

Duna Phonemes

by

Dennis & Nancy Cochrane

1963

D

2. Introduction.

The language under consideration in this paper is that of the Duna people. The name Duna is used by government officials and by people of neighboring tribes. To themselves, however, they are Yunas, not Dunas.

Approximately half of Duna country lies in the Southern Highlands District of Papua and the other half is in the Territory of New Guinea. The portion which lies north of the Papua-Territory border is at present restricted by the government and is thus inaccessible to non-government personnel. Perhaps 3,000 Dunas live on the Papuan side of the border and probably at least as many again live in the restricted area. The dialects of the inaccessible area are not as yet known. Also at present an accurate figure is unknown to this author both for the total Duna population and for the exact area occupied by this language group.

The dialect in which the author has done all his work to date is that located on the southwestern side of the Tumburu River, specifically in the area of the Kelabo airstrip. This airstrip is about 20 miles northwest of Koroba or 50 miles northwest of Tari, in the Southern Highlands District of Papua.

The present analysis has been made from a corpus of data obtained almost entirely by Ray and Ruth Brown, SIL linguists who preceded us to the Dunas and who, during a period of approximately fourteen months, gathered a Duna glossary of about 1300 words and phrases, and approximately fifty pages of written text. Credit should also be given to them for the largest amount of phonemic analysis presented in this paper.

Two chief informants were used by the Browns, the same ones subsequently being used by this author. Hedawe is a native of the Kelabo area, a boy of approximately eighteen years of age. He has only recently begun to be semi-fluent in Pidgin-English. The second informant, Udiawe, was born and lived fourteen years in the Aiyuguali area, located about eleven hours by trail to the east of Kelabo. He is quite fluent in Pidgin, having lived for perhaps two years at the government patrol post of Koroba. His age is approximately seventeen.

3. Outline of Phonemes.

3.1. Chart of Phonemes.

3.1.1. Consonants.

		Bilabial	Alveolar	Velar
	aspirated	p ^h	t ^h	k ^h
<u>Obstruents</u>	un- aspirated	p	t	k
	prenasal- ized	m _b	n _d	ŋ _g
<u>Nasals</u>		m	n	
<u>Flap</u>			r	
<u>Lateral</u> <i>flap</i>			l	
<u>Semi-consonants</u>		w	y	h

* Throughout the paper t^h symbolizes t^h; t, ṭ; n_g, n_g; r, ʀ; l, ḷ; and etically, ṭ is t.

3.1.2. Vowels.

	Front	Central	Back
High	i		u
Low	e	a	o

3.2. Verbal description of contrastive features.

3.2.1. Consonants.

Aspirated, unaspirated, and prenasalized obstruents, nasals, flaps, laterals, and semi-consonants contrast in manner of articulation. Obstruents and semi-consonants contrast in bilabial, alveolar, and velar points of articulation, and nasals in bilabial and alveolar positions.

3.2.2. Vowels.

Vowels contrast in front, central, and back tongue positions. Front and back vowels contrast between high and low positions. There is contrast between nasalization and non-nasalization on all vowels.

4. Interpretation.

- 4.1. The status of items which may be either consonant or vowel.

Labialization and palatalization may be interpreted either as the vowels /u/ and /i/, or as parts of complex consonants (e.g., /p^w/, /t^w/, /n_g^w/, /t^y/, /n^y/, /n_g^y/), or as separate consonants with /w/ and /y/ causing emic consonant clusters.

In this paper labialization and palatalization have been interpreted as /u/ and /i/ respectively. Further discussion of the problems involved is presented in Section 6 of this paper.

Where two or more vowels are separated by semi-consonants /y/ or /w/, these semi-consonants have been interpreted as consonants. This interpretation, though not obligatory, appears more normal since the language is characterized by frequent occurrence of vowel clusters of two, but comparatively infrequent occurrence of vowel clusters of three.

- 4.2. The status of items which may be either sequence or unit.

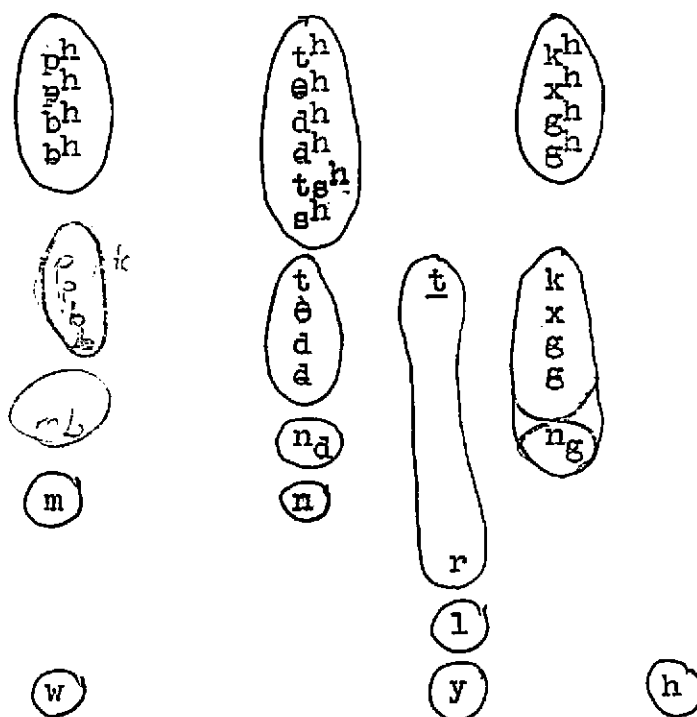
Since there are no non-suspect consonant clusters, and since n_a, m_b, and n_g occur in word-initial position, all contoid clusters have been interpreted as single complex consonants.

- 4.3. Lengthened vowels have been interpreted as a series of two vowels.

5. Description of Phonemes.

5.1. Consonants.

5.1.1. Work Chart.



5.1.2. Description.

All aspirated and unaspirated obstruents fluctuate between voicing and voicelessness and between stop and fricative. In rapid speech the tendency is toward fricatives and in slow speech, the stopped variant. In all cases the norm tends to be voicelessness.

Aspirated obstruents occur only word initially.

- /p^h/ [p^h] aspirated bilabial obstruent
 /p^hukua/ [p^huk^{wa}] "large"
- /t^h/ [t^h] aspirated dental obstruent
 /t^hia/ [t^hia] "foot, leg" [t^h] + [s^h] + [g^h] mispronounced
- /k^h/ [k^h] aspirated velar obstruent
 /k^hone/ [k^hone] "very"

Unaspirated obstruents occur word initially and word medially. (Medial [p] occurs in mutual exclusion to both initial [p^h] and initial [p], and as such could be made a submember of either /p^h/ or /p/. Since it is phonetically the same as initial [p], it has been made a submember of /p/. Medial [t] and medial [k] have been handled in similar fashion.)

/p/ [p] unaspirated bilabial obstruent
/peli/ [peli] "good"

/t/ [t] unaspirated dental obstruent
/tei/ [tei] "light"

/k/ [k] unaspirated velar obstruent
/kone/ [kone] "seed, bulb"

Prenasalized obstruents are always voiced and occur word initially and word medially.

/m^b/ ~~m~~[m^b] prenasalized bilabial obstruent
/a^{mb}ua/ [a^{mb}wa] "yellow"

/n^d/ [n^d] prenasalized dental obstruent
/a^{nda}/ [a^{nda}] "house"

/n^g/ [n^g] prenasalized velar obstruent
/a^{nga}/ [a^{nga}] "nut"

Nasals, flaps, laterals, and semi-consonants (except /h/) all occur both word initially and medially.

/m/ [m] voiced bilabial nasal
/ma^{nda}/ [ma^{nda}] "wig"

/n/ [n] voiced dental nasal
/nane/ [nane] "unmarried male"

/r/ [t̪] voiceless unaspirated alveolar stop, occurring only phrase initially
/rowa/ [t̪owa] "fire, wood, tree"

[r] retroflexed voiced alveolar flap, occurring only phrase medially
/narowa/ [narowa] "a tree"

/l/ [l] retroflexed voiced alveolar lateral
/elo-/ [elo-] "to stagger"

/w/ [w] voiced bilabial semi-consonant
/wane/ [wane] "daughter"

/y/ [y] voiced alveolar semi-consonant
/yapa/ [yapa] "two"

Semi-consonant /h/ occurs word initially only. (To date two possible instances of word-medial /h/ have been observed, but these require further investigation as to word-breaks, etc.)

/h/ [h] voiceless glottal fricative
/hoⁿgo/ [hoⁿgo] "strong"

5.1.3. Contrasts of all suspect consonants.

/p/ vs. /p^h/ /pakaⁿda/ [pakaⁿda] "will share out (pig, meat)"
/phaⁿkaⁿda/ [phaⁿkaⁿda] "will open wings, petals"

/po^mbo/ [po^mbo] "cricket"
/pho^mbo/ [pho^mbo] "a covering of food during mumu"

/pou/ [pou] "swollen (of face)"
/phou/ [phou] "bent, eight"

/paku/ [paku] "calf of a leg"
/phaⁿku/ [phaⁿku] "a tree"

/paye/ [paye] "good"
/phaⁿaye/ [phaⁿaye] "shoulder"

/t/ vs. /t^h/ /tei/ [tei] "light"
/theya-/ [theya] "to get, pick up"

/tiari/ [tiari] "if"
/thia/ [thia] "foot, leg"

/tapa/ [tapa] "man's skirt"
/thaⁿpake/ [thaⁿpake] "a tree"

/tapa/ [tapa] "man's skirt"
/thaⁿapu/ [thaⁿapu] "pit pit shoots"

/ta/ [ta] "taro"
/thaⁿalo/ [thaⁿalo] "confused, in doubt (mad)"

/t^h/ vs. /y/ /thaⁿko/ [thaⁿko] "a sugar cane"
/yako/ [yako] "outer wrapping (for mumu etc.)"

/thaⁿapu/ [thaⁿapu] "pit pit shoots"
/yapa/ [yapa] "two"

/thaⁿakane/ [thaⁿakane] "stomach"
/yaka/ [yaka] "name"

/thoko/ [thoko] "rotten"
/yoko/ [yoko] "dry, withered"

/thuri thuri-/ [thuri thuri-] "to fight"
/yuri [yuri] "needle grass"

/k/ vs. /k ^h /	/kapone/	[kapone]	"a tree"
	/k ^h apone/	[k ^h apone]	"strong wood used as digging stick"
	/kane/	[kane]	"a pandanus"
	/k ^h ane/	[k ^h ane]	"man's sister, woman's brother"
	/ke ⁿ da/	[ke ⁿ da]	"will see"
	/k ^h e ⁿ da/	[k ^h e ⁿ da]	"splinter"
/m ^b / vs. /p/	/kone/	[kone]	"seed, flower, bulb, fruit"
	/k ^h one/	[k ^h one]	"very, true, truly"
	/konane/	[konane]	"tomorrow"
	/k ^h onane/	[k ^h onane]	"ear"
	/m ^b uli/	[m ^b uli]	"a tree"
	/pulu-/	[pulu-]	"to stamp (foot)"
/n ^d / vs. /t/	/m ^b awo/	[m ^b awo]	"a gourd"
	/pawi/	[pawi]	"mean"
	/a ^m bolo/	[a ^m bolo]	"a baby"
	/apona/	[apona]	"over there (on the level)"
	/a ^m bolu/	[a ^m bolu]	"a baby"
	/apalu/	[apalu]	"dust"
/ŋ/ vs. /k/	/m ^b ou/	[m ^b ou]	"garden"
	/pou/	[pou]	"swollen (of face)"
	/a ⁿ da/	[a ⁿ da]	"house"
	/ataka/	[ataka]	"a fern"
	/e ⁿ de/	[e ⁿ de]	"top of banana stalk"
	/eto-/	[eto-]	"across the gully, over there"
	/n ^d ako/	[n ^d ako]	"loop, slip knot"
	/tapa/	[tapa]	"man's skirt"
	/n ^d eo/	[n ^d eo]	"said of wood that doesn't split easily"
	/tei/	[tei]	"light"
	/ŋguani/	[ŋguani]	"fat"
	/kuani/	[k ^w ani]	"unripe"
	/a ^ŋ gou/	[a ^ŋ gou]	"sugar cane"
	/akou/	[akou]	"butcher bird"

/p^hara-/ [p^hara-] "to fall down"
 /phata khuni/ [p^hata khuni] "hip bone"

/p^hero/ [p^hero] "peg, clamp, tongs for fire"
 /p^heto-/ [p^heto-] "to stab"

/arako/ [arako] "middle"
 /ataka kh^hia/ [ataka kh^hia] "a fern"

/awori/ [awori] "type of sweet potato"
 /awotj/ [awotj] "dark"

/pero/ [pero] "peg, clamp, native tongs"
 /reto/ [reto] "tight, jammed"

/r/ vs. /t^h/ /rako/ [tako] "roots, veins, sinews"
 /t^hako/ [t^hako] "a sugar cane"

/rapakia/ [tapakia] "ten"
 /t^hapake/ [t^hapake] "a tree"

/reke/ [teke] "to crack, burst, split open"
 /t^heke/ [t^heke] "a twang of a bow"

/rⁿindini/ [tⁿindini] "end posts in a wall"
 /t^hindini/ [t^hindini] "group, crowd"

/roko-/ [toko-] "to stretch out"
 /t^hoko/ [t^hoko] "rotten"

/l/ vs. /r/ /lere-/ [lere-] "to tear"
 /rere/ [tere] "small grasshopper"

/loko/ [loko] "starting to bear"
 /roko/ [toko] "taut"

/lepake/ [lepake] "tree snake"
 /repane/ [tepane] "eleven"

/elo-/ [elo-] "to stagger"
 /ero-/ [ero-] "to pull a bow string"

/kele/ [kele] "quill"
 /kere koya-/ [kere koya-] "to hang up"

/l/ vs. /t^h/ /lapo/ [lapo] "pandanus leaf rain coat"
 /t^hapu/ [t^hapu] "pit pit shoots"

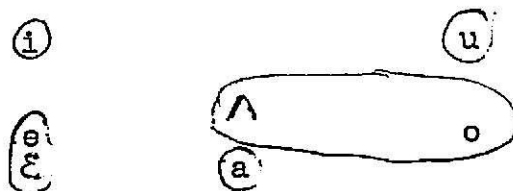
/loko/ [loko] "starting to bear"
 /t^hoko/ [t^hoko] "rotten"

/lere-/ [lere-] "to tear"
 /t^hete/ [t^hete] "a flea"

- /lu/ [lu] "moss"
 /t^huu/ [t^huu] "youngest child"
- /la^mba/ [la^mpa] "a tree"
 /t^ha^mbi/ [t^ha^mbi] "thigh"
- /w/ vs. /p^h/ /wataka/ [wataka] "a tree"
 /p^hatako/ [p^hatako] "a tree"
- /wane/ [wane] "daughter"
 /p^hane/ [p^hane] "side of person at ribs"
- /walu/ [walu] "a tree"
 /p^hala/ [p^hala] "a tree"
- /waka kei-/ [waka kei] "to hide"
 /p^haka-/ [p^haka-] "to open wings, petals"
- /wataka/ [wataka] "a tree"
 /p^hatala/ [p^hatala] "a tree"
- /w/ vs. /p/ /waka-/ [waka-] "to track wild animal"
 /paka-/ [paka-] "to share out (pig, meat)"
- /wane/ [wane] "daughter"
 /pana/ [pana] "where?"
- /witini/ [witini] "a tree"
 /pitiri/ [pitiri] "stump"
- /awi arako/ [awi arako] "middle of night"
 /api/ [api] "male species"
- /awe/ [awe] "after"
 /apene/ [apene] "side of a person"
- /h/ vs. /k^h/ /haka/ [haka] "a language, talk, noise"
 /k^haka/ [k^haka] "a tree"
- /hane/ [hane] "wall with door"
 /k^hane/ [k^hane] "man's sister, woman's brother"
- /hewa/ [hewa] "sun, day"
 /k^hewa/ [k^hewa] "lazy, fed up"
- /hi-/ [hi-] "to be stiff after much walking"
 /k^hi-/ [k^hi-] "to leave, throw away"
- /ho/ [ho] "here"
 /k^ho/ [k^ho] "he, she, it (intrans.)"

5.2. Vowels.

5.2.1. Work Chart.



5.2.2. Description.

- /i/ [i] high close front unrounded voiced vocoid
/ipa/ [ipa] "water"
- /e/ [ɛ] mid open front unrounded voiced vocoid
occurring with [e] elsewhere
/yene/ [yɛne] "itchy"
- /e/ [e] mid close front unrounded voiced vocoid
occurring except following /y/ and /i/
/epo/ [epo] "nice, fresh, raw"
- /a/ [a] low open central unrounded voiced vocoid
/api/ [api] "salt"
- /o/ [ʌ] mid open central unrounded voiced vocoid
occurring following /w/ or /u/
/woka/ [waka] "a plantain banana"
- [o] mid close back rounded voiced vocoid
occurring elsewhere
/oke/ [oke] "shade (of inanimate objects)"
- /u/ [u] high close back rounded voiced vocoid
/uri/ [uri] "wild bee (honey used as glue)"

5.2.3. Contrasts of all suspect vowels.

- /i/ vs. /e/ /ipa/ [ipa] "water"
/epa-/ [epa-] "there, over there"
- /k^heni/ [k^heni] "man's brother"
/k^hene/ [k^hene] "funeral"

- /peli/ [peli] "good"
/pele-/ [pele-] "to chop"
/k^haki/ [k^haki] "coffin"
/k^hake/ [k^hake] "a bird"

/e/ vs. /a/	/rate/	[tate]	"red seed necklace"
	/rata/	[tata]	"a hand of bananas"
	/pero/	[pero]	"peg, clamp, native tongs"
	/para/	[para]	"outer skin, husk, petal"
	/hewe/	[hewe]	"a tree"
	/hewa/	[hewa]	"sun, day"
	/hale/	[hale]	"banana"
	/hala/	[hala]	"battens"
	/kole/	[kole]	"dead man"
	/kola-/	[kola-]	"to lop off branches"
/a/ vs. /o/	/hapa/	[hapa]	"egg"
	/hapo/	[hapo]	"duck"
	/raka/	[taka]	"six"
	/rako/	[tako]	"roots, veins, sinews"
	/naka/	[naka]	"little grass snake"
	/nako/	[nako]	"you, they (dual intrans. & possessive)"
	/k ^h ora-/	[k ^h ora-]	"to fill up"
	/k ^h oro-/	[k ^h oro-]	"to boil in a pot, mumu"
	/ataka kia/	[ataka kia]	"a fern"
	/atoke/	[atoke]	"armpit"
/a/ vs. /i/	/rama/	[tame]	"a spirit"
	/ramu-/	[tamu-]	"to splash"
	/kuma/	[kuma]	"nose, beak"
	/kumu/	[kumu]	"comb"
	/pake-/	[paka-]	"to share out (pig, meat)"
	/paku/	[paku]	"calf of a leg"
	/apia/	[apia]	"type of cane grass"
	/apiu/	[apiu]	"ripe"
	/arini/	[arini]	"more (of it)"
	/uri/	[uri]	"wild bee (honey used as glue)"
/u/ vs. /i/	/aruni/	[aruni]	"son's wife"
	/arini/	[arini]	"more (of it)"
	/a ⁿ du/	[a ⁿ du]	"breast, milk"
	/a ⁿ di/	[a ⁿ di]	"thorn"
	/muku/	[muku]	"a bird"
	/muki/	[muki]	"horizontal beams of a house (above door)"

/k^hunu/ [k^hunu] "they"
 /k^huni/ [k^huni] "bone"

/kiku/ [kiku] "rough ground"
 /kiki/ [kiki] "split wood fence"

/u/ vs. /o/ /pulu-/ [pulu-] "to stamp (foot)"
 /a^mbolc/ [a^mbolo] "baby"

/kuni/ [kuni] "head"
 /kono-/ [kono-] "to think, remember"

/haru/ [haru] "enough"
 /haro/ [haro] "a tree"

/p^huru/ [p^huru] "skin"
 /p^horo/ [p^horo] "a root for weaving armbands"

/mapu-/ [mapu-] "to go around in a circle"
 /hapo/ [hapo] "duck"

5.3. Supra-segmental items.

5.3.1. The phenemic status of tone and stress, and their inter-relationship to each other, is as yet undetermined.

5.3.2. Nasalization.

5.3.2.1. Nasalization in Duna is phonemic.

Once nasalization commences, it continues throughout the word. Thus only the first occurrence of nasalization is considered emic, the remaining nasalization being predictable.

/palena/ [palena] "squirrel"

/k^herere/ [k^herere] "the call of the cicada"

/manaya/ [manaya] "fence"

/k^henewa-/ [k^henewa-] "to sympathise"

To date all vowel clusters have been found either with nasalization or non-nasalization throughout.

/pee/ [pee] "wild bamboo"

/pee/ [pee] "to peep"

/khuawaa-/ [khuawaa-] "let him/her cough"

/liao-/ [liao-] "to dry"

5.3.2.2. Contrasts in nasalization.

<u>i</u>		
INITIAL	non-nasalized	/ni ^h ɪ-/ [ni ^h ɪ-] "to bark"
	nasalized	/ni ^h ɪ̃-/ [ni ^h ɪ̃-] "to breathe"
MEDIAL	non-nasalized	/ku ⁿ diye/ [ku ⁿ dĩɛ] "two ^{multi} engine plane"
	nasalized	/ka ^l ɪye/ [ka ^l ɪ̃ɛ] "a wood fungus"
FINAL	non-nasalized	/turi turi-/ [turi turi-] "to fight"
	nasalized	/pu ^r i-/ [pu ^r ĩ-] "to sweat"

<u>e</u>		
INITIAL	non-nasalized	/k ^h ene ^p ɛ-/ [k ^h enebɛ] "a funeral"
	nasalized	/k ^h ene ^w ɛ-/ [k ^h ene ^w ɛ̃-] "to sympathise"
MEDIAL	NONE	
FINAL	non-nasalized	/uru ^k ele/ [uru ^k ele] "small parrot"
	nasalized	/ole ^l ɛ/ [ole ^l ɛ̃] "cicada"

<u>a</u>		
INITIAL	non-nasalized	/ra ⁿ ɛ-/ [tɛna] "tail, backbone, handle"
	nasalized	/rɛ̃ɛ-/ [tɛ̃ɛ] "a tree"
MEDIAL	non-nasalized	/na ^w ɛna ^r ɛɛ-/ [na ^w ɛna ⁿ ɛɛ-] "do not ask"
	nasalized	/ma ⁿ ɛɛɛ-/ [ma ⁿ ɛ̃ɛ̃ɛ̃] "fence"
FINAL	NONE	

<u>o</u>		
INITIAL	non-nasalized	/ko ^y ɛ-/ [ko ^y ɛ-] "to make, build"
	nasalized	/y ^ɔ y ^ɔ n ^g o ^y ɛ-/ [y ^ɔ y ^ɔ n ^g o ^y ɛ̃-] "to crawl (of snake)"
MEDIAL	non-nasalized	/yo ^k o ^y ɛ/ [yo ^k o ^y ɛ] "very small variety or tabu"
	nasalized	/uru ^w o ^y ɛ/ [uru ^w o ^y ɛ̃] "a native drum"
FINAL	NONE	

u

INITIAL	NONE	
	non-nasalized	/p ^h alunuo/ [p alup ^h u] "strand of hair"
MEDIAL	nasalized	/t ^h akuw ^o / [t ^h aku ^o] "cuscus"
FINAL	NONE	

CVCVCV vs. CVCVCV

/k^henewa-/ [k^henewa-] "to sympathise"
 /k^herere/ [k^herere] "the call of the cacada"

CVCVCV vs. CVCVCV

/reware/ [teware] "quail-like bird"
 /t^hakuwo/ [t^hakuw^o] "cuscus"

CVCV vs. CVCV

/ngili ngele/ [ngili ngele] "bulldog ant"
~~/nguni/ [nguni] "name of a demon"~~
 /puri/ [puri] "to sweat"

5.3.3. Intonation has not been handled to date.

6. Controversial or unsolved issues.

It has been previously mentioned in Section 4.1. that labialization and palatalization may be interpreted either as vowels, or as an integral part of complex consonants, or as separate consonants.

Factors involved in their interpretation as vowels:

1. The number of phonemes is greatly reduced.
2. The language patterns with vowel clusters.
3. An additional CV pattern is introduced.
4. A non-syllabic vowel is introduced. This would cause stress (or tone) to occur on syllabic vowels only.

Factors involved in their interpretation as part of complex consonants:

1. All vowels would be syllabic, i.e., each vowel would be capable of taking stress (or tone) placement.
2. The language has some complex consonants but no consonant clusters.
3. The number of phonemes is greatly increased.

Factors involved in their interpretation as separate consonants:

1. /w/ and /y/ already occur as separate phonemes.
2. The number of phonemes is greatly reduced.
3. Labialization and palatalization occur with a variety of different consonants.
4. Consonant clusters do not occur.

It would appear that the complex consonant interpretation is the least advantageous. Either the vowel or the separate consonant interpretations produce new syllable patterns, i.e., CVV or CCV. The vowel interpretation seems to be the most acceptable. As far as can be determined at present, native reaction favors this analysis.

Some words at first observation do not seem to fit the vowel interpretation, because the [u] or [i] preceding a following vowel is syllabic, e.g.

[khua]
[khama]
[undia]

For this reason we state that non-syllabic palatalization and labialization occur before vowels, and that syllabic /i/ and /u/ are followed by consonants. Length has previously been interpreted as a series of two vowels (see Section 4.1.). Thus when a syllabic /i/ or /u/ precedes an unlike vowel, the /i/ and /u/ are respectively interpreted as being /iy/ and /uw/.

Syllabic /u/ and /i/ in the above examples contrast with labialization and palatalization in similar environments, e.g.

khua- /khuwa/ [khua] "come"
 /k^hwa-/ [k^hwa-] "to cough"

khia /khiyama-/ [khiama-] "to track"
 /k^hja/ [k^hya] "excretion"

andia /undiya/ [undia] "a small parrot"
 /yawⁱ andⁱya/ [yawⁱ andⁱya] "species of squirrel"

Palatalization has been observed only occurring with /t/, /k/, /k^h/, /nd/, and /n^h/. Of these only /nd/ and /k^h/ have also been found before /iy/.

Labialization has been observed with all consonants except /w/, /y/, /~~h~~/, and /n/. /k^h/ alone has been observed preceding /uw/.

7. Distribution.

7.1. General.

The following three syllable patterns occur in the language: V, CV, and CVV. Examples are now given of their occurrence in various positions within words.

	INITIALLY	MEDIALY	FINALLY
V	/api/ "salt"	/ali ⁱ ange/ "tree"	/pokeo/ "ripe"
CV	/pana/ "where?"	/mokore/ "borer"	/henene/ "true"
CVV	^{ti} /t ^{ti} Xeri/ "if"	ⁱ /kunda ⁱ ale/ "vine"	ⁱ /mbat ⁱ ja/ "some"

Each of these CV patterns is found in isolation, forming by itself a complete word.

V - /e/ [e] "yes"
 CV - /ki/ [ki] "nine"
 CVV - /k^hwa-/ [k^hwa-] "to cough"

These syllables occur in any combinations to form words.

7.2. Specific.

The following consonant and vowel classes fill the syllable types: V_1 , C_1V_1 , and $C_2V_2V_1$.

V_1 represents all vowels

V_2 represents non-syllabic /i/ and /u/

C_1 represents all consonants

C_2 represents those consonants stated in Section 66 as taking labialization or palatalization.

Note that in the $C_2V_2V_1$ pattern, the combinations C_2uu and C_2ii do not exist. Where the lengthened /uu/ or /ii/ occurs, there is a syllable break between the vowels (as previously stated in Section 4.1.).

The only limitation of phoneme sequences apart from those already stated is the absence of /yi/ and /wu/.

8. Orthography.

8.1. Suggested orthography.

	<u>Preferred</u>	<u>Other possibilities for stops</u>	
/p ^h /	ph	ph	p
/p/	p	p	b
/t ^h /	th	th	t
/t/	t	t	d
/k ^h /	kh	kh	k
/k/	k	k	g
/m ^b /	mp	b	mb
/n ^d /	nt	d	nd
/n ^g /	nk	g	ng
/m/	m		
/n/	n		
/r/	r		
/l/	l		
/w/	w		
/y/	y		
/h/	h		
/i/	i		
/e/	e		
/a/	a		
/o/	o		
/u/	u		

Nasalization: If there proved to be very little ambiguity by not writing nasalization, the preference would be to leave it unwritten. Otherwise the choice would be either the use of underlining or the cedilla.

Tone-Stress: Yet to be handled.

Factors for consideration relating to the above suggested orthographies:

Preferred.

1. The symbols are closer to their English equivalents.
2. It would not be necessary to introduce three symbols, i.e., b, d, g.
3. Out of nine types of stops, six are written with double letters.
4. "mb" is ~~more~~ difficult for the native to write.

Alternate #1.

1. Three additional symbols: b, d, g.
2. These three symbols are not equivalent to English.

Alternate #2.

1. The non-prenasalized stops are not equivalent to English.
2. "mb" is more difficult for the natives to write than is "ph".

8.2. A list of English and Pidgin words as pronounced by vernacular speakers:

<u>English</u>	<u>Pidgin</u>	<u>Vernacular</u>
store		[sito]
belong	bilong	[bilo]
hot		[has]
meat		[mis]
good night	gutnait	[gunait]
coffee		[kapi]
understand	save	[sabe]
forget it	maski	[masiki]
dish		[dis]
story	stori	[stori]
flower		[plauwa]
fire		[paiya]
water	wara	[wara]
think		[tin tin]
sing sing	ting ting	[tsɛn tsɛn]
sit down	sing sing	[sɛndaun]
deceive	sindaun	[kɛman]
church	giaman	[losu]
stove	lotu	[sisop]

8.3. Sample Text.

Emumurumuta ⁿgoyaroko imaana tok^{wa} it^{ya} t^hata k^horaya
 rumurumuta ⁿgoyaroko imaana rokwa it^{ya} t^hata khoraya
 While (I) was going to Tari many people killed and were
 karua. k^haro hat^{ya}ata towa ikaru kata karua. na^mpatuk^{wa}
 karua. kharo hatiata rowa ikaru kata karuwa. ~~na~~mpatukwa
 mumuing a pig. Sticks across the road closed it; the car
 stopped and waited. Patrol officer number two pulled out
 t^hata anoa ⁿdu t^hut^{ya}. t^hata t^heⁿgora. mei ⁿdure take-
 t^hata anoa ntu t^hutia. t^hata thenkora. mei nt^ure take-
 and picked up (a stick) and hit a man. They stopped and walked.
 romata ⁿgayauku k^hau ⁿdu, yapa karua, k^hau yapa kata,
 ramata nkayauku khau ntu, yapa karua, khau yapa kata,
 Up one slope on a hill there was a white man, two white men,
 kapoⁿda yapa karua inu nakaya keyako. kata t^heⁿgayaroko
 kaponta yapa karua inu nakaya keyako. kata thenkayaroko
 and two iron-roofed houses. All talked and looked. While we
emumurumuta balusi p^huk^{wa} ⁿdu hut^{ya}. h^wata taputapu p^huk^{wa}
 rumurumuta baluti phukua ntu hutia. huata taputapu phukua
 stopped and walked a big plane came into Tari. It brought a
 tok^{wa} thuwata opiti aⁿdata t^hiya oraera. inu tokota aⁿdata
 takua thuwata opiti antata thiya oraera. inu tokota antata
 lot of cargo; we put it in the office. You said, "You all go
 ma tit^{ya}. k^hau yapa nako ipati naⁿda ⁿg^winya tit^{ya}.
 ma titia. khau yapa nako ipati nanta nkuinia titia.
 to the house-sick." You two white men will drink tea, you said.

Medial occurrences of /p/, /t/, and /k/ to supplement the initial occurrences listed on page five.

/p/ [p] unaspirated bilabial obstruent
/api/ [api] "salt"

/t/ [t] unaspirated dental obstruent
/atako/ [atako] "middle"

/k/ [k] unaspirated velar obstruent
(see e.g. given for /t/ above)

Initial occurrences of /mb/, /nd/, and /ng/ to supplement the medial occurrences listed on page five.

/mb/ [mb] prenasalized bilabial obstruent
/mbuli/ [mbuli] "a tree"

/nd/ [nd] prenasalized dental obstruent
/ndu/ [ndu] "one"

/ng/ [ng] prenasalized velar obstruent
/nguni/ [nguni] "bad"

Contrasts for:

/l/ vs. /t/	/loko/ [loko]	"starting to bear"
	/toko/ [toko]	"rotten"
	/luna/ [luna]	"jew's harp"
	/tumu tumu/ [tumu tumu]	"smell of meat"
	/lapo/ [lapo]	"wasteland"
	/tapu/ [tapu]	"pit pit shoots"
/k/ vs. /h/	/kona/ [kona]	"seven"
	/homa/ [homa]	"a tree"
	/kili/ [kili]	"a sugar cane"
	/hili/ [hili]	"a tree"
	/kewa/ [kewa]	"a large vine"
	/hewa/ [hewa]	"sun, day"

Chart 1.

D

Southeastern Duna

English

Initial	Intervocalic	Initial	Intervocalic
/p ^h / [p ^h] [p]	—	/f/ [f]	[f]
/p/ [p] [b]	[p] [p] [b] [b]	/p/ [p ^h]	[p] [p ^h]
		/b/ [b] [p]	[b]
/t ^h / [t ^h] [tə]	—	/e/ [e]	[e]
/t/ [t] [d]	[t] [d] [d]	/t/ [t ^h]	[t] [t ^h]
		/d/ [d] [t]	[d]
/k ^h / [k ^h] [x]	—	/k/ [k ^h]	[k] [k ^h]
/k/ [k] [g]	[k] [x] [g]	/g/ [g] [k]	[g]

Chart 2

Northeastern Duna

English

Northeastern Duna		English	
Initial	Intervocalic	Initial	Intervocalic
/p ^h / [p ^h] [p]	—	/f/ [f]	[f]
/p/ [p] [b]	[p] [p] [b] [b]	/p/ [p ^h] [p] [p ^h]	
		/b/ [b] [p] [b]	[b]
/t ^h / [t ^h] [ts ^h] [s]	—	/e/ [e]	[e]
/t/ [t] [d]	[t] [d]	/s/ [s]	[s]
		/č/ [tʃ ^h] [tʃ] [tʃ ^h]	
/k ^h / [k ^h] [x]	—	/t/ [t ^h] [t] [t ^h]	
/k/ [k] [g]	[k] [x] [g]	/d/ [d] [t] [d]	
		/k/ [k ^k] [k] [k ^h]	
		/g/ [g] [k] [g]	

Chart 3.

Western Duna		English	
Initial	Intervocalic	Initial	Intervocalic
/p/ [p] [b]	[p] [ə] [b] [p]	/p/ [p ^h]	[p] [p ^h]
		/b/ [b] [p]	[b]
/s/ [s] ʀ	—	/ə/ [ə]	[ə]
		/s/ [s]	[s]
/t/ [t] [d]	[t] [ə] [d]	/t/ [t ^h]	[t] [t ^h]
		/d/ [d] [t]	[d]
/k/ [k] [g]	[k] [x] [g]	/k/ [k ^h]	[k] [k ^h]
		/g/ [g] [k]	[g]

Chart 4.

Correspondences in English Loanwords in Duna

(Pidgin) English	Southeastern Duna Initial	Intervocalic
/f/	/p/ 4 /p ^h / 1	/p/ 2
/v/	-	/p/ 2
/p/	/p/ 5	/p/ 5
/b/	/m ^b / 6	/p/ 5
/s/	/t ^h / 5	/t ^h / 9 /w/ 5
/ʃ/	/t ^h / 1	/t ^h / 1 /t/ 1
/t/	/t/ 4 /t ^h / 1	/t/ 6
/d/	/h ^d / 1 /h/ 1 /t/ 1	/r/ 2
/k/	/k/ 7	/k/ 6
/g/	/ŋ ^g / 3	/k/ 1
/ŋg/	-	/ŋ ^g / 1
/h/	/h/ 4	-
#	# 6 /h/ 1	-

Chart 5.

Duna Dialect Correspondences

Southeastern

/p^h/

/p/

/t^h/

/t/

/k^h/

/k/

/h/

Northeastern

/p^h/

/p/

/t^h/

/t/

/k^h/

/k/

/h/

Western

/p/

/p/

/s/

/t/, /l/ or /ly/

before /a/

/k/

/k/

#, /h/