

## Bulaka River Consonants\*

In this paper, we present a historical phonological reconstruction of the Proto-Bulaka River consonant system using a straightforward application of the traditional comparative method. Our intention is to provide a principled and transparent framework upon which further comparative research can be premised, and to facilitate historical phonological comparison between Bulaka River and other New Guinean families. Some additional comparative-historical information is also provided on the pronominal system of the Bulaka River family.

*Keywords:* New Guinean linguistics, Bulaka River language family, linguistic phylogeny, historical phonetics, protolanguage reconstruction.

### Introduction

The Bulaka River language family is comprised of two closely related languages, Yelmek and Maklew, spoken to the east of Marianne Strait, across from Kolopom (Frederik Hendrik) island, in the Merauke district of Indonesia's Papua province. Drabbe (1950: 549) counted 350 speakers of Yelmek in four villages: Yelwayab on the Wanam River, from which his material was collected, Woboyu, Dudaling and Bibikem, and 120 speakers of Maklew in a single village on the Welbuti River, a tributary of the Bulaka (q.v. Boelaars 1950: 19, 25). More recent figures from the Summer Institute of Linguistics give a Welbuti population of 226 (Lebold, Kriens and de Vries 2010: 8).

Like other languages of the Marianne Strait region, both Yelmek and Maklew have been significantly influenced by the unrelated Marind language, the intrusion of which from the north separates them from the Morehead River languages near the Papuan border (Neumann 1952 *ibid.*). Maklew in particular has co-participated in a number of sound changes characteristic of Marind dialects. A smaller amount of more basic vocabulary is shared with the equally unrelated Kolopom family to the west (q.v. Guertjens 1933: 198–433, Greenberg 1971: 830–833). There is no trace of either Asmat or Awyu influence.

### Sources

Geurtjens (1933: 398–433) gives 455 comparative terms for Jab(sch), Marind, Kimaghama, Mombum, Koneraw and Yongkom in an addendum to his dictionary of Marind.

Drabbe (1950) gives detailed grammars and (pp. 566–574) 422 comparative terms of both languages alongside Mombum. An English-language recension of Drabbe's work is presented in Boelaars (1950: 19–28).

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Nevermann (1952) gives ethnographic notes, language notes and (pp. 81–82) up to 90 comparative terms for Jab(ga) of Bibikem and Imbáke villages, Galum (Nggarum) of Wobui and Dudalem villages, Dib(ga) of Dib village, Ilwajab village, and Makleu(ga) of Welbuti village.

Lebold, Kriens and de Vries (2010: 46–52) provide 239 comparative terms for Maklew of Welbuti in an appendix to their survey of the Okaba sudistrict.

### History of classification

The first to document Maklew, and hence to recognize its close relationship to Yelmek, was Drabbe (1950). For the broader region, Drabbe (p. 548) draws a typological distinction between languages with suffixes (Paniai Lakes, Asmat-Kamoro, Awyu-Dumut and Mombum), those with prefixes (Marind-Yaqay), those with both (Yei, Kanum, Moraori and Bulaka River), and those with neither (insular Kolopom).

Voorhoeve (1968: 8–9), measuring a 58% lexicostastical resemblance between Yelmek and Maklew, includes Bulaka River as a stock-level family among five first-order subgroups of his proposed South and Central New Guinea Phylum, alongside Kolopom, Yey-Kanum-Moraori, Morehead River, and the South and Central New Guinea Stock itself. This placement was based upon lexicostatistical figures of 9% between Yelmek and the Gawir dialect of Marind and 8% between Yelmek and Yaqay. There could hardly be worse choices for evaluating Bulaka River's relationship to the family which would be expanded to form Trans-New Guinea, as both Yelmek and Maklew are full of Marind loans, while Yaqay-Warkay is Marind's nearest relative.

Wurm (1971a: 574–577) reiterates Voorhoeve's classification and figures under the name Central and South New Guinea Phylum, to which Agöb (Pahoturi River) is added. In addition to Voorhoeve's evidence, he provides a list of typological features said to characterize the phylum (pp. 581–582), but these show almost no intersection with those of Bulaka River.

Wurm (1971b: 166) is more specific, suggesting a special relationship between Bulaka River and Trans-Fly upon the basis of an average 9% lexical similarity and, citing Boelaars (1950), shared morphemes and typological traits, though it is not specified which ones he finds probative. No such relationship is asserted in Wurm ed. (1975: 357), in which Bulaka River is listed as a subphylum-level family, related to the Trans-Fly phylum level stock only at the Trans-New Guinea level, but the Trans-Fly-Bulaka River subphylum level superstock is reasserted in Wurm (1982: 179–180). This would then make its way into derivative works such as Ruhlen (1987: 358) and versions of the *Ethnologue* (Grimes 2000: 721), becoming the default classification by a small number of high-profile repetitions.

Greenberg (1971: 829–830) includes Bulaka River in his Jei subfamily of South New Guinea, an unfortunate collection of a number of nearby but unrelated languages including most of those presented in Guertjens (1933) and Nevermann (1939): Morehead River languages Yei, Kanum and Arammba, Kolopom, Mombum-Koneraw (Marianne Strait) and Bulaka River. South New Guinea as a whole, the outlines of which are broadly similar to Wurm's Trans Fly-Bulaka River, is supported by 70 comparisons, most of which do not involve Bulaka River.

Pawley, Ross and Osmond (2005: 24–26) propose a South-Central Papuan family including Yelmek-Maklew, Morehead-Upper Maro and Pahoturi, recapitulating the westernmost portions of Wurm's Trans-Fly-Bulaka River, based upon comparison of reconstructed personal pronouns.

## Historical phonology

Proto-Bulaka River had as many as 16 consonants and 5 or 6 vowels as follows:

*m	*n	*ɲ	*ŋ
*p	*t	*c	*k
*b	*d	*ɟ	*g
*w	*l	*j	*ɣ
*i			*u
*e	[*ə]		*o
	*a		

The consonant system is formally symmetrical, if we allow that \*w \*l \*j \*ɣ form a series of non-stops as is found in (for example) Guhu-Oro (Binanderean) and Koiari, as well as in Marind and its relatives in the Fly River family. Velar nasal \*ŋ is very common, yielding ŋ in both Yelmek and Maklew. Palatal stops \*c \*ɟ and velar non-stop \*ɣ are relatively rare, as is, somewhat suprisingly, apical nasal \*n. Palatal nasal \*ɲ is supported by only one example. Fricative \*s is found only in loans, mostly from Marind.

We tentatively assume Drabbe's qualities [e ɛ] and [o ɔ] to be allophones of two mid vowels \*e \*o, in the absence of clear and recurring patterns to the contrary, and based on the observation that Drabbe reflexively draws these contrasts in most languages he described, giving the impression of a standardized phonetic rather than phonemic transcription. Guertjens' transcriptions are less reliable, but show no pattern of agreeing with Drabbe's distinctions and often contradict them. The status of mid central vowel \*ə is less clear, but is adopted here tentatively where supported by the balance of attested reflexes; some examples given with \*ə below may have really been other vowels and vice-versa.

Consonant correspondences are as follows:

Bulaka	Yelmek	Maklew
*m	m	m
*n	n	n
*ɲ	n	ŋ
*ŋ	ŋ	ŋ
*p	p	p
*t	t	t
*c	t	k
*k	k	k
*b	b	b
*d	d	d
*ɟ	d	g
*g	g	g
*w	w	h
*l	l	l
*j	j	s
*ɣ	ŋ	h
[*s]	t	s

These correspondences are exemplified as follows, with attestations drawn from Drabbe (1950: 566–574, *ibid.*), Guertjens (1933: 398–422), and Lebold, Kriens and de Vries (2010: 46–52).

Bilabial nasal *\*m* is retained as such in both languages, and is found in all positions:

	Bulaka River	Jelmek (Drabbe)	Jab (Guertjens)	Maklew (Drabbe)	Maklew (Lebold et al.)
	<b>*m-</b>	<b>m</b>	<b>m</b>	<b>m</b>	<b>m</b>
coconut	*mi[o]	mia	mia	'mio	'mijɔ
pig	*milom	milom	milom	milom	'milɔm
sit	*mə[n/d]	mən	mæn	med	məd
crooked/turn	*məŋ	mɛməŋ	mɛŋ	mɛŋ	
rib(s)	*məɭ	mɛɭ		məl	
lightning	*məɭVm	mɛɭm	merm	melm	
sit	*mə[n/d]	mən	mæn	med	məd
negative	*ma	ma-(w)	ma-w	ma(-ko)	'ma-kɔ
wing	*mama		mama	mama	'mama
blunt/dull	*map	kəl-map		kəl-map	
stone	*mat[e]	mata:	mate	'matɛ	'mətə
rain	*maŋ	maŋ	maŋ	maŋ	maŋ
break (wood)	*maye	maŋe-		-ŋo-mhe-	
lime/white	*mVlino		malino	'mujno	'mujnɔ
breast	*momo	momo	momo	momo	mɔmɔ
fence	*molo	mɔl	molo	mɔ'lo-go	mɔ'ɭɔ-gu
penis	*mu	mu		mu	
fly (v.)	*mu	mu-		-mu-	-mu
sole	*mulo		mulo	mulo	
taro	*muj	muj		mus	mus
	<b>*-m-</b>	<b>m</b>	<b>m</b>	<b>m</b>	<b>m</b>
canoe	*imo	imo	imo	imo	'imɔ
3 pl.	*em[əl]	em		imɛɭ	imɛɭb
straight	*amom	amom		'ammo'gola	
break (rope)	*[a]ŋeme	ŋemɛ-		-aŋeme-	
sun/sky	*[a/o]limu	alemu	alim	'olimu	'olimu
1 sg. past	*-oma	-ama		-oma	
mountain	*uomal	womal			'wɔmal
wing	*mama		mama	mama	'mama
breast	*momo	momo	momo	momo	mɔmɔ
fruit	*noma	noma		noma	
short	*təmə-	təmək	tammak	təmaŋ	'təmə
hot/sharp	*dimo	dəmo		dimo	'dimɔ
path	*came		tame:		'kame
run / run away	*jeme		je:me:		sɛmɛ
good/true	*ŋəmə-	ŋəmək	namɛŋke:	ŋəməŋ ~ ŋeməŋ	ŋəməŋ
earthquake	*ŋ[a/o]ɣum[o]	ŋaŋumo		-ŋohum-	
tame/orphan	*ŋomo-	ŋomo		ŋoməŋ	
snake	*gumolo	gumolo		'gumolo	gu'mɔɭɔ

	Bulaka River	Jelmek (Drabbe)	Jab (Guertjens)	Maklew (Drabbe)	Maklew (Lebold et al.)
	<b>*-m</b>	<b>m</b>	<b>m</b>	<b>m</b>	<b>m</b>
mucus	*em	ɛm-dɛ	e:n-die	em-de	
straight	*amom	amom		'ammo'gola	
pig	*milom	milom	milom	milom	'milɔm
lightning	*melVm	mɛlm	merm	melm	
sugarcane	*beləm	bələm	beləm	mbəlym	
dog	*num	num			num
fish	*dem	dəm	dəm	dem	dəm
deep	*dam	dām		dam	
weep/cry	*ɲom	ɲom-		-ɲom-	

Apical *\*n* is retained as such in both languages. It has not been found to occur word-finally:

	Bulaka River	Jelmek (Drabbe)	Jab (Guertjens)	Maklew (Drabbe)	Maklew (Lebold et al.)
	<b>*n-</b>	<b>n</b>	<b>n</b>	<b>n</b>	<b>n</b>
tongue	*nepla	naplɛ	napla	nepla	nɛpla
fruit	*noma	noma		noma	
dog	*num	num			num
	<b>*-n-</b>	<b>n</b>	<b>n</b>	<b>n</b>	<b>n</b>
coconut shell	*apina		apina	apina	
torch	*ual[e]no	waleno		wajno	
lime/white	*mVlino		malino	'mujno	'mujnɔ
louse	*dobuna	dobna	domla[sic]	'dobuna	dɔ'buna
older sibling	*ɲena	nana		ɲena	ɲɛna
ant	*kaniV		kania		'kənjɛ

The scarcity of *\*n* relative to peripheral nasals *\*m* (above) and *\*ɲ* (below) suggests that a pre-Bulaka River *\*n* has become something else in most or all instances, a possibility to be borne in mind when comparing Bulaka River to other New Guinean families.

The existence of a palatal nasal *\*ɲ* is supported by only one known example, in which it is found initially. We tentatively reconstruct *\*ɲ* here by analogy to the disposition of palatal stops *\*c* *\*ɟ* (below,) and our skepticism of its originality applies equally here. Lebold, Kriens and de Vries give Maklew [ɲ] to Drabbe's [ɲ]:

	Bulaka River	Jelmek (Drabbe)	Jab (Guertjens)	Maklew (Drabbe)	Maklew (Lebold et al.)
	<b>*ɲ-</b>	<b>n</b>		<b>ɲ</b>	<b>ɲ</b>
older sibling	*ɲena	nana		ɲena	ɲɛna

Velar nasal \*ŋ is retained as such in both languages, and is found in all positions:

	Bulaka River	Jelmek (Drabbe)	Jab (Guertjens)	Maklew (Drabbe)	Maklew (Lebold et al.)
	*ŋ-	ŋ	ŋ	ŋ	ŋ
ripe	*ŋewe		ŋewe:	-ŋehe-	
dream	*ŋeɣe	ŋeŋeɣe-		-ŋehe-	
good/true	*ŋəmə-	ŋəmək	namɪŋke:	ŋəməŋ ~ ŋeməŋ	ŋəməŋ
1 sg.	*ŋəl	ŋəl	ŋal	ŋəllo	'ŋəɫɔ
new	*ŋəlwo-	ŋəlwok	ŋolwok	'ŋelwoŋ	'ŋəlwoŋ
be (future)	*ŋaiak	ŋajak-		-ŋajk-	
name	*ŋajel[e]	nadəl	nade:l	ŋeŋele	ŋə'geɫe
1pl.	*ŋag	ŋag		ŋag	ŋag
earthquake	*ŋVɣum[o]	ŋaŋumo		-ŋohum-	
intransitive	*ŋo-	ŋo-		ŋo-	
weep/cry	*ŋom	ŋom-		-ŋom-	
tame/orphan	*ŋomo-	ŋomo		ŋoməŋ	
now/today	*ŋop[i]	ŋop-ma		ŋopi'nalma	
cough/sneeze	*ŋot[o]	ŋot-		-ŋoto-	
laugh	*ŋuw	ŋu-		-ŋuh-	
person	*ŋuwa		nəwwa	ŋuha	
one	*ŋuka	ŋklala	ukala	-ŋuka	
	*-ŋ-	ŋ	ŋ	ŋ	ŋ
hear	*[i]ŋe	ɪŋe-	ɪŋe:we:	-eŋ-	
spine	*ieŋo		d'əŋo	jeŋo	
drink/suck	*[a]ŋ[e]	ŋe-	j-aŋu	aŋ-	ɛŋuwe
break (rope)	*[a]ŋeme	ŋeme-		-aŋeme-	
urine	*oŋo	oŋo	oŋo	oŋo	ɔŋɔ
	*-ŋ	ŋ	ŋ	ŋ	ŋ
child/offspring	*iaŋ	jaŋ	jak[sic]	jaŋ	jaŋ
crooked/turn	*meŋ	mɛmɛŋ	meŋ	mɛŋ	
rain	*maŋ	maŋ	maŋ	maŋ	maŋ
upright	*daŋ		daŋ		daŋ

Bilabial voiceless stop *\*p* is retained as such in both languages, and is found in all positions:

	Bulaka River	Jelmek (Drabbe)	Jab (Guertjens)	Maklew (Drabbe)	Maklew (Lebold et al.)
	<b>*p-</b>	<b>p</b>	<b>p</b>	<b>p</b>	<b>p</b>
feather	*pəpə	pəpə	pəp	pypypy	
suffix on adj.	*-pa		-pa	-paŋ	-paŋ
light (weight)	*popu-	popu	popok	'popuŋ	
old (thing)	*poto-	potok		'poton	'pəton
bone/shin	*pu	pu	pu	pu	pu
hit/smash	*pliaɣ	plan-	pliage:	-piah- ~ -pjaha-	
	<b>*-p-</b>	<b>p</b>	<b>p</b>	<b>p</b>	<b>p</b>
bitter	*ipa	ipa		ipa	
net	*apija	apia	epia	apsa	
wait	*[a]lpo	lpo-		-alpo-	
grab/hold	*[a]ɣep[e]	aŋep-		-hepe- (dur.)	
eye/face	*opo	opo	opo	opo	əpə
ear	*opo-kolo		opoklo	'opklo	əpklo
sleep	*opula		oplə	o'pula	ə'pula
feather	*pəpə	pəpə	pəp	pypypy	
tongue	*nepla	naplɛ	napla	nepla	nɛpla
long	*tipu-	tipuk	tipo	tipu	tipu
thigh	*c[ə]pe		tepe:	kpe	
steal	*jepe		de:pe:	gepe	
now/today	*ŋopi	ŋop-ma		ŋopi'nalma	
wife	*kepi[ŋ/ɣ][e]		keipiŋe:	kepihe	kɛ'piŋə
	<b>*-p</b>	<b>p</b>	<b>p</b>	<b>p</b>	<b>p</b>
3 sg. future	*-p	-p		-p	
leaf	*op	op	op	op-op	'əp-up
blunt/dull	*map	kəl-map		kəl-map	

Apical voiceless stop *\*t* is retained as such in both languages. It is less common than peripheral stops *\*p* (above) and *\*k* (below.) Like apicals *\*n* (above) and *\*d* (below,) it has not been found to occur finally:

	Bulaka River	Jelmek (Drabbe)	Jab (Guertjens)	Maklew (Drabbe)	Maklew (Lebold et al.)
	<b>*t-</b>	<b>t</b>	<b>t</b>	<b>t</b>	<b>t</b>
long	*tipu-	tipuk	tipo	tipu	tipu
short	*təmə-	təmək	tammak	təmaŋ	'təmən
shoot	*to	to-		-to-	-tə

	Bulaka River	Jelmek (Drabbe)	Jab (Guertjens)	Maklew (Drabbe)	Maklew (Lebold et al.)
	*-t-	t	t	t	t
stone	*mat[e]	mata	mate:	'matɛ	'mətə
old (thing)	*poto-	potok		'poton	'pɔtɔn
ankle	*boto	boto	boto	boto	
small	*wVti-	wotək	watək	hitin	'hitin
cough/sneeze	*ɲot[o]	ɲot-		-ɲoto-	

Velar voiceless stop \*k is retained as such in both languages:

	Bulaka River	Jelmek (Drabbe)	Jab (Guertjens)	Maklew (Drabbe)	Maklew (Lebold et al.)
	*k-	k	k	k	k
wife	*kepi[ŋ/ɣ][e]		keipɪŋe:	kepihe	kɛ'piŋɔ
ashes	*kəb	kəb	kabə	kɛb	kəb
tooth	*kəl	kəl	kel	kəl	kəl
hard	*kəkeie	kəke	ke:ke:jɛ	kəkɛ'jɛ	
branch	*kəka	kəka	kaka	kəka	
1 sg. future	*-ka	-ka		-ka	
ant	*kani[a/e]		kania		'kənje
grandparent	*kaga	kaga	kaga	kaga	kaga
dig	*k[o]uak		kowak	-kwak-	-kwak
hole	*kolo	kolo	kalo ~ -klo	kəllo ~ -klo	-klɔ
lie down/sleep	*ku	ku-		-ku-	
enemy	*kui	kuj		kuj	
	*-k-	k	k	k	k
blood	*ewlek[e]	ɛlweke	elwe:ke:	ehlel [sic]	ɛhlel
banana	*okal	akal	a:kal	okal	'ɔkəl
testicle	*oko	oko		oko	
knowledge	*uowka	wokwan	wokwan	'wohka	'wɔhkan
go up	*ukal	ukal-		-ukal-	
sago stems	*buka		buka	byka	
breath	*waku	waku		haku	
wallaby	*doki	doki	dokɛ	doki	'dɔki
breadfruit	*joko	joko	jewoka	soko	'sɔkɔ
one	*ɲuka	ɲklala	ukala	-ɲuka	
branch	*kəka	kəka	kaka	kəka	
	*-k	k	k	k	k
be (future)	*ɲaiak	ɲajak-		-ɲajk-	
dig	*k[o]uak		kowak	-kwak-	-kwak



Bilabial voiced stop *\*b* is retained as such in both languages, and is found in all positions. Initially, it is occasionally realized as prenasalized [mb]:

	Bulaka River	Jelmek (Drabbe)	Jab (Guertjens)	Maklew (Drabbe)	Maklew (Lebold et al.)
	<b>*b-</b>	<b>b[bmb]</b>	<b>b</b>	<b>b[bmb]</b>	<b>b</b>
bamboo	*biol	biol	boil	'biol	'bijɔl
throat	*bila	bila		'bila	
sugar cane	*beləm	bələm	beləm	mbəlym	
big	*bala-	mbalak		balan	'balan
widow	*boi	boj-		mboj	
ankle	*boto	boto	boto	boto	
sago stems	*buka		buka	byka	
	<b>*-b-</b>	<b>b</b>	<b>b</b>	<b>b</b>	<b>b</b>
stoneaxe	*iebu	jebu	e:pl [sic]	ibu	
house	*ebi	ebi	e:bi	ebi	'ɛbi
husband	*ebVwe		e:baiwəb	ebohe	ɛ'bɔbɛ
see	*[a]b[e]	bɛɛ		-aba-	
sour	*[a]bowol	abol		'obohol	
younger sibling	*uobia	wobia		'wobia	wɔbja
louse	*dobuna	dobna	domla [sic]	'dobuna	dɔ'buna
	<b>*-b</b>	<b>b</b>	<b>b</b>	<b>b</b>	<b>b</b>
3 sg.	*eb	ew(?)	ib	ib	'ibak'
ashes	*kəb	kəb	kabə	kɛb	kəb

Apical voiced stop *\*d* is retained as such in both languages. Like apicals *\*n* *\*t* (above), it has not been found to occur finally:

	Bulaka River	Jelmek (Drabbe)	Jab (Guertjens)	Maklew (Drabbe)	Maklew (Lebold et al.)
	<b>*d-</b>	<b>d</b>	<b>d</b>	<b>d</b>	<b>d</b>
hot/sharp	*dimo	dəmo		dimo	'dimɔ
excrement	*de	dɛ	de:	de	
rope	*del		del	del	
fish	*dəm	dəm	dəm	dɛm	dəm
deep	*dam	dām		dām	
upright	*dan		dan		dan
tree/wood	*doio	dojo	dojo	dojo	'dɔjɔ
louse	*dobuna	dobna	domla	'dobuna	dɔ'buna
wallaby	*doki	doki	dokɛ	doki	'dɔki
ill	*dogo	dogwo	dogo	dogo	

	Bulaka River	Jelmek (Drabbe)	Jab (Guertjens)	Maklew (Drabbe)	Maklew (Lebold et al.)
	*-d-	d	d	d	d
foot/leg	*uodo	wodo	wodo	wodo	wodɔ

Velar voiced stop \*g is retained as such in both languages, and is found in all positions:

	Bulaka River	Jelmek (Drabbe)	Jab (Guertjens)	Maklew (Drabbe)	Maklew (Lebold et al.)
	*g-	g	g	g	g
excrement	*gauo	gaw		'gawo	gawɔ
speech	*gaga		gaga	gaga	gaga
bush/forest	*golu	golu	golu	goloa	'gulu ~ golu
snake	*gumolo	gumolo		'gumolo	gu'mɔlɔ
kill	*gul-	gul-		-gul-	-gul
	*-g-	g	g	g	g
thumb/big toe	*ege	egek-nek		egen	
body/chest	*agəl	agəl		agl-	
sick/ill	*dogo	dogwo	dogo	dogo	
ask about	*lig-	lig-		-lig-	
grandparent	*kaga	kaga	kaga	kaga	kaga
speech	*gaga		gaga	gaga	gaga
	*-g	g	g	g	g
soft/weak	*ieg(-ieg)	jeg	jegia	'igijig	
1pl.	*ɲag	ɲag		ɲag	ɲag

The qualities of the protosounds shown here as \*c \*j may not be possible to determine. We tentatively designate them as palatal stops, because they yield apicals *t d* in Yelmek and velars *k g* in Maklew, and do not appear to be conditioned reflexes of \*t \*d or \*k \*g. Voiced stop \*j is less common than voiceless \*c, a distributional pattern similar to \*k \*g (above).

Palatal voiceless stop \*c is fronted to apical *t* in Yelmek and backed to velar *k* in Maklew:

	Bulaka River	Jelmek (Drabbe)	Jab (Guertjens)	Maklew (Drabbe)	Maklew (Lebold et al.)
	*c-	t	t	k	k
swim	*ce	tə	tə	-ke-	-kɛ
thigh	*cepe		tepe:	kpe	
path	*came		tamɛ:		'kame
forehead	*cule	tule		'kule	
	*-c-	t	t	k	k
fire	*ace	ete	e:te:	ake	'ake
smoke	*acaja	ataja		'akasa	a'kasa

Palatal voiced stop *\*ɟ* is fronted to apical *d* in Yelmek and backed to velar *g* in Maklew:

	Bulaka River	Jelmek (Drabbe)	Jab (Guertjens)	Maklew (Drabbe)	Maklew (Lebold et al.)
	<i>*ɟ-</i>	<b>d</b>	<b>d</b>	<b>g</b>	<b>g</b>
steal	*jepe		de:pe:	gepe	
dark/black	*jewi	dewi	de:wi	gehile	gɛhile
	<i>*-ɟ-</i>	<b>d</b>	<b>d</b>	<b>g</b>	<b>g</b>
name	*ɲajel[e]	nadəl	nade:l	ɲeɲele[sic]	ɲə'gɛlɛ

It is striking that of nine examples, six are followed by *\*e* (seven if one considers ‘smoke’ to reflect *\*ace-aja* as it most likely does). This is also true of the single example of the palatal nasal *\*ɲ* (above). This strongly suggests that there was originally a vocalic component to these sounds, indicating perhaps *\*niV* *\*tiV* *\*diV* or *\*ɲiV* *\*kiV* *\*giV*, neither of which, despite the frequency of the vowel sequence *\*iV*, is otherwise known to occur. Nor are there any known examples of *\*itV* *\*ikV*, leaving many segments which *\*ɲ* *\*c* *\*ɟ* might reasonably be thought to really be, but with no easy way of deciding between them.

Apical non-stop *\*l* is preserved in both languages. It does not occur root-initially, except on a few verbs which are prefixed in both Yelmek and Maklew:

	Bulaka River	Jelmek (Drabbe)	Jab (Guertjens)	Maklew (Drabbe)	Maklew (Lebold et al.)
	<i>*-l-</i>	<b>l</b>	<b>l</b>	<b>l</b>	<b>l</b>
askfor	*-liw	-li-		-lihe-	
askabout	*-lig	-lig-		-lig-	
plant (v.)	*[e]ule	wle-		-ɛwle-	
blood	*ewlek[e]	ɛlweke	elwe:ke:	ehlel	ɛhlɛk
2pl.	*ale	ɛl		ale-	
wait	*[a]lpo	lpo-		-alpo-	
sun/sky	*[a/o]limu	alemu	alim	'olimu	'olimu
sleep	*opula		oplə	o'pula	ɔ'pula
back	*uele	wele		welɛly	
beach	*uelo		wolowio		wɛlɔwɛlɔ
fly (n.)	*uoli		woli	wuli	
pig	*milom	milom	milom	milom	'milɔm
lightning	*melVm	mɛlm	merm	melm	
fence	*molo	mol	molo	mɔ'lo-go	mɔ'ɔlɔ-gu
sole	*mulo		mulo	mulo	
throat	*bila	bila		'bila	
sugarcane	*bɛlɔm	bɛlɔm	bɛlɔm	mbɛlym	
big	*bala-	mbalak		balan	'balan
saliva	*wVlo	wulo	wulo	hallo	

	Bulaka River	Jelmek (Drabbe)	Jab (Guertjens)	Maklew (Drabbe)	Maklew (Lebold et al.)
tongue	*nepla	naplɛ	napla	nepla	nɛpla
forehead	*cule	tule		'kule	
bathe	*jale		jælæ		sale
bandicoot	*jowoli	joli		'sowoli	sɔ'hɔli
new	*ɲəluo	ɲəlwok	ɲolwok	'ɲelwɔŋ	'ɲəluwɔŋ
name	*ɲajel[e]	nadəl	nade:l	ɲeɲele	ɲə'gɛɛ
hole	*kolo	kolo	kalo ~ -klo	kəllo ~ -klo	-klɔ
bush/forest	*golu	golu	golu	goloa	'gulu ~ golu
snake	*gumolo	gumolo		'gumolo	gu'mɔlɔ
	*l	l	l	l	l
oblique	*-el ~ *-ol	-el ~ -ol		-el ~ -ol	
sour	*abowol	abol		'obohol	
banana	*okal	akal	a:kal	okal	'ɔkəl
body/chest	*agəl	agəl		agl-	
mountain	*uomal	womal			'womal
goup	*ukal	ukal-		-ukal-	
rib(s)	*mɛl	mɛl		məl	
bamboo	*biol	biol	boil	'biol	'bijɔl
rope	*dɛl		dɛl	dɛl	
1 sg.	*ɲəl	ɲəl	ɲal	ɲəllo	'ɲəɔ
tooth	*kəl	kəl	kel	kəl	kəl
kill	*gul	gul-		-gul-	-gul

Maklew drops medial \*l from some clusters:

	Bulaka River	Jelmek (Drabbe)	Jab (Guertjens)	Maklew (Drabbe)	Maklew (Lebold et al.)
	*l/_C	l	l	ø	ø
torch	*ual[e]no	waleno		wajno	
lime/white	*mVlino		malino	'mujno	'mujɔ
	*l/C_	l	l	ø	ø
hit/smash	*pliay	plan-	pliage	-piah-	

While not directly attested in either Yelmek or Maklew, a velar non-stop \*ɣ is reconstructed to account for a correspondence in which Drabbe's Yelmek *ɲ* is answered by Maklew *h*, rather than by *ɲ*, the aspiration and deocclusion of \*ɣ being shared with Marind's central dialects (q.v. Drabbe 1933: 14). This is further supported by Guertjens' Jab [g], distinct from the reflexes of \*ɲ (above):

	Bulaka River	Jelmek (Drabbe)	Jab (Guertjens)	Maklew (Drabbe)	Maklew (Lebold et al.)
	*ɣ	ŋ	g	h	h
be hungry	*ɣi	ŋal-ŋi-p		-hi-	
plait	*ɣo	ŋo-		-ho-	
cold	*ioɣ[a]		jogow	joha	'joha
hold	*[a]ɣep[e]	aŋep-		-hepe- (dur.)	
break (wood)	*maɣe	maŋe-		-ŋo-mhe-	
dream	*ŋeɣe	ŋeŋeɛ-		-ŋehe-	
earthquake	*ŋVɣum[o]	ŋaŋumo		-ŋohum-	
hit/smash	*pliay	plaŋ-	pliage:	-piah-	

A direct indication of equivalence to the Marind sound is found in this loan:

	Marind	Maklew (Drabbe)
	*ɣ-	h
beard	*ɣas	has

As in Marind, bilabial and palatal non-stops \*w \*j are distinguished from sequential high vowels \*u \*i by stridency, with the former but not the latter fricated to *h* *s* in Maklew, merging with the reflexes of \*ɣ \*s (the latter itself a loan from Marind). Bilabial \*w is much more common than palatal \*j.

Bilabial non-stop \*w is fricated to unoccluded *h* in Maklew and retained as *w* in Yelmek:

	Bulaka River	Jelmek (Drabbe)	Jab (Guertjens)	Maklew (Drabbe)	Maklew (Lebold et al.)
	*w-	w	w	h	h
voice	*wai[a]	waja		haj	
breath	*waku	waku		haku	
small	*wVti-	wotək	watək	hitɪŋ	'hitɪŋ
saliva	*wVlo	wulo	wulo	hallo	
	*-w-	w	w	h	h
woman/female	*iowa	jua	juwa		ajɔhaŋ
husband	*ebVwe		e:baiwəb	ebohe	ɛ'bɔbɛ [sic]
blood	*ewlek[e]	ɛlweke	elwe:ke:	ehlel	ɛhlek
sour	*[a]bowol	abol		'obohol	
cassowary	*owi	owi	owi	ohi	'ɔhi
(day)light	*owo	owo	owo	oho	
knowledge	*uowka	wokwan	wokwan	'wohka	'wɔhkaŋ
mouth/door	*uwo	wo	wo	'uho	uhɔ

	Bulaka River	Jelmek (Drabbe)	Jab (Guertjens)	Maklew (Drabbe)	Maklew (Lebold et al.)
dark/black	*jewi	dewi	de:wi	gehile	gēhile
bandicoot	*jowoli	joli		'sowoli(?)	sə'hōli
ripe	*ɲewe		ɲewe:	-ɲehe-	
person	*ɲuwa		nəwwa	ɲuha	
wash	*uw	wu-		-uh-	-uh
askfor	*liw	li-		-lihe-	
laugh	*ɲuw	ɲu-		-ɲuh-	

Palatal non-stop \*j is occluded and fricated to s in Maklew and retained as j in Yelmek:

	Bulaka River	Jelmek (Drabbe)	Jab (Guertjens)	Maklew (Drabbe)	Maklew (Lebold et al.)
	*j-	j	j	s	s
run/run away	*jeme		je:me:		'sɛmɛ
bathe	*jale		jælæ		sale
bandicoot	*jowoli	joli		'sowoli	sə'hōli
breadfruit	*joko	joko	jewoka	soko	'sɔkɔ
	*-j-	j	j	s	s
net	*apija	apia	epia	apsa	
smoke	*acaja	ataja		'akasa	a'kasa
	*-j	j	j	s	s
taro	*muj	muj		mus	mus

Maklew's fortitions further develop changes shared with the West and Atih dialects of Marind, in which \*w \*j yield  $h^w h^j$  (q.v. Drabbe 1933: 14). The equivalence to and coevolution with Marind qualities is evident in the behavior of loans therefrom:

	Marind	Jelmek (Drabbe)	Jab (Guertjens)	Maklew (Drabbe)	Maklew (Lebold et al.)
	*w	w	w [v]	h	h
think	*wetok			hetok	
knife	*sok(-wakra)	tokwakəl		soka'hakəl	səka'hakəl
paddle	*kawaia	kawja	kavia	kahia	'kahja
	*j	j [i]	j [z]		s
bow	*mij	mi	miz		'mijɛs

High vowels *\*i* *\*u* are neither fricated nor occluded when occurring in sequences with other vowels, but are often realized as semivowels [j w]:

	Bulaka River	Jelmek (Drabbe)	Jab (Guertjens)	Maklew (Drabbe)	Maklew (Lebold et al.)
	<b>*i</b>	<b>i [ij]</b>		<b>i [ij]</b>	
stone axe	*iebu	jebu	e:pl[sic]	ibu	
spine	*ieŋo		dʌŋo	jeŋo	
soft/weak	*ieg	jeg	jeg-ia	'igijig	
imperative	*ia-	ja- ~ j- ~ i-		ja-	
crocodile	*iaua[ŋ]		eli-jawa	jawəŋ	'jawuŋ
child/offspring	*iaŋ	jaŋ	jak	jaŋ	jaŋ
cold	*ioy...		jogow	joha	'joha
water	*iu	ju		jy	ju
woman	*iowa	jua	juwa		ajəhaŋ
afraid	*oio		ojo		'ɔjə
younger sibling	*uobia	wobia		'wobia	wəbja
coconut	*mi[a/o]	mia	mia	mio	'mijə
hit/smash	*pliaɣ	plan-	pliage:	-piah-	
bamboo	*biol	biol	boil	'biol	'bijəl
voice	*wai[a]	waja		haj	
tree/wood	*doio	dojo	dojo	dojo	'dɔjə
be (future)	*ŋaiak	ŋajak-		-ŋajk-	
hard	*kəkeie	kəke	ke:ke:jɛ	kəkɛ:jɛ	
ant	*kani[a/e]		kania		'kənje
night	*ui	wi	wih	wi	wi
widow	*boi	boj-		mboj	
enemy	*kui	kuj		kuj	
	<b>*u</b>	<b>u [uw]</b>		<b>u [uw]</b>	
night	*ui	wi	wih	wi	wi
back	*uele	wele		welely	
beach	*uelo		wolowio		wələwələ
neck	*uə[n/l]	wəl		wən	
dry	*ua		wa	uwaŋ	uwa-
torch	*ual[e]no	waleno		wajno	
mountain	*uomal	womal			'womal
younger sibling	*uobia	wobia		'wobia	wəbja
knowledge	*uowka	wokwan	wokwan	'wohka	'wəhkaŋ
foot/leg	*uodo	wodo	wodo	wodo	wəɔɔ
fly(n.)	*uoli		wolu	wuli	

	Bulaka River	Jelmek (Drabbe)	Jab (Guertjens)	Maklew (Drabbe)	Maklew (Lebold et al.)
kunai grass	*uoka		wonga[sic]	woka	'woka
crocodile	*iaua[ŋ]		eri-jawa	jawəŋ	'jawuŋ
plant (v.)	*[e]ule	wle-		-ɛwle-	
tendon	*ouo	owo		owo	
new	*ŋəluo-	ŋəlwok	ŋəlwok	'ŋəlwoŋ	'ŋəluwəŋ
dig	*k[o]uak		kowak	-kwak-	-kwak
enemy	*kui	kuj		kuj	
excrement	*gauo	gaw		'gawo	gawə
water	*iu	ju		jy	ju
2 sg.	*au	aw		aw-	

This, too, is true in Marind and in loans therefrom:

	Marind	Jelmek (Drabbe)	Jab (Guertjens)	Maklew (Drabbe)	Maklew (Lebold et al.)
	*i	i [ij]	i [ij]	i	i [ij]
old woman	*mes-iuag	met(w)ago	mes-iwag		mesiwag
mourn. band	*soia		toja		
paddle	*kawaia	kawja	kavia	kahia	'kahja
	*u	u[w]	u[w]		u[w]
old woman	*mes-iuag	met(w)ago	mes-iwag		mesiwag

While high vowels may join sequences with any other vowel, sequences of two non-high vowels *\*ea \*eo \*ae \*ao \*oe \*oa* do not occur. Where a non-high vowel is adjacent to a high vowel, the high vowel is usually perceived as a contour unless it immediately follows a consonant. When two high vowels are in sequence, the first is perceived as a contour unless it immediately follows a consonant.

It might be remarked that this distribution and behavior is not unlike what would be expected in a system with glides and no vowel sequences, and we would have reconstructed *\*w \*j*, had these not already been assigned to the correspondences which yield aspirates *h s* in Maklew and co-develop with their Marind equivalents. A reconstruction of fricatives *\*β \*j* alongside vocalic *\*w \*j* would match the Bulaka River internal data equally well, but with a formally more complicated inventory.

Fricative *\*s* is found only in loans, primarily from Marind, in which it is found in all positions. It is merged with the apical stop *t* in Yelmek:



	Marind	Jelmek (Drabbe)	Jab (Guertjens)	Maklew (Drabbe)	Maklew (Lebold et al.)
	*s	t	s [t s]	s	s
mourn. band	*soia		toja		
knife	*sok(-wakra)	tokwakəl		soka'hakəl	sɔka'hakəl
axe	*imbasom	batoni[sic]		'mbasom	'mbasəm
sneeze	*asi	ati-ŋɛ	ati-ŋje:		
old woman	*mes-iuag	met(w)ago	mɛs-iwag		mɛsiwag
beard	*ɣas			has	

This change is shared with Yaqay to the north, which likewise reflects Yaqay-Warkay \*s as *t* (Voorhoeve 1971: 94), and to some extent with Kimaghama and Riantana (Central Kolopom) to the west, in which \*s is realized as a palatalized stop [*tʃ*].

### Suffix on adjectives

In a number of roots, Yelmek velar voiceless stop *k* is answered by Maklew nasal *ŋ*. In a few instances, one or the other of these is zero. Since this variation occurs only on items which are conceivably adjectives, and is both inconsistent and otherwise irregular, we tentatively conclude it morphological in origin:

	Bulaka River	Jelmek (Drabbe)	Jab (Guertjens)	Maklew (Drabbe)	Maklew (Lebold et al.)
		-k	-k	-ŋ	-ŋ
thumb/big toe	*ege-	egek-nek		egen	
possessive	*-a[u]-	-awk		-aŋ	
old (thing)	*poto-	potok		'poton	'pɔton
big	*bala-	mbalak		balan	'balan
small	*wVti-	wotək	watək	hitin	'hitin
short	*təmə-	təmək	tammak	təman	'təmən
good/true	*ŋəmə-	ŋəmək	naminke:	ŋəmən ~ ŋɛmən	ŋəmən
new	*ŋəlwo-	ŋəlwok	ŋəlwok	'ŋəlwon	'ŋəlwɔn
		-k ~ -θ	-k	-ŋ	
light (weight)	*popu-	popu	popok	'popun	
		-k	-θ	-θ	-θ
long	*tipu-	tipuk	tipo	tipu	tipu
		-θ	-θ	-ŋ	-ŋ
woman/female	*iowa-	jua	juwa		ajɔhan
dry	*ua-		wa	wan	
suffix on adj.	*-pa-		-pa	-pan	-pan
tame/orphan	*ŋomo-	ŋomo		ŋomon	

### Addendum: Pronouns

The nominative forms of the personal pronouns (q.v. Drabbe 1950: 550–551) are as follows. Maklew’s second person nominatives differ from Yelmek’s, which are the same as oblique bases of both languages; it is conceivable that this difference was original. It is not clear whether Maklew has added a suffix to the third person plural or if the Yelmek form is an irregular reduction:

	Bulaka River	Yelmek	Maklew
1 sg.	*ŋəl	ŋəl	ŋəllo
2 sg.	*au (?)	aw	obe
3 sg.	*eb	ew	ib
1 pl.	*ŋag	ŋag	ŋag
2 pl.	*ale (?)	əl	omle
3 pl.	*em[e]l	em	imel

The oblique forms are derived from the nominatives by the suffixation of *\*-el* ~ *\*-ol* to the first and second persons and *\*-i* to the third persons. Here the originality of Yelmek’s *-i* is assumed in order to account for the difference in third person base vowels; our tentative hypothesis is that Maklew generalized the third person obliques to the nominative and then reinforced them with *\*-el* by analogy:

	Bulaka River	Yelmek	Maklew
1 sg. obl.	*ŋəl-el	ŋəl-el	ŋəl-el
2 sg. obl.	*au-ol	aw-ol	aw-ol
3 sg. obl.	*eb-i	eb-i	ib-el
1 pl. obl.	*ŋag-ol	ŋag-ol	ŋag-ol
2 pl. obl.	*al-el	əl-el	al-el
3 pl. obl.	*em[e]l-i	em-i	iml-el

The possessive forms are derived from the nominatives by the suffixation of *\*-a[u]*, followed by the adjectival Yelmek *k*, Maklew *ŋ*. The Yelmek first person plural appears to be defective:

	Bulaka River	Yelmek	Maklew
1 sg. poss.	*ŋəl-a[u]-	ŋl-awk	ŋəl-aŋ ~ ŋl-aŋ
2 sg. poss.	*au-a[u]-	aw-awk	aw-aŋ
3 sg. poss.	*eb-a[u]-	eb-awk	ib-aŋ
1 pl. poss.	*ŋag-a[u]-	ŋ-awk	ŋag-aŋ
2 pl. poss.	*ale-a[u]-	əl-awk	al-aŋ
3 pl. poss.	*em[e]l-a[u]-	em-awk	iml-aŋ

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Т. Ашер. Реконструкция системы консонантизма семьи Булака-Ривер

В статье предлагается система регулярных соответствий для языков семьи Булака-Ривер (Новая Гвинея) и фонологическая реконструкция консонантной системы прабулака-ривер, основанная на последовательном применении сравнительного метода. Статья может использоваться в качестве конкретного образца для последующих сравнительных исследований по новогвинейским языкам и, в частности, должна облегчить задачу дальнейшей интеграции данных по языкам Булака-Ривер в общую историко-лингвистическую модель эволюции языков новогвинейского региона. Помимо реконструкции консонантизма, статья также содержит сравнительно-историческую информацию по системе личных местоимений в семье Булака-Ривер.

**Ключевые слова:** языки Новой Гвинеи, семья Булака-Ривер, лингвистическая филогенетика, историческая фонетика, праязыковая реконструкция.

