

NOTES ON BICHELAMAR : SOUND SYSTEMS AND SPELLING SYSTEMS

J.B.M. Guy

Australian National University

Bichelamar, also known as Bichlamar, Beach-la-mar, Bislama, or Pislama is the Pidgin English of the New Hebrides. The present article deals with the phonology of Bichelamar and the problem of devising a practical orthography for it. Bichelamar phonology is at first described as in the idiolect of the main informant, points of divergence from that idiolect are afterwards listed; spelling systems in current use in the New Hebrides are then discussed. Lastly, a spelling system compatible with, apparently, most phonological varieties of Bichelamar is proposed.

1 INTRODUCTION

1. The following notes on Bichelamar are based on :

- (a) Data elicited from a New Hebridean informant, Hilaire Chalet, aged 30 at the time, over a fortnight during fieldwork in Espiritu Santo in 1971.

Hilaire Chalet's father is from Vao, his mother from Wala. Besides Bichelamar, he is perfectly fluent in Wala, which he considers as his mother tongue, and in French, which he can read and write, and has a fair command of Vao. His oral performance in French is indistinguishable from that of a native speaker. His realization of voiced stops in particular shows no trace of devoicing nor of prenasalization, a fact worth pointing out since Vao and Wala have voiceless and prenasalized stops only, and since, when confronted with possible spellings for Bichelamar, he spontaneously identified the graphemes {b}, {d}, and {g} with [mb], [nd], and [ŋg] (cf # 41).

- (b) A tape recorded on Epi by Dr. Tryon of the Australian National University.

			CONTOIDS				VOCOIDS		
			Labial	Dental	Alveolar	Velar	Front	Central	Back
CONSONANTS	Stop	vl.	p [p]	t [t]		k [k]			
		vd.	b [mb]~[b]	d [nd]~[d]		g [ŋg]			
	Nasal	vd.	m [m]	n [n]		ŋ [ŋ]			
	Fric.	vl.	f [ɸ]~[f]		s [s]				
		vd.	v [β]~[v]						
	Affr.	vl.			ts [ts]				
	Flap	vd.			r [r]				
	Lateral	vd.			l [l]				
Frictionless	vl.					h [h]			
SEMI-CONSONANTS		vd.					y [ɨ]		w [w]
VOWELS	High					i [i]		u [u]	
	Mid close					e [e]			
	Mid open							o [ɔ]	
	Low						a [a] [ə]		
DIPHTHONGS						ia [iə]		ua [uə]	
						ea [eə]		oe [ɔə]	
						ae [aɛ]	ao [aɔ]		

TABLE I

(c) Issues of "Le Bulletin d'Information de la Résidence de France" in Bichelamar.

(d) Observations drawn from conversations with New Hebrideans in Espiritu Santo.

2. Phonemic representations are enclosed in slashes (/ /), graphemic ones in braces ({}). Phonetic transcriptions follow the I.P.A. system.

3. This article comprises four sections of which this introduction is the first. The second section describes the sound system of Bichelamar as apparent from Hilaire Chalet's speech.

The third section lists the phonological variations encountered in the speech of other New Hebrideans, taking Hilaire Chalet's idiolect as a basis for comparison.

The fourth section discusses the problem of devising a practical spelling for Bichelamar.

II THE SOUND SYSTEM OF BICHELAMAR AS FROM HILAIRE CHALET'S SPEECH

4. Method. Phonemes were identified not by searching for minimally-contrasting pairs of words, but by listening to connected speech for free variations and by repeating words after the informant so as to ascertain the allophonic range of phonemes.

For instance, when the word [bɔɛ] 'boy' was repeated as [bɔɛ], [mbɔɛ], and [pɔɛ], the pronunciations [bɔɛ] and [mbɔɛ] were accepted as both correct, but [pɔɛ] was rejected. Likewise, for [biŋga] 'finger', [biŋga] and [mbiŋga] were accepted, whereas [biŋka], [biga], and [bika] were rejected.

5. The following phonemes were thus identified. (See TABLE I)

Residual phones or phonemes

6. The nasal vowel [ɔ̃] occurred regularly in the two words [biɔ̃] 'of, for' and [liɔ̃] 'in, at, to, by, with'.

It can be shown to contrast minimally with the sequence /oŋ/ and is therefore to be set up as a separate phoneme /ɔ̃/. V.g.

/lɔ̃ we/ [liɔ̃we] 'there'

/loŋ we/ [loŋwe] 'far'

The informant spontaneously wrote this phoneme /ɔ̃/ as {on}, a French grapheme, though he was familiar with, and approved of, the grapheme {ong} used in all Bichelamar

publications.

The nasal vowel [ɔ̃] was consistently used in the abovementioned two words, [bɪɔ̃] and [lɔ̃], by all the Bichelamar speakers met and cannot therefore be one of the informant's idiosyncrasies (cf. #7). The existence of phonemes which occur only in a very few lexical items is no unusual feature of natural languages. Martinet, for instance has remarked upon the occurrence of [ɫ] in French, apparently restricted to ouais [wɫ] 'yes', a familiar or vulgar equivalent of oui [wi]. In Bichelamar, however, the high functional load of the opposition /ɔ̃/ vs /oŋ/ (e.g., /i stap lɔ̃ we/ 'he is there' and /i stap loŋ we/ 'he is far away'), combined with the frequency of occurrence of the words [ɔ̃] and [bɪɔ̃] hardly allows the dismissal of /ɔ̃/ as a marginal phenomenon.

7. The other residual phones or phonemes noticed were peculiar to the informant's idiolect.

- (a) The phones [b] and [d] occurred in a few words in environments where [mb] or [nd], or [p] or [t] would be expected (cf #8).

e.g.

[bebet] 'wog' from the French {bébête} [bebet] 'insect, tiny animal' (baby-talk)

[bebi] 'baby'

[redi] 'ready'

- (b) A few words, borrowed from French, occurred with their French pronunciation unaltered. e.g. [legym] 'vegetables', from the French {légumes} [legym], same meaning.

Allophonic variations

8. Voiced stops are prenasalized in the following environments (where V stands for a vowel or a diphthong, C for a consonant, # for a word-boundary, and ... for any sequence of V's and C's):

...V - V...# : always . Voiced stops are always prenasalized between vowels or diphthongs, e.g.

/naba/ [namba] 'number'

/biga/ [binga] 'finger'

/adel/ [andel] 'handle'

/nabaga/ [nabanga] 'banyan-tree'

/babaě/ [babaě] 'in the future'

- V(C) # : as often as not. Word-initially and preceding a vowel in a monosyllabic word, voiced stops occurred indifferently prenasalized or not with roughly the same frequency, e.g.

/boě/ [bɔě] ~ [mbɔě] 'boy'
 /bus/ [bus] ~ [mbus] 'forest'
 /do/ [dɔ] ~ [ndɔ] 'door'
 /dis/ [dis] ~ [ndis] 'clutch-plate'

- VCV ...# : sometimes. Word-initially in a polysyllabic word and preceding a vowel followed by a single consonant, voiced stops were only occasionally prenasalized, e.g.

/banana/ [banana] 'banana', [mbanana] was rare
 /baket/ [baket] 'bucket', [mbaket] was rare

When occurring in environments not listed above, voiced stops were never prenasalized. E.g.

/basket/ [basket] 'basket'
 /bunbun/ [bunbun] 'skinny'

9. Voiceless stops are unaspirated, fortis, but may occur lenis in fast speech. E.g.

/i ko/ [i'kɔ] ~ [i'gɔ] 'he went'

10. The labial fricatives, /r/ and /v/, have bilabial and labio-dental allophones alternating freely in all environments. E.g.

/naěf/ [naěf] ~ [naěf] 'knife'
 /faět/ [faět] ~ [faět] 'fight'
 /wafem/ [wafem] ~ [wafem] 'to wipe'
 /vilits/ [vilits] ~ [βilits] 'village'
 /olvala/ [ɔlvəla] [ɔlβəla] 'old'

11. The vowel /a/ has a higher allophone [ə] when unstressed. E.g.

/tuvala/ ['tuə'la] 'they (dual)'

12. Stress is not phonemic. It tends to be evenly distributed over the syllables of a word.

However, the second syllable of three-syllable words and the final syllable of words ending with a nasal are often unstressed. E.g.

/tuvala/ 'they (dual)' as ['tuβə'la] rather than [tuβala]

/skinim/ or /sikinim/ 'to flay' as ['sikinim] or ['skinim] rather than [skinim], ['siki'nim], or [sikinim].

Distribution of Consonants and Semi-consonants

13. Word-initial and word-final occurrences of consonants, semi-consonants, and clusters thereof are shown in the table below.

WORD INITIALLY					WORD FINALLY	
-∅, s-∅	-r, s-r	-l, s-l	-w, s-w	-y		
p	p, sp	pr, spr	pl, spl		py	p
t	t, st	tr, str		tw	ty	t
k	k, sk	kr, skr	kl	kw, skw	ky	k, ŋk
b	b					b
d	d					d
g						g
m	m, sm				m	m
n	n, sn				n	n
ŋ					ŋ	ŋ
f	f				f	f
s	s				s, ns, ks	s
ts	ts				ts	ts
v	v				v	v
r	r				r	r
l	l				l	l
h	h					h
y	y					y
w	w					w

TABLE 2

Note: The word-final cluster /ŋk/ occurred only in the word /iŋk/ 'ink'.

14. The question of determining whether the cluster /bl/ did occur word-initially remained for some time unsolved. A cluster [blʑ] did consistently occur in [blʑ] 'of, for'. However:

- (a) the [b] in [blʑ] was only slightly voiced, so that the Bichelamar [blʑ] would sound decidedly different from the French {blond}, giving in a closer phonetic transcription:

Bichelamar	{blong}~{bilong}	[b ^h lʑ]
French	{blond}	[blʑ]

- (b) No other evidence of a contrast /bl/ vs /pl/ could be found despite repeated attempts.
- (c) Word-initial /pl/ and /pr/ occasionally occurred with lenis /p/ (cf # 9).
- (d) [b^hlʑ], a preposition or a conjunction, always occurred unstressed. It is therefore reasonable to interpret its initial [b^h] as a lenis, partly voiced allophone of /p/.

Distribution of vowels and diphthongs

15. The vowel /u/ and the diphthong /eǎ/ did not occur word-initially. The diphthong /uǎ/ occurred only in the word /puǎ/ 'poor'. Other vowels and diphthongs were found word initially, medially, and finally.

The restricted distribution of /u/, /eǎ/, and /uǎ/ is probably accidental, this for the following reasons:

- (a) diphthongs which overwhelmingly occur in words of English origin (only one recorded exception: /namalaǎ/ 'megapod'), tend to be reduced to single vowels in polysyllabic words, e.g. {outside} → /apsaět/ 'outside', {count} → /kačn/ 'account, debt', but /kadem/ 'to count'.
- (b) English monosyllabic words starting with a vowel very often develop an initial /h/ in Bichelamar, e.g. {egg} → /hek/ 'egg', {arse} → /has/ 'buttocks'.

16. Vowel clusters are rare and occurred only in a few words:

/peem/ 'to buy'
 /kaori/ 'Agathis obtusa'
 /naura/ 'crayfish, lobster'
 /numea/ 'Noumea'
 /naus/ 'Spondias Cytherea'

No clusters of more than two vowels occurred.

17. Clusters of diphthongs or of diphthongs and vowels did not occur and do not seem to be allowable, e.g.

{power} → /pawa/ 'power'
 {throw out} → /traot/ 'to vomit'
 {fire} → /faya/ 'fire'
 {flour} → /plawa/ 'flour'

Free alternations between phonemes

18. Labials. In a great many words the following free alternations of phonemes occurred:

- (a) /p/~/b/ in environment ¹⁾ # - VCC ... #, i.e. word-initially in polysyllables and preceding a vowel or a diphthong followed by a consonant cluster. E.g.

/bapken/~/papken/ 'gourd'
 /banken/~/panken/ 'mug'
 /baskel/~/paskel/ 'bicycle'

- (b) /p/~/f/ in all positions, E.g .

/pis/~/fis/ 'fish', 'peace'
 /wafem/~/wapem/ 'to wipe'
 /wip/~/wif/ 'whip'
 /plawa/~/flawa/ 'flower'

- (c) /f/~/v/ word-medially, E. g .

/mifala/~/mivala/ 'we (exclusive)'
 /leftemap/~/levtemap/ 'to lift'

1) Cf #9

(d) /p/~/ /f/~/ /v/ word-finally, E.g.

/naep/~/ /naef/~/ /naev/ 'knife'

19. When his attention was drawn to these inconsistencies, the informant reacted as follows:

(a) he would admit one form out of two or two out of three as correct for certain words but, when asked for the very same words a few days later, he might give different 'correct' forms again. Thus one week he gave "[laěp], not [laěf]" for 'alive', and the following week "[laěf] . [laěp]? I never said that! No, it's [laěf], not [laěp]." Likewise, 'knife' was first given as "[naěf] or [naěv], you can say both, but not [naěp]", and some time later as [naěp] or [naěf].

(b) As regards the alternation of /b/ and /p/ in word-initial position (cf #18a), the informant acknowledged the occurrence of two different forms but had no idea whether both pronunciations or one only could be considered as 'correct'.

20. /h/ and zero.

(a) /h/ is found initially in most monosyllabic words that would otherwise start with a vowel. E.g.

/hae/ 'eye'
/has/ 'buttocks'
/hek/ 'egg'
/hen/ 'end, extremity'

but:

/ia/ 'year'
/is/ 'east'
/ol/ plural marker
/i/ predicate marker

and:

/hem/ 'he, she, it' (emphasized, i.e. French 'lui, elle')

/em/ 'he, she, it' (unemphasized, i.e. French 'il, elle')

(b) In two-syllable words /h/ seems to fluctuate freely with zero. E.g.

/antap/ ~ /hantap/ 'above, up'

/harem/ ~ /areh/ 'to hear, feel'

/askem/ ~ /haskem/ 'to ask for'

/holem/ ~ /oleh/ 'to hold'

(c) Three-syllable words occurred without an initial /h/.

/ospital/ 'hospital'

/olketa/ 'all'

Metathesis

21. A free variation of the form $G\bar{V}\sim CVr$ was observed in four words (but cf. also par. 22b):

/skru/ ~ /skur/ 'screw'

/skrutračeva/ ~ /skurtračeva/ 'screwdriver'

/propela/ ~ /porpela/ 'propeller'

/pruput/ ~ /purput/ 'to tread'

Vowel anaptyxis

22. Word-initial and word-final consonant clusters may develop a parasitic vowel. Such epenthetic vowels may be stressed.

(a) The final clusters /ns/ and /ks/ insert an /i/. E.g.

/neks/ ~ /neki/ 'next'

/akens/ ~ /akeni/ 'against'

(b) Initial clusters consisting of an /s/ followed by a stop itself optionally followed by a liquid (i.e. /l/ or /r/) insert a /u/ immediately after the /s/ if the vowel following the cluster was a /u/; otherwise, an /i/ is inserted. E.g.

/skul/ ~ /sukul/ 'religion'

/skru/ ~ /sukru/ 'screw'

/strap/ ~ /sitrap/ 'belt'

/sperem/~/siperem/ 'to spear'
 /skin/~/sikin/ 'skin'
 /spolem/~/sipolem/ 'to damage'

Vowel anaptyxis never occurred in the initial clusters of certain words such as /stronj/ 'hard, strong', and /stret/ 'straight, just, correct'. The forms /sitronj/ and /sitret/ were rejected by the informant.

III THE SOUNDS OF BICHELAMAR IN OTHER IDIOLECTS

23. Taking Hilaire Chalet's idiolect as the basis of comparisons, the following divergences were heard from speakers in Espiritu Santo and on the Epi tape (cf #1.b):

24. To /b/ may correspond:

(a) word-initially, [p]. E.g.

/boë/ [pəë] 'boy'
 /banis/ [panis] 'fence'
 /biga/ [pinga] 'finger'

(b) word-medially, [mp] or, but rarely and only in words of Melanesian origin, [p]. E.g.

/kabas/ [kampas] 'compass'
 /naba/ [nampa] 'number'
 /nabaga/ [napaka], [nampaka] 'banyan-tree'

25. To /d/ may correspond:

(a) word-initially, [t] or [ʰr], the latter seeming to occur only when the speaker's mother tongue has a prenasalized flap in its phonemic inventory. E.g.

/do/ [to], [ʰro] 'door'

(b) word-medially, [nt], e.g.

/adel/ [antel] 'handle'
 /kadem/ [kantem] 'to count'

26. To /g/ may correspond:

(a) in words of Melanesian origin [k], or [ŋk], e.g.

/natagura/ [natakura], [natanjura] 'sago-palm'

(b) In other words, [ŋk], e.g.

/biga/ [piŋka] 'finger'

(c) in a few words, [ɣ], e.g.

/nakato/ [naɣatɔ] 'hermit-crab'

/nakwita/ [naɣwita] 'squid'

27. To /ts/ may correspond [s] and, sometimes, to /s/ [ts]. E.g.

/tsyam/ [sjam] 'to jump'

/buson/ [putsɔŋ] 'cork'

28. The free alternation /h/ ~ zero (cf #20.b) may not be restricted to two-syllable words. E.g. the following alternations between /h/ and its absence were observed in the speech of one speaker (Epi tape) :

[aʒs] ~ [haʒs] 'house'

[ɔs] ~ [hɔs] 'horse'

[ɔ] ~ [hɔ] plural marker

[ɔlketa] ~ [hɔlketa] 'all'

[p] and [p̥] may alternate freely in intervocalic position. E.g. (Epi tape)

[hepi] ~ [heβi] 'Epi'

29. To /v/ may correspond [f] or [f̥] in all environments, e.g.

/vilits/ [filits], [f̥ilits] 'village'

30. To the diphthong /oɛ/ often corresponds [we], e.g.

/poɛs/ [pwes] 'voice'

/poɛl/ [pwe] 'to boil'

31. In polysyllabic words of English origin [i] may correspond to final /e/ and [e] to final /i/, e.g.

/plade/ [planti] 'many'

/twenti/ [twente] 'twenty'

IV SPELLINGS FOR BICHELAMAR

32. Two systems of spelling are at present fairly widely used for Bichelamar publications in the New Hebrides: that of "Le Bulletin d'Information de la Residence de France" and that of the British and Foreign Bible Society.

33. "Le Bulletin d'Information de la Résidence de France" uses a unique type of spelling, apparently based on the following principles:

- (a) when the English origin of a Bichelamar word is obvious, the English orthography is used. E.g.

{plane} /plen/ 'plane'

{night} /naet/ 'night'

Unfortunately, English words are very often misspelt and etymologies mistaken. E.g.

{airland} /aelan/ 'island'

{dhar} /do/ 'door'

{dound} /taon/ 'down'

{sail fish} /selpis/ 'shellfish'

{Sands fish} /sanpis/ 'beach'

{loock} /luk/ 'to see'

- (b) when no English etymology can be ascertained, a phonetic rendition is used. E.g.

{nakamal} /nakamal/ 'men's common house'

{levtemap} /levtemap/ 'to lift'

{kenou} /kenu/ 'canoe'

{cucu} /kuku/ a sp. of shellfish

{fikimap} /fikimap/ 'to pick up'

- (c) In doubtful cases, a compromise is adopted, e.g.

{olgetha} /olketa/ 'all' (all-together)

{wethem} /wetem/ 'with'

{band ara} /banara/ 'bow'

{came} /kam/ 'to come'

34. Surprisingly enough, the Bulletin's spelling is self-consistent in that any one word

always appears under the same garb, so that, given a knowledge of both English and Bichelamar, and having struggled one's way through one or two issues only, one is no longer seriously hindered by its distinctive orthography. On the credit side, it must be said that once stripped of a very few, easily-spotted gallicisms, the "Bulletin" turns out to be written in excellent Bichelamar, unspoilt by French or English.

35. The Bible Society's publications use an orthography devised by Rev. W.G. Camden, the general principles of which are to be found in the introduction to his 'English to Bislama Dictionary':

"The spelling in use here is based on the results of a full study of the phonemics of the language, though the orthography as finally adopted is not itself phonemic. The study showed five phonemes /p/ , /t/ , /k/ , /f/ and /s/ (for s or z). A simplified spelling system using just five letters for these five phonemes was universally rejected by New Hebrideans as being too unlike English, too unfamiliar and too open to ridicule to expatriates ... it was decided that whenever the Bislama root was derived from some recognisable English or French root, the use of p/b, t/d, k/g and f/v should be in harmony with that of the original source language."

Finally, diphthongs are treated no differently from vowel clusters:

"Values for the vowels are given opposite, and these values do not change significantly, even when three vowels occur in sequence."

36. It is apparent from the first quotation that Rev. Camden's spelling is based on a variety of Bichelamar lacking a series of (prenasalized) voiced stops (cf #24 to 26).

Vowel clusters, however, call for closer scrutiny.

37. Clusters of three vowels correspond to sequences vowel + semi-consonant + vowel or to diphthongs in Hilaire Chalet's idiolect. E.g.

{paaa}	H.C.:	/pawa/	'power'
{faea}	H.C.:	/faya/	'fire'
troaot	H.C.:	/traot/	'to vomit'

38. Clusters of two vowels may correspond to diphthongs, sequences semi-consonant + vowel, single vowels or clusters of two vowels.

(a) May correspond to diphthongs:

{ae}	e.g. {hae}	H.C.: /haě/	'high'
{ai}	e.g. {nait}	H.C.: /naět/	'night'
{ao}	e.g. {haos}	H.C.: /haoš/	'house'
{ea}	e.g. {prea}	H.C.: /preă/	'prayer'
{ia}	e.g. {spia}	H.C.: /spiă/	'spear'
{oe}	e.g. {boe}	H.C.: /boě/	'boy'
{ua}	e.g. {pua}	H.C.: /puă/	'poor'

{ai} is found only preceding {t}, {d}, and {s}, and {ae} elsewhere, so that the two graphemes are in mutually exclusive distribution.

(b) May correspond to sequences semi-consonant + vowel :

{ia}	e.g. {ia}	H.C.: /ya/	'here'
{io}	e.g. {iioj}	H.C.: /tsyots/	'church'

(c) May correspond to single vowels:

{ei}	e.g. {dei}	H.C.: /de/	'day'
{oa}	e.g. {moa}	H.C.: /mo/	'more'

I have found, at least in Santo and in the texts recorded on Epi, no evidence of a glide [eɨ]. However, in many Santo languages characterized by a five-vowel system and the absence of closed syllables and consonant clusters, the word-final vowel cluster /ei/ is realized as [e^{*}] in normal and fast speech, [ei] being heard only in slow speech. Rev. Camden being based in Tangoa, where such languages are spoken, the grapheme {ei} may reflect a stressed, word-final Bichelamar [e], phonemically /ei/ in Tangoan.

The glide [ɔă] ({oa}) was heard word-finally for /o/ when speakers made attempts at anglicizing their Bichelamar; e.g. [du yu save?] for /yu save?/ 'do you know?' and [stɔă] for /sto/ or /stor/ 'shop' were heard from one speaker.

The 'English to Bislama Dictionary' shows a strong English influence, thus giving {fingga} 'finger' for what is heard everywhere as /biga/, {fenis} 'fence' for /banis/, etc. Through overcorrection 'law' even becomes {loa}.

39. The great drawback of this spelling system, apart from the fact that one would have to look for a new word in several different locations in a Bichelamar to English dictionary, is that it requires a knowledge of both English and French in order to be applied with any

degree of consistency. Even so, unerringly identifying etymologies is an all but impossible task. Thus Rev. Camden rightly saw the English 'gammon' in /kyaman/ 'to lie', and spelt it {gyaman} but he overlooked in his {pujong} and {pepet} the very common French words bouchon 'cork' and bébête 'wog'.

A possible solution

40. The difficulty in establishing a standard spelling acceptable to all New Hebridean speakers resides mostly in the existence of two great types of Bichelamar phonologies: those with two series of stops (voiceless and prenasalized voiced), and those with one only (voiceless).

41. Advice was sought on this matter from Hilaire Chalet whose mother tongue, as already stated (cf #1), has two series of stops, and from a Tolomako informant, Aimé, Tolomako having only one series of stops, namely /p/ , /t/ , and /k/ occurring unaspirated, voiceless in all environments. Their acceptance (*) or rejection (O) of the different graphemes proposed is shown. (See TABLE 3)

42. This yields an immediate solution:

/b/	{ b }	word-initially	{ mb }	word-medially
/d/	{ d }	"	{ nd }	"
/g/			{ nk }	"

Such a rule, however, leaves a speaker of a Tolomako-type language at a loss to choose between {b} and {p} , and {d} and {t} in word-initial position since for him these are confused as /p/ and /t/ respectively. Thanks to the rarity of /d/ which, in a vocabulary of 900 words elicited from Hilaire Chalet, occurred initially in only three words (/de/ 'day', /dis/ 'clutchplate', and /do/ 'door'), a partial solution can be reached by using {t} for initial /d/ . No such compromise could be worked out for initial /b/ , as the suggested grapheme {p} was most vehemently rejected by Hilaire Chalet.

43. In Hilaire Chalet's idiolect word-medial [mb] and [mp] , [nd] and [nt] , and [ŋg] and [ŋk] are phonemically distinct, representing respectively /b/ , /mp/ , /d/ , /nt/ , /g/ , and /ŋk/ . This distinction is however, partially obliterated by the fact that word-medial /mp/ and /ŋk/ occasionally occur as [mb] and [ŋg] , thus merging with the realizations of /b/ and /g/ in similar environments. And indeed, Hilaire Chalet approved of mb as an alternative to mp to represent the cluster /mp/ .

The cluster /nt/ on the other hand occurred as [nt] , never [nd] , in all environ-

	{b} {d} {g}		{p} {t} {k}		{mb} {nd} {ng}		{mp} {nt} ⁽²⁾ {nk}(2)	
	H. C.	Aimé	H. C.	Aimé	H. C.	Aimé	H. C.	Aimé
/b/ [b] word-initial	*	n/a	○	n/a	○	n/a	○	n/a
[mb] "	*	n/a	○	n/a	○	n/a	○	n/a
[p] "	n/a	*	n/a	*	n/a	○	n/a	○
[mb] word-medial	*	○	○	○	*	*	○	*
[mp] "	n/a	○	n/a	○	n/a	*	n/a	*
/d/ [d] word-initial	*	n/a	○	n/a	○	n/a	○	n/a
[nd] "	*	n/a	○	n/a	○	n/a	○	n/a
[t] "	n/a	*	n/a	*	n/a	○	n/a	○
[nd] word-medial	*	○	○	○	*	*	○	*
[nt] "	n/a	○	n/a	○	n/a	*	n/a	*
/g/ [ŋg] word-medial	*	○	○	○	○ ¹⁾	○ ¹⁾	*	*
[ŋk] "	n/a	○	n/a	○	n/a	○ ¹⁾	n/a	*
[k] ³⁾ "		*		*		○ ¹⁾		○

TABLE 3

Notes: ng 1. {ng} was interpreted as [ŋ] , {ngg} rejected.

2. {ngk} was rejected as "too complicated".

3. rare and freely alternating with [ŋg] or [ŋk]
(cf #26)

Abbreviation : n/a does not apply.

ments. Keeping both {nd} and {nt} in word-medial position leads to a situation where a Tolomako-type speaker is unable to decide on which grapheme to use for what is to him /nt/ ([nd] ~ [nt]).

It is therefore desirable to set one grapheme, either {nd} or {nt}, to represent both /d/ and /nt/ in word-medial position, as {mb} may represent /b/ or /mp/, and {nk} /g/ or /ŋk/. The grapheme {nt} should be preferred for the following reasons:

- (a) The grapheme {t} has already been chosen to represent /d/ word-initially.
- (b) The use of {t} for [d] or [t] would seem commendable in the environment:

Vowel [n] $\left\{ \begin{array}{l} [t] \\ [d] \end{array} \right\}$ ($\left\{ \begin{array}{l} [r] \\ [l] \end{array} \right\}$) vowel

where one would expect a stop to become voiced rather than voiceless.

44. The following spelling rules are therefore suggested for consonants and semi-consonants:

- [p] {b} following [m], {p} elsewhere
- [t] {t}
- [k] {k}
- [b] {b} word-initially, else as {p}
- [mb] {b} word-initially, {mb} elsewhere
- [d] {t}
- [nd] {t} word-initially, {nt} elsewhere
- [g] {k}
- [m] {m}
- [n] {n}
- [ŋ] {n} preceding [k] or [g], else {ng}
- [f], [ɸ] {f}
- [v], [β] {v}
- [ɣ] {k}
- [s] {s}
- [r] {r}
- [l] {l}
- [j] {ɣ}
- [w] {w}

(Note. Since the phonemic interpretation of consonants depends on the

phonology of the speaker's mother tongue, phonetic-graphemic correspondences are given, with the consequence that the phoneme /ts/ is represented by a digraph, {ts}. Owing to the widespread alternancy /ts/~/s/ (cf #27), {ts} does have some advantage over {i}, since alternative spellings involving {ts} and {s} will appear less confusing than a fluctuation between {i} and {s}).

45. Vowels and diphthongs offer less scope for dissonant interpretations and the spellings {a}, {e}, {i}, {o}, {u}, {ao}, {ea}, {ia}, {oe}, {ua}, are already universally approved of for /a/, /e/, /i/, /o/, /u/, /aɔ̃/, /eã/, /iã/, /oẽ/, and /uã/. In many varieties of Bichelamar /aẽ/ has the allophone [aĩ] preceding a dental or an alveolar (cf #38) and speakers in whose mother tongues [aẽ] and [aĩ] are emically distinct tend to make the same distinction in writing Bichelamar. It still seems preferable to prescribe the use of a unique grapheme, {ae}.

46. The residual phoneme /ɔ̃/ (cf #6) already has an accepted representation: {ong}. The contrast /lɔ̃ we/ 'there' vs /loŋ we/ 'far' could be shown through some artifice, such as {long we} for /lɔ̃ we/ and {long-we} or {longwe} for /loŋ we/.

47. Concessions would probably have to be made to a few taboo spellings, such as {God}, {Jisas Kraes}, and, possibly, {blong} for {Kot} 'God', {Tsisas Kraes} 'Jesus Christ', and {plong} 'of, for'.

48. It must be emphasized that the above rules would not yield unique morpheme representations, since the very frequent fluctuation between /p/, /b/, /f/ and /v/, /h/ and zero, and /ts/ and /s/, and the dichotomy between those varieties of Bichelamar with prenasalized voiced stops and those without, would still be reflected in spelling.

49. Sample spellings. The same text (an excerpt from the Bulletin d'Information de la Résidence de France, October 1969) is given hereunder in four different versions: the original spelling, Rev. Camden's spelling, Hilaire Chalet's idiolect in the proposed spelling, and in a variety of Bichelamar with only voiceless stops.

50. Original spelling.

Taem ol i came ol i carrem pig mo Kawa to i came. Ol man bilong TUK MATUA i mekem big fala hip bilong iam, naw ol woman we i came long Willie IAO ol i work bout i

came strait long place bilong danis, long foreth bilong first pig we ol i fascem long one bed we ol i workem wethem ol hut. I gat one pikinini i sidoun endap long pig ia. Taem pig ia i catchem midle place bilong danis, ol woman more ol man bilong danis i givim place bilong one man i came killim pig ia wethem one nalnal.

Note: This text contains one gallicism, namely "big fala hip bilong iam" 'a big heap of yams', which in standard Bichelamar would be "big fala hip iam" /bikfala hip yam/.

51. Rev. Camden's spelling.

Taem oli kam oli karem pig mo kava tu i kam. Ol man blong Tuk Matua i mekem bigfala hip blong yam, nao ol woman we i kam long Wili Yao oli wokabaot i kam stret long ples blong danis, long fored blong fas pig we oli fasem long wan bed we oli wokem wetem ol wud. I gat wan pikinini i sidaon antap long pig ia. Taem pig ia i kasem midel ples blong danis, ol woman mo ol man blong danis i givim ples blong wan man i kam kilim pig ia wetem wan nalnal.

52. Hilaire Chalet's idiolect, proposed spelling.

Taem ol i kam ol i karem pik mo kava tu i kam. Ol man blong⁽¹⁾ Tuk Matua i mekem bikfala hip blong yam, nao ol woman we i kam long Wili Yao ol i wok-baot i kam stret long ples blong tanis, long foret blong fas pik we ol i pasem long wan bet we ol i wokem wetem ol wut. I kat wan pikinini i staon antap long pik ya. Taem pig ya i kasem metel ples blong tanis, ol woman mo ol man blong tanis i kivim ples blong wan man i kam kilim pik ya wetem wan nalnal.

53. Variety of Bichelamar with one series of stops, proposed spelling.

Taem ol i kam ol i karem pik mo kava tu i kam. Ol man blong Tuk Matua i mekem pikfala hip blong yam, nao ol woman we i kam long Wili Yao ol i wok-paot i kam stret long ples blong tanis, long poret blong fas pik we ol i pasem long wan pet we ol i wokem wetem ol hut. I kat wan pikinini i sitaon antap long pik ya. Taem pik ya i kasem metel ples blong tanis, ol woman mo ol man blong tanis i kifim ples blong wan man i kam kilim pik ya wetem wan nalnal.

54. Translation

They had brought pigs and kava with them. The men from Tuk Matua had piled up yams into big heaps. Then the women from Wili Yao walked straight to the dancing ground to the front of the first pig, which had been tied to a wooden altar, and on which a child

Note 1. Cf # 47.

was sitting. When the pig reached the centre of the dancing ground the dancers made room for a man to come and club it.

INDEX

A

Aimé 41
anaptyxis 22

B

/b/ → [mp] 24.b
/b/ → [p] 24.a, 24.b
[bl] 14
braces ({}) 2
Bulletin d'Information de la Résidence de France 1.c, 33-34

C

Camden, Rev. W.G. 35-39
Chalet, Hilaire 1.a
Clusters:
of consonants and semi-consonants 13
of vowels 16-17, 37-38

D

/d/ → [r̥] 25.a
/d/ → [nt] 25.b
/d/ → [t] 25.a
diphthongs 5, 15, 30
diphthongs as vowel clusters 37-38

E

[ə] 11
/e/ → [i] 31
[e] ← /i/ 31
epenthetic vowel 22

F

[f] or [ɸ] ← /v/ 29

fluctuation: free fluctuation between phonemes 18-20

fricatives:

labial 10, 18.b, 18.c, 18.d, 28, 29

velar 26.c

G

[ɣ] 26

/g/ → [ɣ] 26.c

/g/ → [k] 26.a

/g/ → [ŋk] 26.a, 26.b

H

/h/ versus zero 20, 28

Hilaire Chalet 1.a

I

/i/ → [e] 31

[i] ← /e/ 31

idiolect:

Hilaire Chalet's idiolect 4-22

other idiolects 23-31

informants 1.a, 41

K

[k] ← /g/ 26.a

L

labial fricatives 10, 18.b, 18.c, 18.d, 28, 29

labials 18-19, 24, 28, 29

M

metathesis 21

[mp] ← /b/ 24.b

N

nasal vowel /ɔ̃/ 6, 46

[ⁿr] ← /d/ 25.a

[nt] ← /d/ 25.b

ŋ

[ŋk] ← /g/ 26.a, 26.b

O

/ɔ̃/ 6, 46

/oɔ̃/ → [we] 30

orthography cf spelling

P

[p] ~ [β] 28

[p] ← /b/ 24.a, 24.b

parasitic vowel 22

phoneme:

free fluctuation between phonemes 18-20

phoneme inventory 5

residual phonemes 6, 7

phonotactics 13-17

prenasalization 8, 24-26

R

[ⁿr] ← /d/ 25.a

Résidence de France (Bulletin de la) 1.c, 33-34

residual phonemes 6, 7

S

/s/ → [ts] 27

[s] ← /ts/ 27

spelling 32ff

spelling of the Bulletin de la Résidence de France 33-34

spelling of the Bible Society 35-39

suggested spelling 44-46

stress 12

T

[t] ← /d/ 25.a

taboo spellings 47

Tangoa 38.c

Tolomako 41

/ts/ → [s] 27

[ts] ← /s/ 27

V

/v/ ⇒ [f] or [ɸ] 29

/v/ ~ /p/ cf [p] ~ [β] 28

Vao 1.a

velar fricative 26.c

voiced stops 8, 24-26

vowel anaptyxis 22

vowel clusters 16-17, 37-38

W

Wala 1.a

[we] ← /oẽ/ 30