston (1974a, b) and Weston (1977). Unpublished SIL materials are Smith (1971)‡, Smith and Weston (1970, 1971, 1979, 1987)‡ and Weston (1971)‡.

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<sup>44</sup> **B. Craig:** Note that Setaman should be ‘Sel [River] valley’ (Sel-taman but, locally, Sel-bang) and the people therefore should be referred to as the Seltamanmin; the name chosen for the language is a corruption of this terminology.

<sup>45</sup> **B. Craig:** Kauwol as an alternate name for Faiwol is inappropriate, as the people of the Kauwol River valley are a quite small group compared to the much larger populations speaking Faiwol on the headwaters of the Fly and Palmer rivers to the east. Evidence presented in **Appendix 9.2** suggests that Kauwol is a dialect of Tifal.



## **Ngalum**

Ngalum is spoken in [West] Papua, north of the central range in and around the Nangul—Ip River valley, in the headwaters of the Ok Silka-Kloof River, and in and around the Sibil Valley at the headwaters of the Digul River. Healey (1964a: 43) provides an estimate of 15,000 for all Ngalum speakers, 3000 of these being speakers of the Sibil dialect. LAP (1981) gives the following population figures: 10,000? for ‘Ngalum proper’, 4,000? for the ‘Apmisibil’ dialect and 4000 for the ‘Sibil’ dialect.<sup>46</sup>

*References:* There is little available information on Ngalum. Hays 2003 has bibliographical notes; other sources are Conrad & Dye 1975, Healey 1964a, Silzer & Heikkinen 1984 and Voorhoeve 1975a, b.

## **Telefol**

Telefol is spoken in the vicinity of Telefomin, in Sandaun Province. Eth05 has a population figure of 5,400 (1994 SIL). According to Healey and Healey (1977: iv), Telefol has two main dialects: Southern, spoken by the Feramin (Falamin) group at the very source of the Sepik River and Northern, spoken by the group of people called Telefolmin, which includes the people of the Ifi valley (Ifitaman) where the administrative centre of Telefomin is located, of the Elip valley (Eliptaman) to the north, and of Ninataman further to the north-east around the headwaters of the Frieda River. The extensive research done by the SIL team of Alan and Phyllis Healey has focused on the northern dialect.

*References:* Of the large amount of available material, only published work is listed here (with the exception of Healey 1964a). A. Healey 1964b, 1974; P. Healey 1965a, b, c, d, 1966; Healey & Healey 1977; Laycock 1973 (includes village lists).

## **Tifal**

Tifal is spoken by the Tifalmin in the Ilam valley west of Telefomin, and by the Atbalmin and Wopkeimin on the northern and southern slopes of the central range north-west and south-west of the Ilam valley, respectively, in Sandaun and Western provinces. The population (1991 SIL) was 3,200 (Information from Eth05). As noted elsewhere, there is dispute as to

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<sup>46</sup> B. Craig: I am highly sceptical of these large numbers for Ngalum speakers, especially for the main Ngalum dialect north of the central range; they are not based on reliable census data and there is nothing about the landscape to suggest a larger population than exists in similar country immediately east of the international border.

whether Kauwol is a dialect of Tifal or a separate language. The Ulapmin, located between the Telefolmin and the Tifalmin, are thought to speak a dialect of Tifal but in any case appear to be bilingual in Tifal and Telefol. Tifal is almost certainly a chain of dialects splitting to the north and south of the central range.

*References:* Published resources include Conrad & Dye 1975, Healey & Steinkraus 1972, Laycock 1973 (includes village lists) and Steinkraus 1969‡. Unpublished is Healey 1964a and the SIL materials Boush 1975 and 1979‡, Boush & Boush 1974‡ and Steinkraus 1962a, b‡.

### 7.3 Lexical comparisons

The best of Healey’s lexicostatistical comparisons (1964a: 104) uses a wordlist of 120 items.<sup>47</sup> The percentages for the Mountain Ok languages, from the 120-word comparison, are reproduced below.<sup>48</sup>

**Table 20. Lexicostatistical comparison of Mountain Ok languages (Healey 1964a: 104)**

Ngalum						
26	Mianmin N					
29	56	Mianmin S				
39	35	46	Tifalmin			
42	38	43	68	Telefol		
39	31	40	60	63	Faiwol	
32	30	39	52	57	59	Bimin

The figures are consistent with a division between the Mianmin dialects and the languages to the right of them in the table — Tifalmin, Telefol, Faiwol, Bimin. If Ngalum is left aside, the data also suggest that the closer two languages are geographically, the more similar they are lexically (allowing for greater dissimilarity between the different divisions). This is most clearly seen in the figures for Bimin, the most easterly of the languages.

Healey’s Ngalum material at the time he did this work was poor, consisting of ‘80 miscellaneous words [of the Sibil dialect] from three different sources, and a few general features mentioned to the author by Dr Anceaux’ (1964a: 41, 43). Although he included Ngalum in the 120-word table, the percentages given for it depend on comparisons of no more than 38 words and are therefore considerably less reliable than those for the other languages, where each pairwise comparison uses 99–120 words.

<sup>47</sup> A supplemented Swadesh list (1964a: 100f.)

<sup>48</sup> Kauwol and Setaman are missing; they were not included in the original. The dialect used in the comparison is in parentheses following the language name: Ngalum (Sibil), Mianmin (North & South Mianmin — Wagarabai & Mianmin in the original), Tifal (Tifalmin), Telefol (Telefol), Faiwol (Healey: Angkiakmin), Bimin (Bimin clan).

The position of Ngalum can be estimated from a later lexicostatistical study made by Conrad and Dye (1975: 31).<sup>49</sup> It includes the two Mianmin dialects<sup>50</sup> and three Tifal dialects (Lower Atbalmin, Busilmin, Tifalmin - Conrad & Dye 1975, map on page 2). The dialect of Ngalum which was used<sup>51</sup> borders North Mianmin and Lower Atbalmin. The results (**Table 21**) are based on a wordlist of 102 items.

**Table 21. Lexicostatistical comparison of some Mountain Ok languages (Conrad & Dye 1975)**

Ngalum					
11	Mianmin N				
10	78	Mianmin S			
32	23	18	Lower Atbalmin		
19	28	24	67	Busilmin	
16	33	26	57	68	Tifalmin

According to this table, Ngalum shares a much higher percentage of possible cognates with the geographically nearest Tifal dialect (Lower Atbalmin) than it does with either of the Mianmin dialects. However, the percentages between Ngalum and the Tifal dialects drop significantly with distance (Busilmin and Tifalmin being progressively further west), which is consistent with Healey's placement of Ngalum in a different subgroup from both Mianmin and Tifal.

Conrad and Dye's cognate percentage for North and South Mianmin is significantly higher, at 78%, than the 56% obtained by Healey. The discrepancy is some indication of the fallibility of the method.<sup>52</sup> In both studies the South Mianmin material was better founded than the available material for North Mianmin (Conrad & Dye 1975: 16; Healey 1964a: 42). Given their data, Conrad and Dye also regard Atbalmin, Busilmin and Tifalmin as a 'chain of closely related languages' (1975: 13), whereas they are dialects of Tifal in LAP.

<sup>49</sup> **B. Craig:** Conrad and Dye state (ibid.: 5) 'It is the authors' opinion that because of very extensive borrowing between isolects, many of the language relationships observed in Papua New Guinea are more the result of borrowing than of genetic relationships'. They are inclined therefore to classify adjoining isolects (an isolect is a language that is accorded a separate name by its speakers) as separate languages rather than as dialects of one language. This seems to be characteristic also of Eth05 classifications.

<sup>50</sup> **B. Craig:** North Mianmin (= West Mianmin) is shown on the map in Conrad & Dye (1975: 3) extending too far north to include a village named Wau, whose position corresponds to an Abau-speaking village named Wauru on a small stream named Wau. Laycock lists Wau as a Wagarabi village (1973: 50) but it isn't at all clear where this village is located. There must be some confusion that may perhaps originate in the 1970 census of Wagarabi villages on which Laycock relies.

<sup>51</sup> Ngalum proper in LAP, East Ngalum in the original.

<sup>52</sup> The current record (see **Table 19**) lists North and South Mianmin (Suganga and Mian) as mutually intelligible.

Healey's information on Kauwol was not sufficient to make a 120-word comparison.<sup>53</sup>  
 A 50-word comparison which includes Kauwol is shown below (Healey 1964a: 103).<sup>54</sup>

**Table 22. Lexicostatistical comparison of Mountain Ok languages (Healey 1964a: 103)**

	Ngalum						
40	Mianmin N						
40	78	Mianmin S					
60	23	18	Kauwol				
60	50	54	76	Tifalmin			
53	54	60	70	76	Telefol		
53	46	50	76	66	74	Faiwol	
47	44	42	66	58	62	70	Bimin

On these figures, Kauwol does belong with the Tifal group. However, as noted earlier, the language appears to have dropped out of the current record, with 'Kauwol' listed in Eth05 merely as an alternate name for Faiwol. Interestingly, in the table above, Kauwol shows the same percentage of cognates (76%) with Faiwol, from which it is separated geographically, as it does with its neighbour Tifal (but see Footnote 45).

#### 7.4 Phonology and morphology

The Mountain Ok languages have very similar phonologies. Each has the five phonemic vowels /i u e o a/ (Mecklenburg 1974, Voorhoeve 1975a, Weston 1977). Consonant phonemes for the languages of the current study are given in **Table 23**.

**Table 23. Mountain Ok consonant phonemes**

Ngalum*	p	b	t	d	k		g	m	n	ŋ	l	f	s			
Mianmin N	p		t	d	k			m	n	ŋ	l	f	s	h	w	y
Mianmin S <sup>†</sup>		b	t	d	k		g	m	n	ŋ	l	f	s	h	w	y
Tifal		b	t	d	k			m	n	ŋ	l	f	s		w	y
Telefol <sup>‡</sup>		b	t	d	k	k <sup>w</sup>		m	n	ŋ	l	f	s			
Faiwol <sup>§</sup>		b	t	d	k		g	m	n		l	f	s		w	y
Bimin		b	t	r	k	k <sup>w</sup>	g	g <sup>w</sup>	m	n	ŋ		f	s	w	y

Sources: Faiwol, Mecklenburg (1974: 144); Mianmin S, Weston (1977); Tifal Steinkraus (1969); the rest, Voorhoeve (1975a).

\* Ngalum phonemes are tentative.

<sup>†</sup> Here [k<sup>w</sup>] and [g<sup>w</sup>] are interpreted as consonant clusters.

<sup>‡</sup> Also Kauwol.

<sup>§</sup> Here [ŋ] is an allophone of /g/.

<sup>53</sup> He had a list of only 60 items (Healey 1964a: 41).

<sup>54</sup> The dialects used in the comparison are listed in Footnote 47.

The languages which deviate most from the overall pattern of consonants are those for which the data is the most uncertain, i.e. Ngalum, North Mianmin and Bimin. Both Mianmin dialects are notable for the presence of /h/, which the other languages lack. Healey (1964a) identified a large number of morphosyntactic similarities between the Ok languages. From amongst these, a pronominal paradigm (**Table 24**) and a partial tense paradigm (**Table 25**) are shown as instances of the closeness of these languages.

**Table 24. Ok pronoun roots**

Language	1s	2sm	2sf	3sm	3sf	1p*	2p	3p
<i>Mountain Ok</i>								
Mianmin S <sup>†</sup>	ne	keb	ob	e	o	ni/nib	ib	i
Tifal	n(a,e,i)-	kab-	kub-	a-	u-	n(u,uu,o)-	kib-	i-/ib-
Telefol	ná-/ní-	káb-	kúb-	í-/yá-	ó/-ú	nó/-nú	íb-	í-
Faiwol	na-	kaw-	kuw-	a-	u-	nu-	kiw-	iw-
Bimin	ne	kab-/koo-	ku/koo-	e	u	nuu	yuu/yoo-	i
<i>Lowland Ok</i>								
Kati N	ne	tep	tup	ye	yu	nup	tip	yi
Kati S	ne	eb	kub	ye	yu	nub	kib/yib	yi
Ninggirum	ne	keb/kyeb	kub	de	du	ni/nib	dib	di

Source: Faiwol, Mecklenburg and Mecklenburg (1977: 61); Mianmin, Smith and Weston (1974b: 47ff); Telefol, Healey (1965c: 31); Tifal, Healey and Steinkraus (1972); the rest, Healey (1964a: 67).

\* Mia & Nin ni exclusive, nib inclusive.

† These are the possessive pronouns.

A gender distinction between masculine and feminine pronominal forms, such as occurs in **Table 24**, is rare in TNG languages, and the extension of the distinction to both second and third person forms is exceptional in the TNG phylum (Ross, in *prepa*).<sup>55</sup> At least the second person gender distinction is ‘virtually certain’ to be the result of contact with non-TNG languages of the upper Sepik,<sup>56</sup> according to Ross.

<sup>55</sup> These unusual features occur also in the Lowland Ok languages.

<sup>56</sup> Such as Abau and Iwam, which border Mianmin and are Sepik languages in LAP.

**Table 25. Some Mountain Ok tense markers**

Language	Past			Present <sup>‡</sup>	Future <sup>§</sup>
	Far	Simple*	Near <sup>†</sup>		
Mianmin S	-bio		-b/-so	-o/-∅	-amab/-omab
Tifal	a. -bii-s	-s/-so(m/l)	-b		-akob/-akom, -o(l)/-mo(l)
	b.	-s		-b	
Telefol	-s	-mans	-b	-b	-antem
Faiwol	-bis	-s	-b	-b/-∅	-okab/-om
Bimin		-s		-b	-ok/-om

Sources: Faiwol, Mecklenburg and Mecklenburg (1977: 17ff); Mianmin, Smith (1977); Tifal, Healey and Steinkraus (1972); the rest, Healey (1964a: 73f).

Note: Some of the languages have other ‘tense’ markers which are not listed. It is possible that some markers belong to different sets, as in the case of the two Tifal sets shown.

\* Fai -s, intermediate pst; Tif -so, Tel -mans, yesterday pst.

† Tel -b, punctiliar.

‡ Bim -b, continuative; Fai -b, stative; Mia -∅, punctiliar; Tel -b, continuative.

§ Bim -om, desiderative; Fai -okab, certain, or conditional on another event, -om, potential; Mia -amab/-omab, sg/pl; Tif -akob/-akom, remote/near fut, -o/-mo, tomorrow fut.

## 7.5 Discussion

Thanks to Healey, Mountain Ok is a well-established subgroup of the Ok family, but the precise boundaries of the subgroup and its internal grouping remain to be established. With respect to the subgroup’s boundaries, the information available for Ngalum wasn’t sufficient for Healey to place it firmly within Mountain Ok, and there seems to have been little advance on that since his work was carried out.

The core of the subgroup is comprised of Tifal, Telefol, Faiwol and probably Bimin. The material which has been surveyed here indicates that Mianmin differs more from the core languages than they do from one another. As for Kauwol, the published information is poor; the weight of evidence suggests it is a dialect of Tifal.

For the purposes of the current study, a value  $\geq 4$  can be assigned to any pair of Mountain Ok languages. The languages belong to the same subgroup (with some uncertainty about Ngalum), they are clearly not very disparate and they have significant systematic and close similarities in a number of subsystems.

To reflect the closeness of the languages, a value of 5 (the highest for non-dialect pairs) is given to most pairs in the table below. The figures set both Ngalum and Mianmin apart. The value of 5/6 given for Kauwol with Faiwol marks the uncertainty of Kauwol's status.

**Table 26. Scale of relatedness of Mountain Ok languages**

Ngalum						
4	Mianmin					
4	4	Kauwol				
4	4	5	Tifal			
4	4	5	5	Telefol		
4	4	5/6	5	5	Faiwol	
4	4	5	5	5	5	Bimin

There are ten Mountain Ok dialect names given in LAP (see **Table 18**). Of these dialects, North and South Mianmin (Suganga and Mian) are said in Eth05 merely to be ‘mutually intelligible’. No information is available on the closeness of the three dialects of Ngalum. Feramin and Telefol are the ‘main dialects’ of the Telefol language, within each of which there are smaller dialectal variations (Healey & Healey 1977: iv). Definitive information on the closeness of the Tifal dialects is not available.

Here, any pair of these dialects within the same language is classed as well-differentiated, i.e. as having a comparative value of 6. This is a conservative figure, pending further evidence.

### 7.5 Oksapmin

Oksapmin is spoken in the far south-western corner of Sandaun Province between the Om River in the north, the Strickland in the east and the border with Western Province in the south. Neighbouring languages are the Ok family (south and west), Duranmin (north-west), the Sepik Hill family (north and north-east) and Duna (south-east) (Information from LAP). Eth05 reports a population of 8,000 (1991 SIL).

In LAP, Oksapmin is classified as a subphylum-level isolate of the TNG phylum. The term ‘subphylum’ denotes a group which is markedly different from the rest of a phylum, either because it is more distantly related, or because it has ‘special characteristics’ which set it apart (Wurm & McElhanon 1975: 154). Oksapmin appears to wear the tag because of lack of evidence of relationship, not because it was perceived to be unusual ‘structurally and typologically’ in any very marked way (ibid.: 161).

Healey (1964a) found that Oksapmin and the Ok family had shared lexical resemblances in the range of 3–17%, which he attributed to extensive borrowing by Oksapmin from its nearest Ok neighbour, Bimin (17%). The percentages decrease with distance (Lowland Ok 3%). More recently, however, Ross (in *prepa*: 155) has recognized that a subset of Oksapmin pronouns (1sg, 2sg, 3sg msc, 3sg fem, 1pl exc) reflect Proto Trans New Guinea forms. He notes that ‘Oksapmin is an apparent isolate, but evidently belongs to the TNG family’. Osmond et al. (in *prep*: 51) say that the pronominal evidence suggests that Oksapmin is TNG, and they note two additional possible pTNG reflexes, *huteema* ‘night’ (\*k(i,u)tuma) and *idaat* ‘tree’ (\*inda).

Because Yuri/Karkar is one of the language groups in the current study, it is necessary to note that Laycock had speculated upon the possibility of a relationship between Oksapmin and ‘a Sepik isolate such as Yuri’ (our emphasis), and conversely that Yuri ‘may turn out to be related to Oksapmin’ (Laycock, 1973: 51f). This idea was prompted by perceived typological similarities (Laycock 1975a: 882). As noted above, it was not taken up in LAP.

For our purposes Oksapmin is assessed as a member of the TNG phylum. It is therefore distantly related to the Ok languages and pairwise comparison with them is given a value of 2. There is no evidence of a relationship to any other language of the study, which corresponds to a value of 1. According to Healey (1964a: 108), there are several Oksapmin dialects. Nothing further is known. Pairwise comparison is given a value of 6, the minimum for dialects of the same language.

*References:* Healey 1964a; Hemmilä 1998; Lawrence, M. 1971, 1972a, 1972b, 1977a, 1977b, 1987, 1993; Osmond et al. in *prep*.; Ross in *prepa*; Wurm & McElhanon 1975; Laycock 1973 (includes village lists); Longacre 1972 (includes Oksapmin texts); Boram & Lawrence 1977‡; Lawrence, H. 1972‡. (‡ = not sighted).

## **8. Isolates/Ungrouped**

### **8.1 Busa**

Busa is spoken in the Amanab district of Sandaun Province, in territory on the course of the Bapi (Hordern) River, a northern tributary of the upper Sepik River. The population in the 2000 census was 244. The neighbouring languages are Biaka (north-west), Nagatman/Yale (north), Namie (east) and Abau (south) (Eth05, LAP). Alternate names are given in **Table 27**.



*Table 27: Busa, Yuri/Karkar and Nagatman/Yale*

Language	Alternate names	Dialects
Busa*	Busan, Odiai, Uriai	
Yuri/Karkar	Karkar, Yuri	Auia-Tarauwi, North-central, Usari
Nagatman/Yale	Nagat(i)man, Yade, Yarë	Two unnamed

Loving and Bass (1964) placed Busa in a small phylum with Amto,<sup>57</sup> on the basis of the comparison in **Table 28**, which found 8% resemblant forms for this pair of languages. A 7% resemblance to Biaka was probably discounted because it is not reflected in the figures for Busa versus other Kwomtari languages.<sup>58</sup> A subsequent survey by Conrad and Dye (1975) found only a 4% resemblance between Busa (Busan) and Amto. The results of their survey are shown in **Table 29**. Pending better data, Laycock (1973: 52; 1975a: 883) preferred to leave Busa as an isolate, which is how it is recorded in LAP. He did notice a typological similarity to the Torricelli languages but no lexical similarities.

It remains the case that there is insufficient data available for classifying Busa. In the absence of evidence to the contrary, it is given a value of 1 with respect to every other language in the current study, indicating no genetic affiliation. As to dialects, Graham (1981: 6f) found no differences between the three Busa villages.<sup>59</sup>

*References:* There is little available information on Busa. The entry in Eth05 cites only Graham (1981); LAP depends on the other works listed below. Laycock (nd) contains some Busa material but this has not been sighted. Conrad & Dye 1975 (includes wordlist); Laycock 1973, 1975a; Loving & Bass 1964.

## 8.2 Yuri /Karkar

Yuri/Karkar is spoken in Sandaun Province along the middle course of the Green River, a northern tributary of the upper Sepik River. The western edge of the Yuri/Karkar territory is at the border with [West] Papua. Eth05 gives the population as 1,142 (1994 SIL).

Neighbouring languages are Emumu (west), the Senagi family (north and east), Abau (south), Pyu (south-west) (Information from LAP). For alternate names and dialects, see **Table 27**.

<sup>57</sup> According to Laycock (1975a: 883), this was the first mention of Busa.

<sup>58</sup> In the sample, Baibai, Fas and Kwomtari, each with a 3% resemblance to Busa.

<sup>59</sup> Graham says there are three Busa villages, Auya, Busa and Rawei. Laycock (1973: 52) has an extra village name, Birimei, which is not marked on any official maps.

Yuri/Karkar was included in Loving and Bass's survey of the Amanab subdistrict, as Yuri (Loving & Bass 1964). The greatest lexical similarity they found for it was 3% with Kwomtari (see **Table 28**) and they accordingly list it as having no known relationships. Laycock (1975a: 882) notes a typological similarity to the languages of the Ok family but no lexical resemblance. As mentioned in Section 7.2 he also suggested a possible relationship to Oksapmin on typological grounds. More recently, Ross (in prep*b*: 60) has found nothing in the Yuri/Karkar pronominal system to suggest any external relationships (see also **Section 8.3**). Price (1985: 3) mentions the possibility of a connection with some unspecified languages of [West] Papua but says no more than that.

Yuri/Karkar is given a comparative value of 1, indicating no known relationships. Eth05 lists three dialects, Auia-Tarauwi, North Central Yuri and Usari but with no supporting data. The dialects are arbitrarily taken to be well-differentiated with a comparative value of 6.

*References:* Laycock 1973, 1975a (with village lists); Loving & Bass 1964; Ross (in prep*b*). Unpublished SIL materials are Price 1985; Price & Rigden 1988, 1978; Price 1975, 1978a, 1978b, 1981, 1982, 1987, nd‡; and Rigden 1986a, b, c‡. (‡ = not sighted).

### **8.3 Nagatman/Yale**

Nogatman is spoken in Sandaun Province in territory between the Hordern and Wuro Rivers, which are northern tributaries of the upper Sepik River. Neighbouring languages are Biaka (west), Amanab (north-west), Kwomtari (north), Namie (east) and Busa (south) (Information from LAP). Eth05 has a population figure of 600 (1991 SIL). Alternate names are given in **Table 27**.

According to Laycock (1975a: 883), Nagatman was first mentioned by Loving and Bass (1964), in their survey report of the Amanab subdistrict. They found no similarity above 2% between it and the other languages of their survey (see **Table 28**). The later survey of Conrad and Dye (1975) found a 5% resemblance between Nagatman/Yale and its eastern neighbour Namie, and between Nagatman/Yale and Abelam, 150km to the east. The authors record these results, reproduced in **Table 29**, without comment.

Nagatman is one of a group of Sepik languages which are classified as isolates in LAP, and which also includes Busa and Yuri/Karkar. Laycock (1975a: 881) says of this group,

. . . the isolates have, in most cases, been carefully compared with representative languages of all major groups in a radius of about a hundred miles, and with each other, and to date show no traits which would allow them to be included in larger groupings.

It should be noted that Laycock's knowledge of these languages was limited, in the case of Yale to some field notes and Conrad and Dye's short wordlist (Laycock 1975a: 883).<sup>60</sup>

However, although more material is now available for Yale and Yuri/Karkar, no progress has been made in identifying their wider relationships. Ross (in prep*b*: 60) says that neither has 'a detectable relationship to any other language'.

Yale is given a value of 1 in comparison to the other languages of the present study, reflecting its ungrouped status. Within the language there are no significant dialectal differences (Campbell & Campbell 1997; Graham 1981: 186).<sup>61</sup>

*References:* Conrad & Dye 1975; Graham 1981; Laycock 1973, 1975a; Loving & Bass 1964; Ross (in prep*b*). Unpublished SIL materials are Campbell & Campbell 1987, 1990, 1997.

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<sup>60</sup> He says of Yale, 'The language has some nasal vowels [not phonemic], and marks subject concordance by suffixes unrelated to the free pronoun forms [yes]; there is no gender [no], no dual [yes], and no morphological marking of plural in nouns [some restricted marking]. Numeration is quinary [yes].' The judgements in square brackets are based on the material in Campbell & Campbell 1987, 1997.

<sup>61</sup> Eth05 says 'two very similar dialects'.



## **9.2 Appendix: Data relating to Tifal and Faiwol language boundaries (by B. Craig)**

This appendix includes notes and commentary from various sources, including observations by me during the Australian Star Mountains Expedition of 1965 (ASME 1965), relating to the status of Kauwol as a separate language or a dialect of Tifal, the boundary between the Tifal-speaking Atbalmin and the Ngalum north of the Star Mountains, the status of Setaman as a separate language or a dialect of Faiwol, and the eastern boundary of Faiwol with Bimin.

### **9.2.1 Kauwol**

A number of commentators have remarked on the paucity of information about the language spoken by the people of the Kauwol headwaters in PNG. Some have related it to Faiwol rather than Tifal; others state it is a distinct language. During the ASME 1965, I was based at Kawolabip for four weeks in March-April 1965. At Alan Healey's request, I agreed to gather linguistic data while I was in the Star Mountains area. I recorded a vocabulary of 51 words (based on Healey 1964a: 78-88, Table 6) at the Tifal-speaking Wopkeimin hamlets of Atembip (Atemin) and Fololongabip (Oyamtabip) on the headwaters of the Ok Tedi (19 kilometres due north of Tabubil), at the ASME 1965 base camp Kawolabip (Suoulameng or Kabodabip) on the headwaters of the Kauwol River (19 kilometres NW of Tabubil), and from a visitor to Kawolabip who came from Deijulbilabip (Daijorbit) on the Fatik River 16 kilometres east of Kawolabip and just three kilometres west of the International border.<sup>62</sup>

The cognates between a vocabulary of 51 words at Atembip and Kawolabip were 42 of 48 comparisons (87.5%) plus 3 words disqualified as likely misunderstandings. These three words were 'chest' (confusion with 'heart?'), 'egg' and 'head louse'. The cognates between a vocabulary of 55 words at Kawolabip and Deijulbilabip were 44 of 50 comparisons (88%) plus 5 words disqualified as likely misunderstandings. These five words were 'back', 'hand (confusion with 'palm of hand?'), 'fire' (confusion with word for 'matches?'), 'cassowary' (confusion over generic or species name?), 'head louse', and 'path'.

Comparison of the vocabulary of 50 Kauwol words in Healey's Table 6 with the vocabulary I recorded for those same words indicates five significantly different results and one

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<sup>62</sup> **Caveat:** I am not a trained linguist (despite the best efforts of Arthur Capell at the University of Sydney in 1958); in 1965 I was not fully aware of the complexities of such an apparently simple task of recording a basic vocabulary; there could have been some influence on the results by my use of a Tifalmin interpreter to elicit data.

disqualification ('head louse'). If my results are preferred, the number of cognates between the Kauwol vocabulary I recorded and the Wopkeimin vocabulary<sup>63</sup> listed by Healey in Table 6 is increased from 40 to 44 out of 49 (excluding 'head louse') and therefore 90%. Healey's cognates between Tifalmin-Tifal and Kauwol number 38, therefore 76%; if my results are preferred, the number increases to 41 out of 49, therefore 84%.

In March 1965, I recorded that Deijulbilabip is a hamlet of the Fatiktamanmin and Kawolabip informants said their language differs from that of the Fatik valley people; the boundary follows the Ban (Bun) River, a tributary of the Kauwol, which flows from PNG territory into Indonesian territory. This was confirmed by Tabloiyeng, a visitor from Deijulbilabip to Kawolabip, who provided the above-cited vocabulary. West of the Fatik valley, the people of the Iwul (Iwoer) headwaters are called the Kufelmin. Previously, the people of the Kauwol valley fought with the people of the Fatik valley and their allies, the Kufelmin.

The Kauwol valley people say they originated at Telefolabip (the Telefol village, Telefolip), moving to Bultemabip (located c.12 kilometres ENE of Tabubil) then spread out from there. This connection to Bultemabip is demonstrated by attendances at the four stages of male initiation. Of 16 men surveyed, for the first stage (*dakasalban*), four went to Bultem and the others attended locally. For the second stage (*selban* = *mafumban*), three went to Bultem and the others attended locally. For the third stage (*osban* = *otban*), all sixteen went to Bultem. For the fourth stage (*unban*), nine went to Imigabip, the Faiwol ritual centre, three attended a closer Faiwol ritual centre, one attended an Atbalmin ritual centre when he was on a trade visit, and three had not been through that ceremony. The men claimed that they could only go through the *osban* at Bultem - no other place - and the *unban* was performed only among the Faiwol, not at Bultem. Of two east Wopkeimin and seven Tifalmin men surveyed, three had gone to Imigabip for the *unban*, one had attended the ceremony at a Tifalmin village and the others had not gone through it. I was informed that the Wopkeimin and Faiwol-speaking Fegolmin were always allies; likewise the Wopkeimin and Tifalmin were always allies.

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<sup>63</sup> With one exception: the word for 'fire' noted by Healey for TW (Wopkeimin dialect of Tifal) is *weng/wieng*. At the Wopkeimin village of Atembip, I was given *as* for 'fire' and *weng* for 'matches'; *waing* is recorded by Healey as 'fire' for the Gipman Faiwol and *weng* is 'fire' among the Bimin (see Poole 1976: 2142). This discontinuous distribution of *weng* cognates suggests some confusion and thus better to accept *as* for 'fire' among the Wopkeimin, as I recorded at Atembip and Kawolabip.

My impression then, supported by admittedly questionable data, is that the languages spoken by the Tifalmin, the Wopkeimin and the peoples of the Kauwol and Fatik valleys represent a dialect chain of Tifal. The relationship to the language spoken by the Kufelmin further to the west is unclear due to lack of data but presumably it is the language, or a dialect of the language, spoken by the people of the Sibil Valley.

### **9.2.2 The Tifal—Ngalum boundary**

There is conflicting information about where the boundary lies between the Tifal-speaking Atbalmin and the Ngalum speakers west of them. There are also highly suspect population figures given for Ngalum speakers (18,000), especially for Ngalum speakers said to be resident in PNG (8000 — see LAP and Eth05).

The map in Conrad & Dye (1975: 2 - see **Figure 10** here) shows East Ngalum extending about 10 km into Papua New Guinea between the Smol and Nim Rivers. My examination of official maps and my 1983 field notes from when I was briefly in that area (see **Figure 11**) indicate that their Smol River is the Taknip and their Nim River is the Al. The Nim (named Matim on the 1979 1:100,000 map) is the river, next west of the Taknip, on which the PNG ‘Police Post’ Tumolbil is located (and is probably where Conrad and Dye sampled ‘Lower Atbalmin’) and the Smol is the significant river next west, well inside Indonesian territory.

Busilmin territory is south and south-east of the ‘Lower Atbalmin’ villages. During two weeks in April at the ASME 1965 base camp on the upper Din, I noted Busilmin settlements there and on the headwaters of the Al River. Other Tifal-speaking Atbalmin settlements continue eastwards along the northern slopes of the central range to a point opposite the Elip—Sepik junction. From there, east of the Sepik River are the Telefol speakers of Ifitaman and Eliptaman.

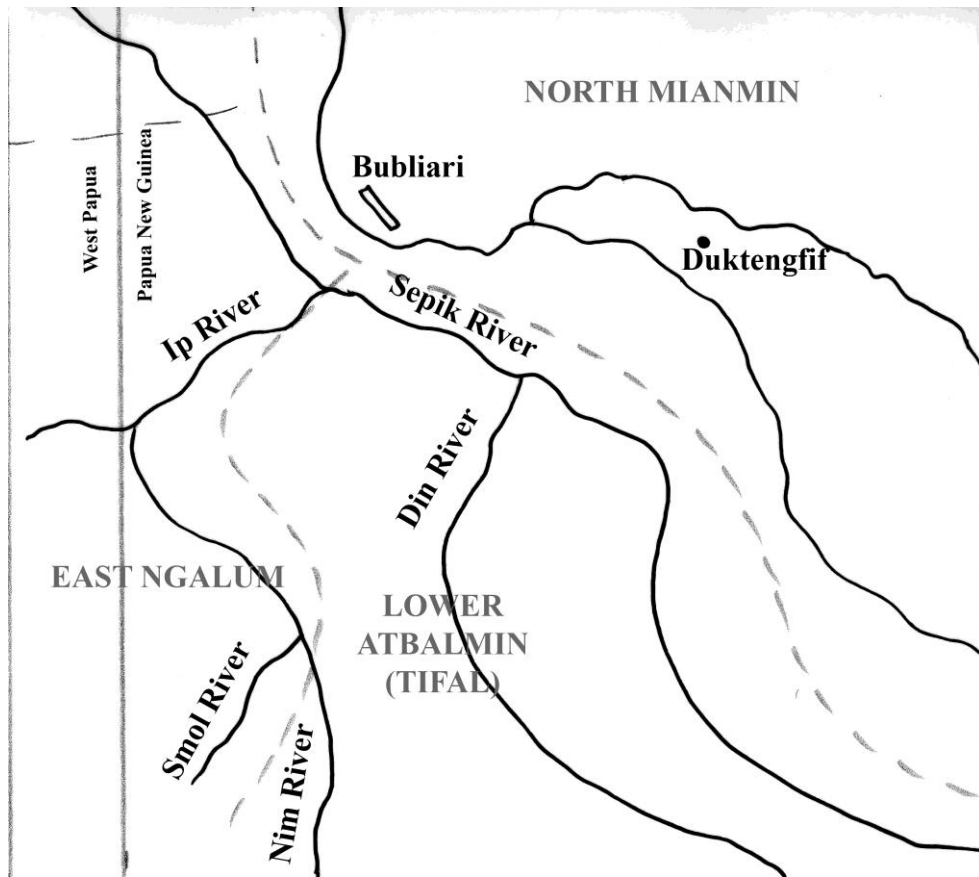


Figure 10. Map of East Ngalum/Lower Atbalmin (Tifal) and North Mianmin boundaries (after Conrad & Dye 1975: 2)

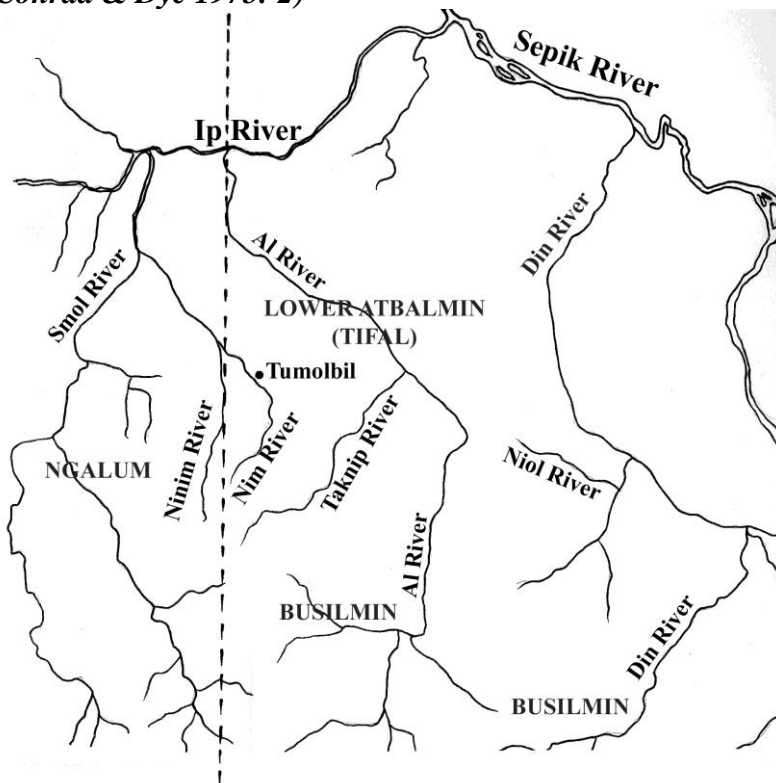


Figure 11. Map of Atbalmin Border area, based on 1:100,000 map (Yapsiei, Sheet 7188 (Edition 1) Series T601, 1979)



Other evidence is provided by Eytan Bercovitch (pers. comm. 16 July 2011) who did anthropological research among the Atbalmin of the Niol River in the first half of the 1980s:

‘The line demarcating the Tifal and Ngalum languages follows the International boundary fairly closely north of the divide. The main exceptions I know are:

--at least into the 1980s, a population of 100-200 (estimated) Tifal speakers living in the upper Samol [Smol] River area, well west of the [international] border [B. Craig: that would be immediately west of the Busilmin settlements of the upper Al River]. All the ones I met could also speak Ngalum;

--larger numbers of Ngalum speakers moving into the [international] border area, in response to the airstrip at Tumolbil (school especially) and conflicts with Indonesia.

‘The exact [language] border is always mixed up by inter-marriage so that some places are almost hybrid. [The boundary] would appear to have been further east originally based on oral historical evidence (the area where I worked [on the Niol River] was [previously] in the Ngalum speaking sphere for example).’

It is likely that Atbalmin groups moved north and west from the Ilam valley of the Tifalmin hundreds of years ago and pushed Ngalum speakers from their territories in the Din Valley to the present International Border. Alan Healey (pers. comm. 21 July 1965) estimated on the basis of cognate percentages that the eastern Atbalmin split from the Tifalmin around 600 years ago (87% cognates). The cognate percentage for Busilmin/Tifal (above 80%) suggests a split 700 years ago.<sup>64</sup>

The population figures for Ngalum — 10,000 in [West] Papua and 8000 in PNG (see LAP and Eth05) — are highly suspect. In particular, since the boundary for Ngalum speakers, as demonstrated above, is approximately at the International Border, there cannot possibly be 8000 such speakers in PNG. Even the Tifal-speaking Atbalmin numbered just 2000 in the mid-1960s according to Government patrols and were reported by Eytan Bercovitch (1989: 4) as about 3000 in the mid-1980s.

Eytan Bercovitch email, 20 July 2011:

‘I estimate that there were no more than 500 Ngalum speakers in PNG in the period when I worked there (up until 1986). This includes people who came to live temporarily

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<sup>64</sup> Healey was careful to acknowledge the lack of agreement among linguists on the validity and reliability of the methodology of lexicostatistics and therefore the tentative nature of his speculations.

because of the school. But the numbers were growing since the Ngalum speakers in neighboring areas were seeking ties to PNG lands due to the perception that this was a more favorable place for them (they were sending kids to the Telefomin high school by the late 1980s).

‘The immigrants drew on ancestral ties, best done through recent marriage though some tried also to use historical migration stories. The result was that the Tumolbil area was gradually becoming more Ngalum than Tifal-speaking in terms of the actual population there. Tifal speakers were definitely of mixed minds about this...’

It would appear then that the Ngalum/Tifal language boundary has been changing over the past several hundred years and at around the time of first contact by the Australian administration, ran approximately along the present International Border. Due to the presence of an airstrip, school and other services at Tumolbil, the retreat by the Ngalum has reversed. For the purposes of the USCNG Project, we will consider the boundary as in the 1960s to be along the International border.

### **9.2.3 Setaman and the Faiwol–Bimin boundary**

Setaman is the name given by some researchers to the language spoken by people living at the headwaters of the Murray River. Three settlements are named at that location on the 1979 1:100,000 map (Sheet 7287, Edition 1, Series T601): ‘Selbang’,<sup>65</sup> ‘Poptomin’ (= O’optomin on earlier maps) and ‘Awonkalinmin’. Around 12 kilometres south-east of Selbang, another two settlements, ‘Yasubip’ and ‘Seltamin (Kirapgubip)’, are marked on the southern side of the ‘Wangop River’. The people of settlements in this general area are referred to by the Faiwol-speaking Angkeiakmin of Bolovip as Sel-taman-min (Sel-valley-people). There is, however, uncertainty about which settlements belong to these Seltamanmin.

Fredrik Barth did research among the Baktaman (ie. Baktamanmin) in 1968. He states (1975: 16):

All Baktaman speech takes place in the Seltaman dialect of the Faiwol language or dialect chain . . . by means of this dialect a person can communicate more or less fluently with perhaps 1000 speakers of the same or closely similar dialects, residing in 6 – 8 territorially and politically distinct communities.

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<sup>65</sup> Sel-bang = Sel-river in the Bimin language of the Kwermin (Eggertsson, pers. comm. 3 August 2011).

Barth does not provide maps with sufficient detail to resolve the above uncertainty about the exact location of Seltaman-speaking settlements or even to definitively locate the Baktaman (see map, Barth 1975: 23). However there is a settlement marked 'Baktamin' on the 1:100,000 official map about seven kilometres east of 'Seltamin' on the southern side of the 'Wangop River' that Sveinn Eggertsson, who did research in the early 1990s among the Kwermin on the eastern side of the Murray River, confirms is the correct location of the Baktaman settlements. Eggertsson provides a map (2003: 16) that locates the Baktaman opposite the Kwermin on the western side of the Murray River but in that publication does not clarify whether 'Seltaman', 'Selbang' and 'Dimtekin' on his map are all settlements of the Seltamanmin or not.

However, Eggertsson (pers. comm. 11 August 2011) has clarified these issues. The 'Wangop', as the name of the river on the official maps flowing east into the Murray River, is incorrect and it should be named 'I River' or, in Bimin speech, I-bang. Wongop is the indigenous name for the south-flowing Murray River as marked on official maps. The river flowing east (Wok El on the official map) past the settlement of Selbang, then south into the I-bang as the Sey, is the Sel-bang (see map, **Figure 12**).

He is not familiar with the name of the settlement 'Poptomin'<sup>66</sup> north of the Sel and states that the nearby settlement named 'Awomkalinmin' is indicated in the wrong location. The Aonkalimin settlement of Dimtekin is located about where 'Kasadamin' is incorrectly named and placed on the official map between the 'Sey' (Sel) and 'Aptim' rivers. Eggertsson explains that 'the Selbang Faiwol had driven the Aonkalimin off their lands, the latter recovering them following pacification but apparently not quite to their satisfaction'.<sup>67</sup>

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<sup>66</sup> In my field diary on 23 June 1972, I took information regarding a war shield sold to me by Salet of Tabuldabip, an Ogoptaman Angkeiakmin village recently built to replace the old village named Magumdanabip (elsewhere named 'Mongdangbip'). 'Poptomin' on the 1979 1:100,000 map and O'Optomin on the 1966 1:250,000 map appear to be alternate spellings of what I recorded as Ogoptaman. Salet's shield was used when these people successfully sought assistance from the Telefolmin against the Seltamanmin to the south-east; they were also aligned with the Bolovip Angkeiakmin against the Fegolmin to the west. Ogoptaman is probably a small valley draining south into the Sel a kilometre or so downstream from Selbang and is the first settled area south of the Hindenburg Range on the track from the Falamin villages.

<sup>67</sup> It is possible, even likely, that the conflict between the Ogoptaman people and the Seltamanmin was actually a conflict with the Aonkalimin who, because they once owned the lands of the upper Sel, may have been called the Seltamanmin by the Telefolmin and Falamin.

The boundary between Bimin and Faiwol speakers runs along the course of the Murray (Wongop) and the lower section of the I-bang, then north-west along the divide between the I River and Sel River and north to the Hindenburg Range just west of the Don River (see Figure 12).

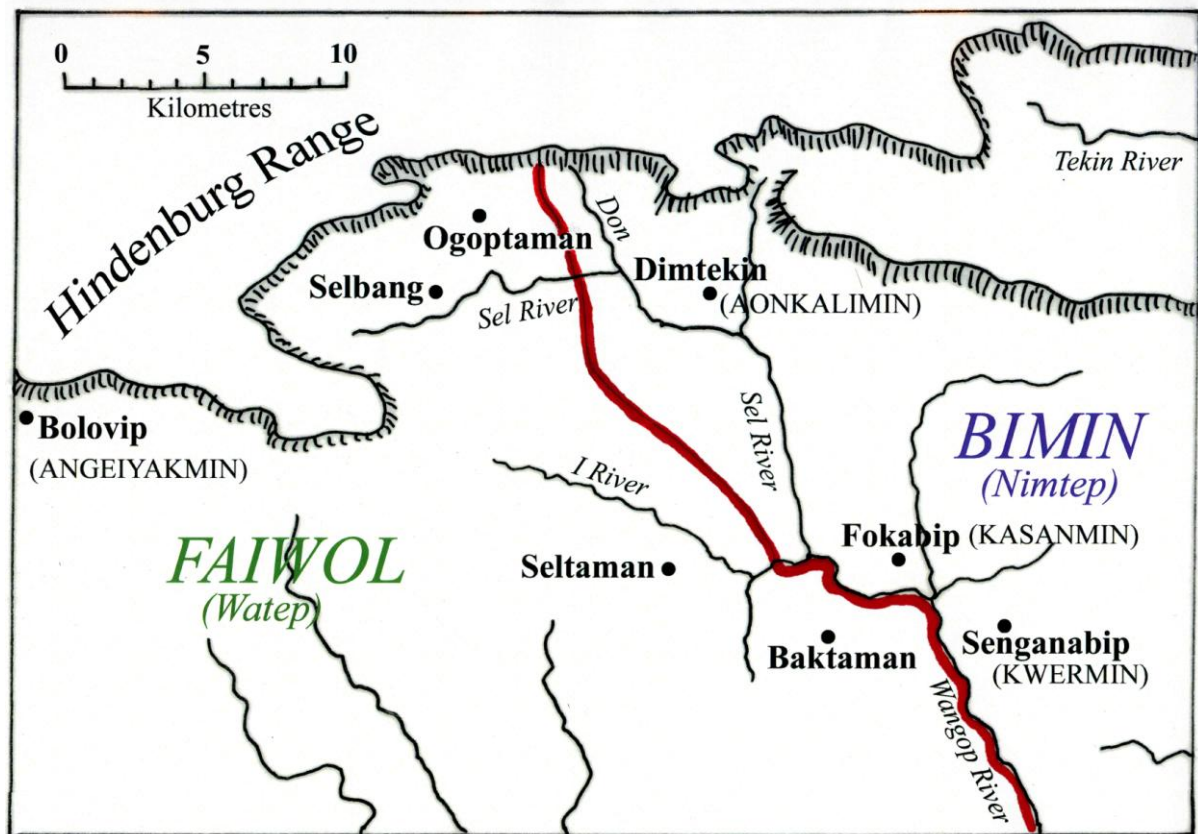


Figure 12. Map showing boundary (red line) between Faiwol and Bimin language speakers

Eggertsson states that despite Barth's understanding that the Kwermin speak a dialect of Faiwol, they in fact do not and they speak a dialect of Bimin, their northern neighbours. 'The Kwermin themselves distinguish their own language as *Nimtep*, from the *Watep* of the Baktaman, Seltaman and Engkayakmin [Angkeiakmin] in Selbang' (Eggertsson 2003: 18).<sup>68</sup> The Kasanmin and Aonkalimin of Dimtekin are, like the Kwermin, Bimin speakers (pers. comm. 3 August 2011).

<sup>68</sup> Eggertsson modifies and adds some details in his 3 August communication: 'Thomas Weber, a bible translator in Bimin, and I referred to the Bimin language as *Nimte-weng* (Nimte-w-talk) in distinction from *Wate-weng*, the dialect spoken by the Baktaman and Seltaman [people]; *nimte-w* is the Bimin (and Kwermin) word for "what", whereas the Baktaman and Seltaman [people] use *wate-w*. Weber visited Suntem [NE of the Kwermin], Senganabip [Kwermin] and Kasanmin [NW of the Kwermin] and found no notable difference in the dialect used in these communities from that used in Bimin. It is also clear that the Aonkalimin speak the same dialect. In Selbang the Faiwol dialect is dominant as it is in Seltaman and Baktaman. So, from a Kwermin point of view, Baktaman, Seltaman and Selbang people speak *Wate-w*, whereas the Aonkalimin, Kasanmin, Kwermin and Bimin (including Gapka and Suntem - sometimes referred to jointly as 'Bimin 2') speak *Nimte-w*.'

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