PHONEMIC SYSTEMS OF COLOMBIAN LANGUAGES

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EDITOR'S NOTE

The studies of this monograph are presented as tentative, as Dr. Waterhouse indicates in her introduction. Bibliography and discussion of related languages in the literature are, therefore, omitted. The studies were prepared in a field seminar held in Lomalinda, the base of the Summer Institute of Linguistics operation in Colombia, from February to April 1965 under Dr. Waterhouse's direction.

The papers are data oriented and all cast in the same format for easy comparison. It is hoped that the volume will be useful in shedding light on some of the little-known languages of South America.

INTRODUCTION

This volume is composed of preliminary phonological statements of seven indigenous languages of Colombia, South America. The authors, with one exception, had resided less than a year in the areas where the languages are spoken, hence no claim is made that these papers represent the last word on these languages. Rather, an attempt is here made to present routine structural statements, in a more or less uniform format, of preliminary (but I am convinced solid) data from a group of hitherto little-known languages.

The first two languages described, Tucano and Guanano, are members of the Eastern Tucanoan family, spoken in the Vaupés area. Yucuna and Guajiro are classed as Arawakan, Muinane as Boran, Camsá as Mocoa, Guahibo as Guahibo-Pamigua. Muinane and Yucuna are spoken to the south of the Tucanoan area, Guahibo to the north. The other two are found in the western part of the country, Guajiro in the Guajiro peninsula to the north, Camsá in the Sibundoy valley in the south.

Of interest to area linguistics is the similar six-vowel system found in six of the seven languages, the complex consonantal system of Camsá, and the diversity of suprasegmental systems encountered.

The specific characteristics of each language are presented in a brief note before each paper.

Viola G. Waterhouse

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PHONEMIC SYSTEM OF TUCANO

Birdie West and Betty Welch

The Tucano language is of special interest from a sociolinguistic standpoint, as the trade language of the multilingual Vaupés area. The interaction of the various Tucanoan languages spoken in the Vaupés merits a separate study of its own, to ascertain what, if any, has been the amount and direction of borrowing.

A special feature of Tucano (and Tucanoan) is the complementary distribution of certain oral consonants and their nasal counterparts, conditioned by occurrence next to oral or nasalized vowels.

A further feature of Tucano is the suprasegmental system, here presented in bare outline. The patterns of multiple stress, with crescendo and decrescendo, and the patterns of pitch and pitch perturbation should be presented in a separate article when they have been analyzed more fully.

7. Observations on special phonetic characteristics

8. Morphophonemic alternation

9. Higher level units

1. Introduction. Tucano is a member of the Eastern Tucanoan language family and is spoken along the Papurí River and its tributaries, extending into Brazil. The estimated number of living Tucanos in Colombia is 1500. The following paper is based on data gathered in Acaricuara, located on the Paca River, between July, 1963, and November, 1964, and represents the Acaricuara dialect. Various vowel changes have been observed in the downriver dialect which are not handled in this paper.

The principal informants used are: Berta Cordero, 20 years of age, Teodora Forero, 25 years of age, Nasaria Cordero, 55 years of age, Porfirio Neira, 24 years of age, Joaquina Chagres, 19 years of age, Lucina Gonzales, 16 years of age, Aracelia Neira, 15 years of age, Cándido Chagres, 14 years of age. All are bilingual in Spanish to varying degrees. Berta Cordero has the most fluent knowledge of Spanish.

A special characteristic of the Vaupés area is the multilinguality of its inhabitants. According to tribal custom, a member of one tribe must marry a member of a different tribe. This is especially true of tribes on the Papurí River and its tributaries.

All of the above informants are Tucanos, because their fathers are Tucanos. Their mothers are from four different tribes. Three have Desano mothers, two have Tuyuca mothers, one has a Siriano mother, and one has a Tariano mother.

Because of this situation all speakers of Eastern Tucanoan languages are familiar with more than one language of the family. Tucano is the trade language on the Papurí and tributaries; thus other inhabitants of that area are bilingual

in Tucano and may speak or understand several other languages as well.

2. Phoneme chart.

Consonants

	Bilabial	Alveolar	Palatal	Velar	Glottal
Voiceless stops	p	t		k	ʔ
Voiced stops	b	d		g	
Spirants		s			h
Flap		r			
Semivowels	w		y		

Vowels				Suprasegmental	
	Front	Central	Back	Stress	/ˈ/
High	i	ɨ	u	Pitch	/˴ ˉ ˋ/
Low	e	a	o	Nasalization	/V̨/

3. Consonants. There are eighteen segmental phonemes: twelve consonants and six vowels. The consonants consist of two series of stops, voiceless p t k ʔ and voiced b d g; spirants s h; semivowels w y; and a flap r.

Members of the voiceless stop series are bilabial, alveolar, velar, and glottal. Examples of initial and medial occurrence are as follows: pùʔtí 'mass of the bitter manioc', ʔòpé 'pitch', tùʔtíbį̀ 'he scolds', ʔòtéʔè 'I plant (seeds)', kùtírò 'chest', ʔàké 'monkey', ʔùtĩá 'wild honeybee', ʔòʔéʔè 'I grate bitter manioc'.

The voiced stops are bilabial, alveolar, and velar. Medially voiced stops tend to fortis articulation. The velar stop occurs only medially. bú 'guara (jungle rodent)',

bù?bé?è 'I plant by sticking in the ground', dí 'blood', wádàrì 'veins', págà 'stomach'.

The spirants are alveolar and glottal. The glottal spirant /h/ occurs only breath group medially. sè̤rá̤ 'pineapples, ?òsó 'bat', ?òhó 'banana'.

The semivowels are produced at the labial and alveopalatal points of articulation: wà?í 'fish', pòéwà 'rapids', yáí 'jaguar', dl̃áyì 'dog'.

The flap is alveolar and occurs breath group medially as shown in the following example: dl̃èrí 'eggs'.

3.1. Contrasts. Consonant phonemes are in contrast in analogous environments:

p/b/w	pì?í 'loosely woven basket', bì?í 'mouse', wì?í 'house'.
t/d/r	tá 'grass', dàsé 'toucan', pátù 'coca, a narcotic', pérù 'native beer', dl̃?pódl̃à 'heel', sà?pórì 'foam', bù?árò 'down-hill trail', bù?édà 'rainbow'.
k/g	ètákl̃ 'the one who arrived', ètágl̃ 'the one who is arriving'.
s/h/?	bà̤sá̤ 'people', bà̤há̤ 'macaw', bà̤?á̤ 'trail'.

3.2. Variants. Voiceless stops have varying degrees of aspiration according to speaker or utterance. Aspiration is more pronounced preceding /u/ and /l̃/. pṳ́rí̤ [pʰṳ́ñ̃í̤ʰ ~ pṳ́ñ̃í̤ʰ] 'leaf', wl̃ùpl̃ [wl̃ùpʰl̃ʰ ~ wl̃ùpl̃ʰ] 'airplane', tṳ̀rṳ̀pl̃ [tʰṳ̀ñ̃ṳ̀pʰl̤̃ʰ ~ tṳ̀ñ̃ṳ̀pl̃ʰ] 'car', pátù [pʰáthùh ~ pátùh] 'coca, a narcotic', kl̃ [kʰl̤̃ʰ ~ kl̤̃ʰ] 'he', kárẽ̤?kè̤ [kʰáñ̃ẽ̤?kʰẽ̤ʰ ~ káñ̃ẽ̤?kè̤ʰ] 'chicken'.

Pre-nasalized variants of the voiced stops occur breath group initially and following nasalized vowels medially. Since the voiced velar stop /g/ does not occur phonemic word initially there has been no occurrence of [ŋg] in this position. bè?ró [ᵐbè?róʰ] 'later', ?ṳ́bà?à [?ṳ́ᵐbà?àʰ] 'I don't know', dè?ró [ⁿdè?róʰ] 'what', Bà̤dú [mà̤ⁿdúʰ]

'Manuel, a name', ʔą́gārà [ʔą́ŋgāl̃à^{h}] 'Los Angeles, a village'.

All voiceless stops have pre-nasalized variants following a syllable which has voiceless consonant onset, nasalized vowel, and high pitch. kǫ́pè [kǫ́^{m}pɛ̀^{h}] 'left', wą̀kų́tį̀ [wą̀hkų́^{n}tį̀^{h}] 'remember?', wèhę́kɨ̀ [wɛ̀hę́^{ŋ}kɨ̀^{h}] 'fish net'.

All voiced consonants have nasal variants at the same points of articulation. The voiced bilabial nasal [m] is a variant of the voiced bilabial stop /b/, the voiced alveolar nasal [n] is a variant of the voiced alveolar stop /d/, the voiced velar nasal [ŋ] is a variant of the voiced velar stop /g/, the voiced alveolar nasal flap [ň] is a variant of the voiced alveolar flap /r/, the voiced bilabial nasalized semivowel [w̨] is a variant of the voiced bilabial semivowel /w/, the alveo-palatal nasalized semivowel [y̨] is a variant of the alveo-palatal semivowel /y/. The nasal variants occur preceding nasalized vowels whereas the oral variants occur preceding oral vowels. bàʔápɨ̀ [^{m}bàʔápɨ̀^{h}] 'I ate', bą̀ʔą́pɨ̀ [mą̀ʔą́pɨ̀^{h}] 'on the trail'; dìápɨ̀ [^{n}dìápɨ̀^{h}] 'at the river', dį̀ą́pɨ̀ [nį̀ą́pɨ̀^{h}] 'I was', págà [págà^{h}] 'stomach', pų́gɨ̨̀ [pų́ŋɨ̨̀^{h}] 'hammock'; sèré [sɛ̀ɾ̌ɛ́^{h}] 'a skin disease', sę̀rą́ [sɛ̨̀ňą́^{h}] 'pineapple'; wērē'ábì [wɛ̄ɾ̌ē'ámì^{h}] 'he told', wę̄rį̄'ą́bį̀ [w̨ɛ̨̄ňį̄'ą́mį̀^{h}] 'he died'; yùká [yùhká^{h}] 'vulture', yǫ̀ką́ [y̨ǫ̀hką́^{h}] 'a drink made from bitter manioc'.

The voiced bilabial semivowel /w/ has freely fluctuating variants ranging from no friction to light friction preceding mid vowels with slightly heavier friction preceding front vowels: wìʔí [ƀìʔí^{h} ~ wìʔí^{h}] 'house', wètá [ƀɛ̀htá^{h} ~ wɛ̀htá^{h}] 'tapioca', wɨ̀ɨ̀pɨ́ [ƀɨ̀ɨ̀pɨ́^{h} ~ wɨ̀ɨ̀pɨ́^{h}] 'airplane', pòéwà [pòéƀà^{h} ~ pòéwà^{h}] 'rapids'. A nasalized variant occurs before nasalized vowels: wę́ǫ́ [w̨ę́ǫ́^{h}] 'panpipe flutes', wą̀tį́ [w̨ą̀htį́^{h}] 'devil'.

The voiced alveopalatal semivowel /y/ has freely fluctuating variants ranging from no friction to slight friction to a semivowel with stopped onset: yɨ̀ʔɨ́ [^{d}yɨ̀ʔɨ́^{h} ~ yɨ̀ʔɨ́^{h}] 'I',

dl̀áyì [ⁿdl̀ádyì^{h} ~ dl̀áyì^{h}] 'dog', yèsé [^{d}yɛ̀hsɛ́^{h} ~ yɛ̀hsɛ́^{h}] 'pig'.

The voiced alveolar flap /r/ has three variants, voiced alveolar lateral flap, voiced alveolar nasal flap, and the voiced alveolar flap. The lateral flap [l̆] occurs only following mid and back oral vowels: pòárì [pòál̆ì^{h}] 'hair', sɨ̀rì á [sɨ̀l̆ì á^{h}] 'Siriano, an Indian tribe', ʔùùró [ʔùùl̆ó^{h}] 'word', kórè [kól̆è^{h}] 'to her'.

The nasal flap [n̆] occurs between nasalized vowels:[1] púrį́ [pún̆į́^{h}] 'leaf', sèrą́ [sèn̆ą́^{h}] 'pineapples', ʔą̀rį́ [ʔą̀n̆į́^{h}] 'sugar cane'.

The flap [r̆] occurs following front oral vowels: kùtírò [kùhtír̆ò^{h}] 'chest', dīèrí [ⁿdīèr̆í^{h}] 'eggs'.

The bilabial stops have an optional rounding or delayed opening of lip closure before /ɨ/.

4. Vowels. The vowels consist of two series, one of oral vowels and a second of the same vowels plus the phoneme of nasalization (see 5.3). The front vowels are voiced high close front unrounded /i/ and voiced mid open front unrounded /e/: pìʔí 'basket', pèʔégò 'break up sticks', kąʔí 'parakeet', péʔēkè 'a native fish dish'.

Central vowels are high close central unrounded /ɨ/ and voiced low open central unrounded /a/: ʔɨ̀só 'alligator',

[1] This is generally true; however, a few cases have been observed where only the following vowel is nasalized and the preceding oral vowel has a slightly nasalized offglide. This is the case in the word bèrárą̀ 'bee' and when the person plural marker morpheme {-rą} (discussed in 8) is suffixed to a stem ending in voiced oral consonant and oral vowel: yàʔgérą̀ 'let's chew!'

ʔàhṵ́ 'bread made from bitter manioc (plural)', ʔɨ̀sá̰ 'we (exclusive)', ʔàhá̰ 'gallineta, a jungle bird'.

Back vowels are voiced high close back rounded /u/ and voiced mid close back rounded /o/: ʔùhú 'pacu fish', ʔòhó 'banana', ʔàhṵ́ 'bread made from bitter manioc (plural)', ʔèhó̰ 'influenza'.

4.1. Contrasts. Oral vowels are in contrast in analogous environments as indicated in the following examples:

i/e	pì?í 'loosely woven basket', pè?é?è 'I break up sticks',
i/ɨ/u	bì?í 'mouse', bɨ̀?ɨ́ 'piranha (fish)', bù?ú 'tucunaré (fish)',
ɨ/a	bɨ̀?ɨ́ 'piranha (fish)', bà?á?à 'I eat',
u/o	ʔùhú 'pacu (fish)', ʔòhó 'banana'.

Oral vowels contrast with nasalized vowels:

i/į̰	wì?í 'house', wį̰?ró̰ 'wind',
e/ę̰	ʔèhú 'poison for fish', ʔèhó̰ 'influenza',
ɨ/ɨ̰	ʔɨ̀só 'alligator', ʔɨ̀sá̰ 'we (exclusive)',
a/a̰	kà?í 'brains', kà?ḭ́ 'parakeet',
u/ų̰	ʔùíbì 'he's afraid', ʔù?íɾì 'dirty',
o/o̰	ʔò?á?à 'I sweep', ʔò?á̰ 'bone'.

Nasalized vowels are in contrast in analogous environments:

į̰/ę̰	sḭ́ó̰ 'sister-in-law', wḛ́ó̰ 'pan-pipe flutes',
į̰/ɨ̰/ų̰	bḭ̀sḭ́ 'vine', bɨ̰̀sá̰ 'you (plural)', bṵ̀sá̰ 'seed containing red coloring used for painting the face',
ɨ̰/a̰	wɨ̰̀ɾɨ̰́ 'sloth', wḭ̀ɾá̰ 'Desano, an Indian tribe',
ų̰/o̰	ṵ̀bṵ́ 'beam', ḛ̀bó̰ 'howler monkey'.

4.2. Variants. The front vowel /e/, normally mid open unrounded [ɛ], has a close variant [e], which occurs

preceding vowels, velar stops, and labial semivowel /w/: pò?ékɨ̀ [pò?ékɨ̀ʰ] 'winter', séî [séîʰ] 'gray wooly monkey', kàpéâ [kàhpéâʰ] 'eye', pòéwà [pòéwàʰ] 'rapids', wèhę́kɨ̀ [wɛ̀hę́ᵑkɨ̀ʰ] 'fish net', wę́ǫ́ [wę́ǫ́ʰ] 'panpipe flutes', ?ę̀?kę̂ą [?ɛ̨̀?kę̂ąʰ] 'nose'.

The high back rounded vowel has a range of variation from the high close position to mid close position. This range of variation is symbolized by /u/.

The mid back rounded vowel has a range of variation from the mid close position to low close position. This range of variation is symbolized by /o/.

Vowels in syllables with low pitch have a fortis voiceless offglide when they occur preceding a stressed syllable with voiceless consonant onset. Vowels have lenis voiceless offglide breath group finally.

5. Suprasegmental phonemes. Suprasegmental features are stress, pitch, and nasalization.

5.1. Stress. All monosyllabic words are stressed: kɨ́ 'bitter manioc', tá 'grass'. Multiple stress occurs: (1) on two-syllable words, (2) on the two principal pitch pattern classes of three-syllable words, and (3) on various other three-syllable words. Stress is marked /'/ on words that do not have multiple stress. pų́rį́ 'leaf', dìá 'river', pátù 'coca', bɨ̨̀pɨ̨́rį̀ 'slats', sɨ̀rīá 'Siriano, an Indian tribe'. On two-syllable words and three-syllable words of multiple stress there is a crescendo from the first syllable to the ultimate: < bùpūwɨ́ 'blowgun', < yą́bą́ 'deer'. Words of four or more syllables crescendo to the second or third syllable and then decrescendo: < ų̀'bų́sē?rò > 'fingernail', < kàpē'wę́rį̀ > 'eyebrow'.

5.2. Pitch. The three significant pitch levels are:

high, marked /˝/, mid, marked /-/, low, marked /ˋ/. Monosyllabic words occur on /˝/ level: kɨ́ 'he', bú 'guara (jungle rodent). Words of two syllables occur in three pitch patterns: ˝˝, ˝ˋ, ˋ˝. dĩ́bá́ 'poison', dĩ́bà 'they are', sɛ̃́rá́ 'pineapples', sɛ̃́rà 'gray wooly monkeys'.

Words of three syllables occur in two principal pitch patterns: ˋ-˝, ˋ˝ˋ. wɨ̃ʔbãgɨ́ 'little boy', bùtūá 'termite', àkárò 'box', dàsɛ̃̀ 'Tucano man'. There are seven minor pitch patterns whose membership is limited: ˝˝˝, ˝--˝, ˝-ˋ, ˝˝ˋ, ˝ˋˋ, ˝-˝ˋ, ˝ˋ˝. dúbĩ́ó 'woman', dūbĩ́ó 'little sister (vocative form)', 'dĩà'kɨ́ 'straight', 'bó'bórò 'butterfly', dĩ́bàsà 'rubber hunter', kárɛ̃́ʔkɛ̀ 'chicken', 'pūdɨ́ʔbò 'hammock rope', kū'kúyò 'cocoanut palm'.

Some pitch patterns are perturbed with the addition of certain possessive pronouns: bãʔbɨ̃́ó 'sister', yɨ̀ʔɨ́ 'báʔbɨ̃́ó 'my sister', wɨ̃ʔĩ 'house', yá wɨ̃ʔɨ̀ 'my house'.

The suffix /-a/ 'noun pluralizer' has intrinsic stress and high pitch. When this suffix occurs on a word with ˋ˝ˋ pattern, the pitch perturbs to ˋ-˝: ètôà 'one lulo (jungle fruit)', ētòá 'lulos', dàsɛ̃̀ 'one Tucano man', dāsèá 'Tucanos'.

The suffix /-se/ 'nominalizer' has intrinsic stress and high pitch. When this suffix occurs on a word with ˋ˝ˋ pattern, the pitch perturbs to ˋ-˝: ʔàyúʔù 'it's good', ʔàyūsé 'a pretty thing', ʔòtéʔè 'I'm planting with seeds', ʔòtēsé 'seeds'.

5.3. Nasalization. Nasalization is a suprasegmental phoneme represented by /̃/ under each nasalized vowel. Generally nasalization carries throughout the entire word. dɨ̃tɨ́ 'charcoal', sūkùá 'small of back', yábɨ̃'ákà 'tomorrow'. If the first vowel in a vowel cluster is nasalized, the nasalization carries to the second vowel: wɛ́ɛ́ 'panpipe flutes', ʔɨ̄ʔkɨ̃́'árò 'deep'. Nasalization may sometimes be stopped by voiceless stops or a cluster of ʔC, and is always stopped by

a voiced stop: yàbíkà?à 'yesterday', ?ɬtápè 'rock', sà'hátlá 'Come in!', ká?à'dákà 'thin'. There are certain intrinsically nasalized suffixes: -wɨ 'singular of collective items', -pihi 'long, narrow object': wà?íwɨ 'one fish', dì?píhí 'machete'. When the suffix -ra 'person plural marker' occurs, nasalization penetrates to the first preceding vowel: pɬárò 'two objects', pɬárà 'two people', pè'ógɬwé?è 'I'm putting', pè'órà̰wé?è 'We're putting'.

6. Distribution.

6.1. Syllable patterns. A syllable is defined as a unit of potential pitch placement. It may consist of: a consonant followed by a vowel, a single vowel, or a vowel preceded by a consonant and followed by glottal stop.

CV has three phonetic variants. (1) a SLOW syllable (CV·) occurs on one syllable words, on multiple syllable words if the following two syllables are stressed, or if stress and high pitch occur on the same syllable. /dí/ [ⁿdí·h] 'blood', /págà/ [pá·gàh] 'stomach', /dúbíó/ [nú·míóʰ] 'woman'; (2) voiceless consonant onset plus simple vowel peak with low pitch plus voiceless offglide (CVh). (CVh) occurs preceding a stressed syllable with voiceless consonant onset. /pèká/ [pɛ̀hkáʰ] 'firewood', /bɬ'ápɬ'tɛ̰rò/ [ᵐbɬ'ápɬh'tɛ̰ñòʰ] 'guitar'; (3) a FAST syllable (CV) occurs phonemic word initial, medial, or final. /dì'ápòà/ [ⁿdì'ápòàʰ] 'face', /dúbíó/ [nú·míóʰ] 'woman', /wádārì/ [wá·dāl̃ìʰ] 'veins'.

V occurs phonemic word medial or final following a vowel: /'dīā'kɨ́/ 'straight', /dìá/ 'river'.

CV? occurs phonemic word initial or medial, preceding consonants: /yà?pí/ 'slick', /'pūdɨ́?'bò/ 'hammock rope'.

6.2. Single consonants. Any consonant may occur as C in the CV syllable: ?ò?ā'rí'bōkà 'broom', págà 'stomach',

dìáyì 'dog', pų́gɨ̨ 'hammock', wètá 'tapioca', sèbę́yą 'Paca River', dų̀hą́ 'ash'.

Any consonant may occur as C of CVʔ syllable except g, h, r: pìʔká 'guaituto (jungle fruit)', tùʔtīsé 'scold', kàʔbí 'soft', bùʔbēsé 'injection', dìʔtá 'earth', yą̀ʔbų́ 'yam', sàʔtīsé 'cough', wį̀ʔbɨ̨́ 'little boy', yàʔpí 'slick', ʔàʔtó 'here'.

6.3. Consonant clusters. Phonemic word medial CC clusters occur across syllable boundaries with the first member always glottal stop. The second member may be a voiceless stop, voiced bilabial stop, voiceless alveolar grooved fricative, or alveolar flap. yàʔpí 'slick', ʔàʔtó 'here', pìʔká 'guaituto (jungle fruit)', kàʔbí 'soft', ʔèʔsāró 'wide', bèʔró 'afterwards'.

6.4. Single vowels. Any vowel may occur as nucleus in CV and CVʔ syllables: pìʔká 'guaituto (jungle fruit), kàʔbí 'soft', pòʔpēápɨ̀ 'inside', ʔèʔsāró 'wide', pùʔtí 'mass of grated manioc root', dɨ̂ʔpóką̀ 'leg', dɨ̨̀ʔkǫ́rį̀ 'root', bų̀ʔbų̄sé 'full', ʔę̀ʔkę̂ą 'nose', dį̀ʔkɨ̨́ 'one (man)', kū'kų́yǫ̀ 'cocoanut palm', sǫ̀ʔpɨ́ 'there', bą̀ʔbą́ 'new'.

All oral vowels, and ą and ǫ occur in the V syllable: sêì 'black wooly monkey', dīèrí 'eggs', dìá 'river', sāùrú 'Saturday', dǫ̀ą́ 'who', wę́ǫ́ 'panpipe flutes', âɨ 'good!', bɨ̀kɨ̂ô 'old woman'.

6.5. Vowel clusters. Clusters of two oral vowels occur across syllable boundaries word medial or final when a CV syllable is followed by a V syllable. Any vowel may occur either initial or final in a cluster; not all potential combinations have been found to date. dīàkɨ̨́ 'straight', dàsêô 'Tucano woman', yâì 'tiger', bɨ̀kɨ̂ô 'old woman'. ɨ and u have been found only after a: âɨ 'good!', sāùrú 'Saturday'.

Clusters of two nasalized vowels occur across syllable

boundaries word medial or final when a CV syllable is followed by a V syllable. The first vowel of the cluster may be any vowel and the second vowel is always ą or ǫ: yą́bį̀'ą́ką̀ 'tomorrow', sį̂ǫ̀ 'sister-in-law', ʔę̀ǫ́rǫ̀ 'mirror', ʔę̀ʔkę̂ą 'nose', 'tɨ̂ǫwá 'second rapids below village of Acaricuara', sų̀kų̂ą 'small of back', bǫ̀ą́rą̀ 'flies', ʔɨ̂bį̀ą́ 'men'.

Clusters of three vowels may occur word medial across syllable boundaries. The clusters thus far encountered are: iao, oea, eoa, aia. dìâo'tíkàʔrō 'water boa', kōè'ápɨ̀ 'I washed', pēò'ápɨ̀ 'I put', yâìá 'tigers'.

Clusters of four vowels may occur word medial across syllable boundaries. The only cluster thus far encountered is: ąįlą. ñą̂į̀lą̀ʔpą̄ 'it dried'.

For clusters of oral plus nasalized vowel see 5.3.

7. Observations on special phonetic characteristics.

7.1. Laryngealization. Laryngealization may occur on vowels preceding ʔ or separated by ʔ: ʔǫ̀ʔbę́ [ʔǫ̀ʔmę́h] 'smoke', bùʔédâ [mbùʔɛ́dâh] 'rainbow', pìʔí [pìʔíh] 'basket', ʔǫ̀ʔą́ [ʔǫ̀ʔą́h] 'bone'.

7.2. Devoicing. Voiced vowels have freely fluctuating voiceless variants in the following situations: (1) in (CVh) patterns with voiceless consonant onset preceding a voiceless consonant: pèkábę̀ [pɛ̀hkámɛ̀h] 'fire', sìkó [sÌhkóh] 'that one (feminine)', ʔàké [ʔÀhkɛ́h] 'monkey'; (2) when a CV syllable with voiceless consonant onset precedes hV which has higher pitch: pàhīgó [pÀhīgóh] 'fat woman', ʔòhókà [ʔÒhókàh] 'corn', sąhą́yą̀ [sĄhą́yą̀h] 'Go in!'

7.3. Vowel release. Following h word medially there occurs a release having the quality of the preceding vowel: ʔèhábį̀ [ʔèhᵉámį̀h] 'he came', wìháʔà [wìhⁱáʔàh] 'I'm leaving', ʔò'hágɨ̀wēʔè [ʔò'hᵒágɨ̀wɛ̄ʔɛ̀h] 'I'm writing'.

Preceding consonants, the glottal stop has an optional

vocalic release of a neutral quality or of the quality of the preceding vowel. This varies from slight release before voiceless stops to a slightly more preceptible release before voiced consonants, especially flaps. wį̀ʔró̜ [wį̀ʔ^{ɪ}ň̜ó^{h}] 'wind', bù̃ʔ'béʔè [^{m}bù̃ʔ^{u}'bέʔɛ̀^{h}] 'I'm planting by sticking in the ground'.

7.4. Optional shifts of pronunciation. There are optional shifts of pronunciation from /k/ to /h/ in certain words. These occur in conversational style. /k/ is regarded by native speakers as the correct form. dį̀ʔką̄ką́ [nį̀ʔką̄ką́^{h} ~ nį̀ʔką̄hą́^{h}] 'today', yɨ̀ʔɨ́ kę̄ʔrą̀ [yɨ̀ʔɨ́ kę̄ʔň̜ą̀^{h} ~ yɨ̀ʔɨ́ hę̄ʔň̜ą̀^{h}] 'I, also', yą́bį̀'ą́ką̀ [y̨ą́mį̀'ą́ką̀^{h} ~ y̨ą́mį̀'ą́hą̀^{h}] 'tomorrow'.

There are optional shifts of pronunciation from [m] to [b] in certain words, with a corresponding shift from nasalized vowel to oral vowel. These occur in emphatic speech. [m] is regarded as the correct form. dį́ką̀bį̄ʔį̀ [nį́ką̀mį̄ʔį̀^{h} ~ nį́ką̀^{m}bī̃ʔį̀^{h}] 'I am here', bùhį́ką̀ʔbǭ [^{m}bùhį́ką̀ʔmǭ^{h} ~ ^{m}bùhį́ką̀ʔbō^{h}] 'she herself laughed'.

There are optional shifts of pronunciation from /e/ to /i/ in certain words. The syllable in which the change occurs perturbs to an exaggerated high pitch with heavy stress. These occur in emphatic speech style. /e/ is regarded as the correct form. wà'ʔą́rą̀wēʔè [wà'ʔą́ň̜ą̀wɛ̄ʔɛ̀^{h} ~ wà'ʔą́ň̜ą̀'wi^{h}] 'We're going.'

There are optional shifts of pronunciation from /a/ and /ą/ to /ɨ/ in certain words. The syllable in which the change occurs perturbs to an exaggerated high pitch. If [ň], [m], or [y̨] precede the vowel, the nasal variant shifts to the oral variant at the corresponding point of articulation. These occur in emphatic speech style. The nasal variant is regarded as the correct form. wàʔą́rą̄ [wàʔą́ň̜ą̄^{h} ~ wàʔā'ɪ̆ɨ́h] 'Let's go!', ʔį̀ʔą́bą̀ [ʔį̀ʔą́mą̀^{h} ~ ʔį̀ʔā^{m}'bɨ́h] 'Let me see!',

dùhíkà?à [ndùhíkà?à^{h} ~ ndùhĩ'kɨ́^{h}] 'I'm sitting!', wàhāyá [wàhāyá^{h} ~ wàhā'yɨ́^{h}] 'paddle!', ?ì?ą́yà [?ì?ą́yà^{h} ~ ?ì?ą̄'yɨ́^{h}].

8. Morphophonemic alternation. The morphemes {-gɨ} 'singular person marker (masculine)' or {-go} 'singular person marker (feminine)' have two allomorphs: (1) suffixed to a verb root ending in an oral vowel, /-gɨ/ or /-go/ occur; (2) suffixed to a verb root ending in a nasalized vowel /-gɨ̨/ or /-gǫ/ occur. ?ì?ą́gɨ́wē?è 'I'm looking (masculine)', wā?ā́gówē?è 'I'm going (feminine)'.

The morpheme {-ya} 'simple imperative' has three allomorphs: (1) suffixed to a verb root ending in an oral vowel, /-ya/ occurs; (2) suffixed to a verb root ending in a nasalized vowel, /-yą/ occurs, (3) suffixed to a verb root ending in /-ti-/, /-a/ occurs. bù?béyà 'plant by sticking in the ground!', ką̄rį̀yą́ 'sleep!', ?ā?tìá 'come!'

When the morpheme /-wɨ/ 'first person, distant past' is suffixed to a verb root ending in a nasalized vowel, /-wɨ̨/ occurs. ?ì?ą́wɨ̨ 'I saw'.

When the morpheme /-a/ 'a pluralizer' is suffixed to a word ending in a nasalized vowel, /-ą/ occurs. ɨ̨bɨ̨ą́ 'men', sę̨bè ą́ 'pacas (jungle animal)'.

For alternation of oral vowel preceding morpheme /-ra/ 'person plural marker', see 5.3.

9. Higher level units. Phonemic words are made up of syllables. The full potential for the number of syllables to a word has not yet been explored, but as many as eight have been observed. tá 'grass', ?àkárò 'box', tɨ̀?ómāsį̀sɨ̄rį́sā?à 'I want to understand'.

A string of one or more phonemic words constitutes a breath group. In this larger unit there is crescendo followed by decrescendo. dǫ̀?ǫ́ wā?àtī 'Where are you going?', ?ā?tòré bą̄rį̀bį́ 'He isn't here'.

2

GUANANO PHONEMICS

Nathan and Carolyn Waltz

Special features of Guanano include a phonemic aspirated stop series, allophonic in Tucano, an affricate /č/ not found in Tucano, and a suprasegmental system composed of a stress-pitch combination rather than separate stress and pitch phonemes as in Tucano. The typical Tucanoan allophones of /r/, and the conditioning of allophones by contiguous oral or nasalized vowels are present in Guanano. The further analysis of higher level units promises to be of interest.

1. Introduction. Guanano is spoken by approximately eight hundred inhabitants of the lower Vaupés river in the southeastern jungles of Colombia. The language of the Guananos belongs to the Eastern Tucanoan family. The greatest concentration of Guananos is in the village of Villa Fátima located on the Vaupés river about ten miles from the border of Brazil. There are approximately two hundred speakers of Guanano in Villa Fátima. Santa Cruz is second in Guanano population, having approximately eighty inhabitants. The latter is located fifteen miles upriver from Villa Fátima and the same distance downriver from the Colombian town of Mitú. There are twenty Guanano houses located between Santa Cruz and Villa Fátima. Phonetic differences between these two villages are slight. In the phonetics of Villa Fátima there are occurrences of voiced stops which are voiceless in Santa Cruz. This is possibly due to the influence of Desano which is spoken by about one third of the inhabitants of Villa Fátima. A brief comparative study of Desano-Guanano cognates reveals the presence of voicing in the stops of Desano with corresponding voicelessness in Guanano. Most of the language material was given the authors by Jose Darío, Vicente Moscera, and Américo Valencia. The material was gathered during two field trips made during 1964 and 1965.

The major features of Guanano phonemics are (1) three series of stops, including voiceless aspirated and unaspirated plus a series of voiced stops, (2) voiceless vowels occuring in both nuclear and offglide positions of the syllable, (3) a strong, influential nasalization and (4) an emic stress system.

2. Phoneme chart. The phonemes may be charted as follows:

Consonants

	Labial	Alveolar	Palatal	Velar	Glottal
Stops					
Aspirated	ph	th		kh	
Unaspirated	p	t		k	
Voiced	b	d		g	
Sibilants		s	č		
Flap		r			
Continuants	w		y	h	
Glottal stop					?

Vowels

	Front	Central	Back
High	i	ɨ	u
Low	e	a	o

3. Consonants. The striking features of the consonants are (1) three series of stops, (2) influence of vowel features on the voiced stops, continuants, and flap, thus forming their variants, (3) complete symmetry within the stops and continuants with their nasal variants.

3.1. Consonant contrasts. The consonants consist of stops, sibilants, flap, continuants, and glottal stop. The voiceless aspirated stop series /ph/, /th/, /kh/, contrasts with the voiceless unaspirated /p/, /t/, /k/, at each point of articulation. The latter in turn contrast with the voiced series of stops /b/, /d/, /g/, at each point of articulation: /ph/ contrasts with /p/ in /pháaro/ [pʰá·ro] 'stomach', /páaro/ [pá·ro] 'toy'. /th/ contrasts with /t/ in /thúaha/ [tʰúaha] 'I return to my house', /túahá/ [túahá] 'I have strength'. /kh/ contrasts with /k/ in /kháha/ [kʰáha] 'I take a fish out of the trap', /káhá/ [káhá] 'I feel (pain)'. /p/ contrasts with /b/ in /páahá/ [pá·há] 'I play', /báaha/

[bá·ha] 'I swim'. /t/ contrasts with /d/ in /túahá/ [túahá] 'I have strength', /dúaha/ [dúaha] 'I sell'. /k/ contrasts with /g/ in /kha?áka/ [kʰa?áka] 'near', /kha?ága/ [kʰa?ága] 'get drunk!'

The alveolar sibilant /s/ contrasts with the fronted alveopalatal /č/: /sɨ̨/ [sɨ̨] 'sun', /čɨa/ [tšʰɨa] 'food'. The fronted alveopalatal sibilant (phonetically an alveopalatal grooved affricate which fluctuates to a dental palatalized aspirated stop [tʸʰ]) contrasts with the voiceless alveolar aspirated stop: /čɨa/ [tšʰɨa] 'food', /thɨ?óha/ [tʰɨ?óha] 'I hear'.

The alveolar flap occurs in words like /kóro/ [kóro] 'rain'. There are few good contrasts with /d/ and /t/, but it seems best handled as a separate phoneme. See discussion in 3.2, 9, and fn. 4.

Continuants occur at the labial /w/, palatal /y/, and glottal /h/ points of articulation. The labial continuant /w/ contrasts with both allophones of the voiced labial stop, [b] and [m]. /wɨaha/ [wɨaha] 'I carry on the shoulder', /bɨaha/ [bɨaha] 'I crawl'; /w̨ąhą/ [w̨ąhą] 'to kill', /bąhą́/ [mąhą́] 'a large variety of parrot'. The palatal nasal [ñ], allophone of the palatal continuant /y/, contrasts with [n], which is an allophone of the voiced alveolar stop [d]: /dą́hą/ [ną́hą] 'I receive', /y̨ąhą/ [ñą́hą] 'I am bad'. The glottal continuant /h/ contrasts with the velar stop /k/ and glottal stop /?/: /bąhą́/ [mąhą́] 'a large variety of parrot', /bąką́/ [mąAką́] 'pueblo'; /bąhą́/ [mąhą́] 'a large variety of parrot', /bą?ą́/ [mą?ą́] 'path'.

The phonemic status of the glottal stop /?/ is shown by the following contrasts: /si?dį́ha/ [si?nį́ha] 'I drink', /sidį́ha/ [sinį́ha] 'I ask for'; /yo?áha/ [yo?áha] 'I fish', /yoáha/ [yoáha] 'I make'.

3.2. <u>Consonant variants</u>. Variation of the consonants ranges from slight changes such as addition of a little fric-

tion to continuants, to considerable changes by addition of nasalization to voiced stops and continuants to form their nasal allophones.

The palatal continuant /y/ has four allophones, three of which are conditioned by stress, the fourth by nasalization. Both the voiced dental palatalized stop [dʸ] and the voiced fronted alveopalatal affricate [dž] occur in fluctuation with each other and with the palatal continuant [y] in a stressed syllable preceding a high vowel, /payɨ/ [padʸɨ] ~ [padžɨ] ~ [payɨ] 'much'. In nonstressed syllables, especially preceding low vowels, the palatal continuant variant occurs, /yóha/ [yóha] 'I hang'. Contiguous to a nasalized vowel, a palatal nasal variant [ñ] occurs, /yo̜há̜/ [ño̜há̜] 'I show'.

The alveolar flap /r/ has three allophones, influenced by the vowel qualities of tongue position and nasalization. When following a back or central vowel and preceding a front vowel the tongue makes the flap in a forward motion, and a lateral [l̆] allophone occurs, /ya?sária/ [ya?sál̆ia] 'green (fruit)'. Contiguous to a nasalized vowel it is a nasal flap [n̆], /so?á̜ria/ [so?á̜n̆ia] 'red'. The alveolar flap variant [r̆] occurs elsewhere. The pattern (direction) of influence is shown in Illustration 1.

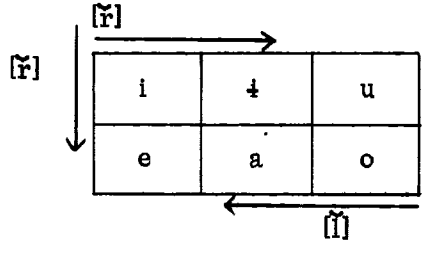

Illustration 1

The glottal stop /?/ occurs intervocalic and precon-

sonantal. Between like vowels it varies from full glottal closure to laryngealization, with perceptible lengthening of the vowel, /wá?áha/ [wa̰·ha] ~ [wá?áha] 'I go'. Before consonants the glottal may also actualize as laryngealization of the vowel, but without length, /wa?káha/ [wa̰káha] ~ [wa?káha] 'I get up'.

Nasal variants of the voiced stops occur at the bilabial, alveolar, and velar points of articulation.[1] The nasal variant is conditioned by a contiguous nasalized vowel. When the contiguous vowels are oral the resulting voiced consonant is a stop:

/ba?á/	[ba?á]	'path',	/ba̰?á̰/	[ma̰?á̰]	'path';
/dáha/	[dáha]	'I send',	/dá̰ha̰/	[ná̰ha̰]	'I catch';
/wahága/	[wahága]	'row!',	/wa̰ha̰ga̰/	[wa̰há̰na̰]	'kill!'.

The voiceless fronted alveopalatal aspirated affricate [tš^{h}] fluctuates to a voiceless dental palatalized aspirated stop [t^{yh}] in forms such as /šɨa/ [tš^{h}ɨa] ~ [t^{yh}ɨa] 'food'.

The labial continuant /w/ has four allophones conditioned by vowels of varying quality and position. When the labial continuant precedes a front vowel, a labial fricative variant occurs, /wíha/ [ɓíha] 'I whistle'. The labial continuant has the quality of a high back vowel [u] but somewhat shorter and more restricted, when contiguous to nonfront vowels. When contiguous to a nasalized vowel, corresponding nasalized allophones occur. This pattern is displayed in the matrix of Illustration 2:

	oral	nasal
nonfront	w	w̰
front	ɓ	ɓ̰

Illustration 2

[1] Due to the influence of Spanish on literate Guananos, the voiced stops and nasals will be written separately in the practical orthography.

4. Vowels. The majority of the consonant variants are a result of vowel influence. The consonants also influence the vowels, resulting in a series of voiceless vowel variants. This mutual effect of vowels and consonants gives the impression that Guanano speech consists of waves of interacting components rather than a succession of consonant and vowel particles.[2] The vowel system shows horizontal symmetry with front, central, and back vowels and vertical symmetry with high and low vowels. Initial vowels have an optional glottal onset.

4.1. Vowel contrasts. The contrasts between the high vowels /i/, /ɨ/, /u/ and their low vowel counterparts /e/, /a/, /o/ are as follows: The front vowels /i/, /e/ contrast in /yaría/ [yaĭía] 'to die', /baréa/ [baĭéa] 'Yeral tribe'. The central vowels /ɨ/, /a/ contrast in /wɨháha/ [wɨháha] 'I scrape (yucca)', /waháha/ [waháha] 'I row!' The back vowels /u/, /o/ contrast in /túahá/ [túahá] 'I have strength', /tóaha/ [tóaha] 'I plant'. The high vowels /i/, /ɨ/, /u/ contrast with each other in /hía/ [hía] 'I am', /hɨ̨ha/ [hɨ̨ha] 'I burn'; /húha/ [húha] 'I smoke'. The low vowels /e/, /a/, /o/ contrast with each other in /bę/ [mę] 'smoke', /bą/ [mą] 'ready', /bǫ/ [mǫ] 'Carurú (a place)'.

4.2. Vowel variants. Three features treated here as suprasegmental phonemes condition variants of the vowel system of Guanano: stress, length, and nasalization. A fourth type of variant is voicelessness. Voicelessness can occur in the nucleus /cV/ or the off-glide /cvV/ positions of the syllable. If a prestressed syllable begins with a voiceless consonant and that syllable is immediately followed

[2] Pike, K. L. "Language as Particle, Wave and Field," Texas Quarterly, II (1959), pp. 37-54.

by a voiceless consonant, the resulting syllable nucleus is a voiceless vowel, /pičáka/ [pItš̌ʰáka] 'fire'. If the prestressed syllable has an initial voiced consonant its nucleus is filled by a voiced vowel followed by the corresponding voiceless vowel, /wačó/ [waAtš̌ʰó] 'green variety of parrot'.

Vowel quality is generally very stable. Only two vowels seem to vary slightly. The low front vowel [ɛ] fluctuates slightly toward a more close position [e], /dí̹re/ [ní̹ñe] ~ [ní̹ñɛ] 'I said!' The back vowel [u] fluctuates toward [o] in words such as /kubú̹dú̹/ [kuṃú̹nú̹] ~ [koṃó̹nó̹] 'bench'. The quality of the back vowels is slightly lower than the phonetic norms [u], [o]. The high back /u/ tends toward the more open position of [u] and the low back /o/ tends toward the more open position of [ɔ].

5. Suprasegmental phonemes. Stress and pitch interact to form the stress system. Multiple stress and a pattern of equal pitch run parallel with each other in words such as /túahá/ [túahá] [tu³a³ha³] 'I have strength'. A phonological word is defined as a minimum elicitable form constituting a stress group. High pitch and stress occur simultaneously. High pitch can define the position of stress in a series of nonglide pitches, /waháha/ [waháha] [wa³hȧ¹ha⁴] 'I row', and as part of a glide /baáha/ [baáha] [ba³a¹ha⁴] 'I swim'.

Multiple stress on three-syllable utterances parallels monotone when the first and last syllables are stressed: /túahá/ [túahá] [tu³a³ha³] 'I have strength'. If the two stresses occur on the first two syllables leaving the last syllable unstressed, the result is /thúáha/ [tʰu²a²ha⁴] 'I stay'.

The basic stress pattern is not phonologically predict-

able, though it is quite regular on the grammatical level.[3] An example of the few minimal contrasts with stress is /thúáha/ [t^{h}úáha] 'I stay', /thuáha/ [t^{h}uáha] 'I walk with a cane'. There are also stress contrasts between parts of speech but this is predictable by context which would define whether one is using a verb or noun, /bą́ha/ [mą́ha] 'I take out', /bahá/ [mahá] 'a large variety of parrot'; also contrastive are /wą́ʔi/ [waʔi] 'I gave', /waʔí/ [waʔí] 'fish'.

Length occurs on initial stressed vowels which are phonetically longer than unstressed vowels in similar positions. This phonetic length is variable and appears to be merely a concomitant feature of the stress-pitch pattern.

Nasalization penetrates the utterances of Guanano to form certain consonant variants (see 3.2). It is contrastive on vowels, /basą́/ [maAsą́] 'let's go'; /basą́/ [maAsą́] 'people'.

6. Distribution.

6.1. Syllable patterns. The phonemic syllable in Guanano is defined as a unit of potential stress placement. Thus each vowel constitutes the nucleus of a syllable.

The most common syllable pattern is the simple CV. Other patterns are CCV, CVʔ, and V.

6.2. Single consonants. All single consonants may fill the onset position of CV and CVʔ syllables. The flap /r/ does not occur stress group initial (see 7). In one Santa

[3] Regular stress occurs on the last syllable of the stem in verbs, nouns, and adjectives, /wačú/ [waAtš^{h}ó] 'a green variety of parrot'; /wahá-/ [wahá-] 'to row'; /bɨtí-/ [bɨtí-] 'hard'. Certain suffixes are always stressed: /tagá/ [tagá] 'come!' (-gá = emphatic imperative); /hĩbą́hɨ́/ [himą́hɨ́] 'I'm here', (-hɨ́ = person marker used to answer the question, "Are you here?"); /waʔaéraha/ [waʔaéraha] 'I'm not going', (-éra = negative).

Cruz dialect, /g/ also does not occur stress group initial. Only /ʔ/ can occur syllable final.

6.3. Consonant clusters. There is only one consonant cluster within the syllable. [st^{V}] forms the CCV pattern. In Santa Cruz this cluster can occur word initial, /stéha/ [stéha] 'I barricade a stream'. It also occurs word medial, /kórosté/ [kórosté] 'rain cloud'. In Villa Fátima the word for 'rain cloud' is /kóroyité/ [kóroyiIté]. Thus variation from the simple CV syllable pattern is due to a dialect change in Santa Cruz. The only consonant cluster between syllables is composed of syllable final [ʔ] plus syllable initial consonant, /waʔkáha/ [waʔkáha] 'I get up!'

6.4. Single vowels. All single vowels may fill the nuclear position of the syllable, /híha/ [híha] 'I am', /hi̯ha/ [hi̯ha] 'I burn', /húha/ [húha] 'I smoke', /yesé/ [yeEsé] 'pig', /wacó/ [waAcó] 'parrot', /kóro/ [kóro] 'rain'.

6.5. Vowel clusters. Vowel clusters of two and three vowels occur in Guanano. All vowels occur as either first or second member of a two-vowel cluster. Contrastive vowel length is interpreted as a geminate vowel cluster because either vowel can be stressed and because Guanano has diverse vowel clusters. /wáaha/ [wáaha] 'I get wet', /baáha/ [baáha] 'I swim'.

Any vowel but /a/ may be the first member of a cluster of three vowels. The second position of a three-vowel cluster may be filled only by the low central vowel /a/. The third position may only be filled by the high front vowel /i/. A two-vowel cluster may have stress on the initial or the final vowel. There is no variation of stress on the three-vowel cluster since it involves one specific morpheme.

7. Higher level units. The stress group consists of from one to eight syllables. Stress is defined by pitch (see

5). High pitch marks the peak of the stress group. The stress groups may occur in two categories. There is an equal-stress group which has two stresses coinciding with a monotone pitch pattern, /túahá/ [túahá] 'I have strength'. Also there is an unequal-stress group consisting of a primary and secondary stress in that order, /pírìakà/ [pírìakà] 'tooth'.

The pause group may consist of from one to five stress groups. Pause characterizes the borders of the pause group. All nonfinal stress groups within the pause group have a nondown-glide pitch, either level or up glide. A stress group which occurs pause group final at the end of a grammatical clause has a down glide.

8. Special phonetic characteristics. The word phonetic here refers to acoustic affect on the listener rather than allophonic variation. The most notable phonetic features of Guanano are nasalization, glottal stop varying to laryngealization and emphatic intonation with very high pitch. This emphasis can be accompanied by fortis voiceless stops. Vowels of Guanano are characterized by a voiceless offglide in prestressed syllables. The movement of Guanano narrative intonation follows a pattern of slow speech with high pitch and length usually followed by rapid, animated speech.

9. Morphophonemic alternation. Nasalization brings about a morphophonemic interchange between phonemes /r/ and /d/. The third person singular verb suffix in the present tense is /-ra/. However, when this occurs immediately after a nasalized vowel, the /-ra/ is actualized as /-da/ [-na]. Nasal influence on the flap /r/ occurs with noun, verb, and adjective endings, though it involves morphophonemic change to /d/ in only a few cases. Due to analogous contrasts and no clear pattern of complementary distribution between the /d/ and the /r/, these are considered

separate phonemes.[4] Thus the [n] allophone of /d/ cannot be considered to be an allophone of the alveolar flap /r/.

[4]This analysis reveals a definite relationship between the alveolar flap /r/ and the alveolar stop /d/. It appears to be due primarily to the influence of Spanish on Guanano that the distinction between these two phonemes is present today. The alveolar consonants [ř], [ſſ], [ñ], [d], [n] are still so closely related in Guanano that it is probable that they were allophones of the same phoneme previous to Spanish influence. This conclusion is based on: (1) fluctuation between the /d/ and /r/ before high vowels, /yahiriaka/ [yahířiaka] ~ [yahídiaka] 'heart', (2) occurrence of phonoiogically defined allomorphs on adjective, noun, and verb endings which are often paralleled by allophonic alternation. Compare /yíria/ [ñíñia] 'black' ([-ñia] = adjective suffix for 'fruits') with so?ária [so?áñia] 'red' ([-řia] = adjective suffix for 'fruits'); the former is an allomorph and the latter simply an allophonic change from the alveolar flap [ř] in certain environments, (3) lack of good contrast between the /d/ and the /r/, (4) limited mutual exclusion between the /d/ and the /r/. The latter never occurs word initial whereas the former does.

3

PHONEMES OF MUINANE

James and Janice Walton

The Muinane language is characterized by a more complex consonantal system than that of the Tucanoan languages, including a full palatal series, plus voiced and voiceless palatal affricates; by clusters of up to four vowels; by a two-level pitch system; and by phonemic syllables consisting of a unit of tone placement. Of special note is the conditioning of pitch height of the pause group by the front or back tongue position of the initial vowel of the unit.

1. Introduction. The Muinane Indians of Colombia are located in the state of Amazonas. The largest concentration of speakers of the language is located near the headwaters of the Cahuinarí River at La Sabana; others are located in the area of the Caquetá River. A further small group is reported to be living in Peru. Their original habitat was in the area of La Sabana, where it is estimated that the tribe once numbered several thousand. We do not know the number of speakers of the language today; the number in Colombia is estimated at 100 - 150.

The language of the Muinane Indians belongs to the Bora language family. There are three major dialects of Bora spoken in Colombia, which are mutually unintelligible. In the area, the dialects are referred to as Bora, Miraña, and Muinane on which this study is based. Speakers of Miraña are thought to number less than 100, and are located at the mouth of the Cahuinarí River where it joins the Caquetá River. Speakers of Bora number significantly more than the other two dialects and are located along the Cahuinarí and Igara Paraná Rivers, with some 500 persons reported living on the Ampiyacu and Yaguasyacu Rivers in Peru.[1]

Material for this paper was gathered under the auspices of the Summer Institute of Linguistics while living at La Sabana during 1964-1965. The three main informants were Andrés of the Nejegaimi clan, Inez of the Gaigomijo clan, and María of the Cimijo clan.

[1] Thiesen, Weeley and Eva. Phonemes of Bora. Instituto Lingüístico de Verano, Perú, 1955.

2. Phoneme chart.

Consonants

	Labial	Alveolar	Palatal	Palatal grooved	Velar	Glottal
Stops						
Voiceless	p	t	t^y	t͡š	k	ʔ
Voiced	b	d	d^y	d͡ž	g	
Spirants						
Voiceless	ᵽ	s	š		x	
Voiced	ɓ		y			
Nasals	m	n	ñ			
Trills		r̃	$r̃^y$			

Vowels

	Front	Central	Back
High	i	ɨ	u
Low	e	a	o

3. Consonants. There are 22 consonant phonemes. These include stops, spirants, nasals, and trills.

3.1. Consonant contrasts. There are two series of stops, voiceless and voiced, at labial, alveolar, palatal, and velar points of articulation. There is also a glottal stop phoneme.

p and b are bilabial: paɓír̃íkar̃uʔí 'to wrap up', bañámáaimó 'they are playing', dápar̃^{y}aʔí 'you are lazy', ábaxató 'owner', báakú 'grapes'.

t and d are alveolar: íɗɨ 'leg', íʈɨ 'small snake', dúɗɨkamaxé 'work', túʈúɓúkúubó 'noon'.

t^y and d^y are alveopalatal with very little perceptible offglide (see 8): tad^{y}áági 'my sloth', tat^{y}áába 'my fish',

tadʸířibá 'my cooking oil', tatʸíbugá 'my arrow', tʸú?utʸúba 'butterfly'.

tš and dž are grooved alveopalatal affricates: gíří?idžú 'kettle', dimíbatšú 'to repair', tšú?umó 'worms', džú?umó 'fictitious people'.

k and g are velars: káaní 'his father', gáa?í 'monkey', íkanó 'there is', íganó 'livers', xéékɨ 'type of bird'. ? is glottal: xɨ?ɨ 'yes', xéé?i 'I bathe', má?ákéété?í 'we are falling', bó?onó 'new'.

There is one series of voiceless spirants at labial, alveolar, palatal, and velar points of articulation. There are also voiced spirants at the labial and palatal points of articulation.

ƥ is labial: ƥábáaku?í 'to put a top on', tɨƥañó 'red', ƥíitɨnó 'near'.

s is alveolar: síísi 'beetle', kasɨíƀó 'sit down', súkusutá 'cooking banana'.

š is alveopalatal: mííši 'cat', áxášunó 'little', šukúyɨ 'a little black'.

x is velar: xééxɨ 'anteater', má?ákéétexí 'we will fall', xáařá 'sweet manioc', ɨxɨ 'devil'.

ƀ is voiced, labial: átʸɨƀanó 'blue', ƀíiyú 'go around', báaƀɨ 'below', ƀaúřa 'toad'.

y is voiced, palatal: tayóta 'relatives', ámiyaabó 'old man', íyɨnó 'eggs'.

There is one series of nasals at labial, alveolar, and palatal points of articulation.

m is labial: mómo 'name', ƥamóóřo 'everybody', mómemubá 'our knee'.

n is alveolar: ímonó 'tasty', ƥanóóřo 'everything', káaní 'his father', náamobá 'sugar cane', miyááno 'truly'.

ñ is alveopalatal: káañɨ 'to bring', ñááƀa 'rice', ximáño 'here'.

There are two voiceless trills at alveolar and palatal points of articulation.

ř is alveolar: řídžɨ?u 'centipede', kařékunó 'wide',

gíř̈áanó 'large', gíř̈í?idž̈ú 'kettle', bář̈akugáí 'templon fish'.

ř̈ʸ is alveopalatal with very little perceptible offglide: dápař̈ʸa?í 'you are lazy', tam̈ninomař̈ʸó 'my body is filthy'.

3.2. Variants of consonant phonemes. The voiced velar stop, in some idiolects, varies to a voiced velar fricative: [gáibá] /gáibá/ 'hammock', [?íniga̵ɨ] /íniga̵ɨ/ 'head', [?áígúkunó] /áígúkunó/ 'hot'.

The glottal stop, in rapid speech, may vary to lenis or it may be lost: [gáĩkáubó] /gáĩká?ubó/ 'kill', [gáaponó] /gá?aponó/ 'full', [dɛ́ɛbú] /dé?ebú/ 'cover it'.

The voiced palatal spirant, in some idiolects, varies to a voiced alveopalatal fricative when preceded by i: [?íž̈ɨnó] /íyɨnó/ 'eggs', [tʸadíž̈ɨ] /tʸadíyɨ/ 'my grandfather', [tuugíž̈ɨ] /tuugíyɨ/ 'assai palm'. In other positions it is palatal and frictionless: /duxéyɨ/ 'cord'.

4. Vowels. There are 6 vowel phonemes. These include two series, high and low, at front, central, and back points of articulation. They are all voiced.

4.1. Vowel contrasts. High vowels are i, ɨ, and u.

i is high front unrounded: ígi?í 'to fear', káaní 'his father', tíí?i 'rainbow'.

ɨ is high central unrounded: ɨxó?o 'you', káañɨ 'to bring', ítɨ 'small snake', ííxɨ 'yesterday'.

u is high back rounded: úxó?o 'I', ítu 'horn of an animal', ɨmú?u 'salt', xúuɨ 'a large bird'.

Low vowels are e, a, and o.

e is mid front open unrounded: [tɨ́ɨ?ɛ́] /tɨ́ɨ?é/ 'tapir', [?ɨgɛ?í] /ɨge?í/ 'to walk', [xɛ́ɛkú] /xéekú/ 'a doubled leaf to catch water in'.

a is low central unrounded: xááku 'cocoa', íígá 'liver', ííxa 'house'.

o is mid back rounded: íigó 'a badger-like animal', ɨmó?o 'tree', xóóɨ 'a small bird'.

4.2. Variants of vowel phonemes. The mid front open vocoid /ɛ/, in some idiolects, varies to the slightly higher and more close vocoid [e]: [?ixɛ́ɛnɛ́] [?ixéené] /ixéené/ 'feather', [méɛnɛgá] [méenegá] /méenegá/ 'canoe', [kúuxɛ́] [kúuxé] /kúuxé/ 'day'.

The low central vocoid /a/, in some idiolects, varies to the slightly higher vocoid [ə] in word final position: [bɛ́dʒə] [bɛ́dʒa] /bédʒa/ 'corn', [gíisibə́] [gíisibá] /gíisibá/ 'rocks', [nɨ́?ɨbə́] [nɨ́?ɨbá] /nɨ́?ɨbá/ 'sun'.

5. Suprasegmental phonemes.

5.1. The suprasegmental phonemes are high tone (marked by ´ over the vowel) and low tone (unmarked): ɨxéba 'banana', ɨge?í 'to walk', xákuřářába 'quite clear'. A tone glide occurs when contiguous vowels have diverse tones: íímáa?í 'to speak', múu?uɨ́ 'vine'.

5.2. Low tone has a somewhat higher allotone following high: [sí?ɪ̄dɨ́] /sí?idɨ́/ 'much'. Similarly, high tone has a lower allotone following low: [bùtáxɛ̀] /butáxe/ 'plate'.

When the initial syllable of a pause group[2] contains a front vowel, the tone of the entire pause group is relatively higher than a pause group beginning with a syllable that contains a central or back vowel. Thus, a pause group that contains a front vowel in the initial syllable has two contrastive tone levels corresponding to high [´] and mid-low [¯]: [díp̄ī] /dípi/ 'your body', [bɛ́dʒ̄ə̄] /bédʒa/ 'corn'. A pause group that contains a central or back vowel in the first syllable has two contrastive tone levels corresponding to mid-high ['] and low [`]: [dáágɪ̀] /dáági/ 'sloth', [dúú?ɪ̀]

[2] Pause group is defined as a stretch of speech between pauses.

/dúú?i/ 'to eat meat'. There never appears to be contrast, however, between more than two levels.

The complete tone system is not yet fully analyzed, but in present data, the only pattern found for two-syllable words in isolation is high low; ási 'animal', xɨ́ku 'dog', báxe 'sting ray'. In three-syllable words the patterns found so far are: high low high áamé 'leaf', níti?í 'to wash'; low high low xɨgóba 'a clay utensil', asímɨ 'meat'; high high low ɨ́xó?o 'you', gú?úga 'doorway'; low low high to?omó 'to wait'. Longer words are correspondingly restricted. Examples of the various patterns so far encountered may be seen throughout the paper.

6. Distribution.

6.1. Syllable patterns. The phonemic syllable is a unit of potential tone placement consisting of a single vowel with or without preceding consonant: ba.i.gí.i.xɨ́ 'ash',[3] ní.ta.xe.gá.í 'scissors', í.i.ni.ga.ɨ́ 'head', í.?a.dž̌ɨ.ɨ́ 'eye', a.i.mú.u.fá.í 'smoke', mo.mó.mo 'our name', gí.i.ne.?í 'I look', mɨ.nó.ó.dɨ.nó 'how much?', i.yá.i.kɨ.gá.í 'granddaughter'.

The phonemic syllable does not always correspond to the phonetic syllable, or chest pulse. A phonetic syllable may include two phonemic syllables. Thus a phonetic syllable is either one vowel or a sequence of contiguous vowels (with or without preceding consonant) which is spoken on one level of tone; it has one or two moras of length with but a single chest pulse. When a sequence of contiguous vowels occurs having the same tone the sequence is initiated by one chest pulse: [?áí.bo.nó] /á.í.bo.nó/ 'it hurts', [mɨ.nóó.dɨ.nó] /mɨ.nó.ó.dɨ.nó/ 'how much?' When a sequence of contiguous vowels occurs having different tones

[3] A dot on the line, in an illustration, marks syllable boundary.

it is initiated by two chest pulses: [mɛ́.ɛ.kɨ́] /mé.e.kɨ́/ 'look!', [xá.a.ña.ɨ́] /xá.a.ña.ɨ́/ 'sweet manioc'.

6.2. Single consonants. All consonants occur syllable initial: dápařʸa?í 'you are lazy', tɨ́pañó 'red', kasɨ́ɨbó 'sit down', gíří?idžú 'kettle', áxášunó 'little', dimíbatšú 'repair', ɓátʸonó 'past', tadʸúuxeyɨ́ 'my cord'. Consonants do not occur syllable final.

The two palatal stops and the palatal nasal seldom occur when not preceded by /a/. The only examples so far noted are the ones following: ñáɓa?ɨ́ 'grass', ñááɓa 'rice', tʸú?utʸúba 'butterfly', tʸagóyɨ 'my grandmother', tʸadíyɨ 'my grandfather'. However, while they occur only following /a/, with few exceptions, their alveolar counterparts also occur following a: káaní 'his father', káañɨ́ 'to bring', átʸɨ́me?í 'to meet', káátɨnɨ?í 'write', ádu?í 'to drink', tadʸúuxeyɨ́ 'my cord'.

6.3. Single vowels. All vowels occur syllable initial and final: a.mɨ́.ɨ.?á.í 'you pl.', í.i.ni.ga.ɨ́ 'head', ɨ.má.a.kɨ́ 'log', ó.džɨ 'like this', é.é.tá.ɓe.?í 'to make', ú.se 'hand', dé.e.ká 'flower', kú.u.xé 'day', mé.e.kɨ́ 'look!', mí.í.mɨ 'marañón fruit', mó.ó.mo 'chonta palm'.

6.4. Vowel clusters. Clusters of two or three vowels occur word initial, medial, and final across syllable boundaries: ɨméígaiyunó 'small stick', déɨřaí 'ant', ɓaúřa 'toad', áígúkunó 'hot', úuí 'chamon bird', búuá 'boa', ímíbáíkí-máaimó 'to repair something'.

Clusters of up to four vowels are present in the language, but clusters of more than three vowels seldom occur. An example of a four-vowel cluster is múuáí 'large river'.

All vowels occur in homophonous clusters:[4] ííxa 'house', éétábe?í 'to make', tiibúga 'arrow', mááño 'wet', gúúbu?í 'to hear', móómo 'chonta palm'. In the preceding examples the homophonous clusters contain repeated level tonemes. The following examples illustrate that homophonous clusters can also contain diverse tonemes: íixí 'mouth', méenegá 'canoe', amíi?áí 'you pl.', áamé 'leaf', áímúupáí 'smoke', xikóobá 'lake'.

All vowels occur as first and last members of a heterogenous cluster: xánégía 'so then', xigáñóméugaiyí 'roofing', kuéni?í 'to rub', gói 'armadillo', íxio?upukú 'day before yesterday', múu?uí 'vine', níni?ú 'dove', tšu?úi 'worm', póneopukú 'last night', déiřaí 'ant', baúřa 'toad', imeigaiyunó 'small stick', káamobixá gádiakumó 'to put it up', púkúo ni?iba 'moon'.

When clusters of three or four vowels occur it is common to have two contiguous identical vowels: kúui 'piece of firewood', tiaapai 'strainer', síuuřaxé 'nestling', xiííbáí 'basket', múuáí 'large river'. However, a few clusters of three diverse vowels are present in the data: né?ikauí 'he says'.

There seems to be no systematic restriction as to cooccurrence of vowels. However, in present data o precedes only i in a heterogenous cluster: xóói 'a small bird'; and e follows only u in a heterogenous cluster: kuéni?i 'to rub'. Also no examples have been found of ii, ea, iu, ao.

6.5. Suprasegmental phonemes. Both high and low tone occur word initial, medial, and final: xóói 'small bird',

[4] An alternate possibility is to treat contiguous homophonous vowels as length rather than as clusters. This, however, would complicate the syllable patterning by establishing syllables with short vowels: V, CV; syllables with long vowels: V:, CV:; and syllables with diverse vowels: VV, CVV. It would also necessitate postulating tone glides, which would occur only on long vowels.

xúuɨ 'large bird', ímĩbáĩkímáaimó 'to repair something', ɓaúřa 'toad', tš̆u?úi 'worm', baigĩixɨ́ 'ash', ĩimaá 'word', gáĩgo 'woman', dúdɨkamaxé 'work', duxéyɨ 'cord', kɨgáxa 'a cover', kɨgařá 'sleep', nɨ́?ɨbá 'sun', nɨxéga 'hat'.

7. Special phonetic characteristics. Medial voiceless stops are preceded by a phonetic plus juncture (+): [nĩ́+taxɛgáĩ] 'scissors', [?á+kɛ́+tɛ?ĩ] 'I fall', [tɨ́?ai+paxɛ́] 'shoe', [má+tš̆u?ĩ] 'eat cassava'. This is a marked phonetic characteristic of the language, but does not appear to contrast with other types of juncture phenomena. For this reason it is considered a concomitant phonetic feature of medial voiceless stop allophones rather than a phoneme of plus juncture.

8. Morphophonemic alternation.

8.1. The two palatal stops and the palatal nasal occur as separate phonemes. When, however, their alveolar counterparts occur word initial and are preceded by the first person singular possessive prefix ta-, the alveolar phonemes are replaced by the corresponding palatals: déekanó 'flowers', tádʸeekanó 'my flowers', tɨ́ĩxó?o 'blood', tatʸɨ́ĩxó?o 'my blood', nĩ́taxegáĩ 'scissors', tañĩ́taxegáĩ 'my scissors'.

The alveolar nasal, when suffixed to a vowel cluster whose final member is i, is replaced by the palatal nasal and the i is lost: -no 'pluralizer', ĩ́lgáĩ 'front tooth', ĩ́lgañó 'front teeth'.

8.2. The high front vowel, when prefixed by a or o, is replaced by the vowel of the prefix: ĩ́ixa 'house', tááxa 'my house', dĩ́ixa 'your house', móóxa 'our house'. The other

vowels resist this assimilation: ta?ésúgaim̷[5] 'my gnat', tá?ɨmé 'my face', tá?usé 'my hand', ta?ásim̷ 'my meat', ta?óóbóta 'my measure'.

The low back vowel, when prefixed to an initial u, is replaced by u: úse 'hand', mú?usé 'our hand'. This does not occur preceding other vowels: mo?ésúgaim̷ 'our gnats', mó?ɨmé 'our face', mo?ásim̷ 'our meat', mo?óóbóta 'our measure'.

The low back vowel, when part of an affix that is suffixed to e, assimilates to e: áameke átʸɨ̷me?í 'I saw the leaf', mée?é 'skin', mée?ené 'skins'. This does not occur with other vowels. gáá?iko átʸɨ̷me?í 'I saw the monkey', máá?uko átʸɨ̷me?í 'I saw the cassava', kidžá?a 'pineapple', kídžá?anó 'pineapples', adžɨ̷ 'eye', adžɨ̷nó 'eyes', tɨ̷xó?o 'blood', tɨ̷xó?onó 'blood pl.'.

[5]When the initial vowel is i there is no occurrence of glottal stop: tááxa 'my house'. When the initial vowel is not i there is an intervening glottal stop: tá?ɨmé 'my face'. It is difficult, at this point of analysis, to know if these words have an initial glottal stop, or if the first person possessive prefix is ta- before all consonants and i, and is ta?- before other vowels.

4

GUAJIRO PHONEMES

Richard Mansen

Guajiro has a relatively simple consonantal system, with only 15 consonants, and has the six-vowel system typical of most of the other languages of this volume. Of special note are the contrasts of flap and trill, and of alveopalatal affricate /č/ and the cluster /tš/; the variant manifestations of glottal stop in the sequence VʔV, including a distinctive pitch pattern; the optional unvoicing of final unstressed short vowels, and the optional loss of final unstressed back vowels; and the occurrence of high pitch rather than intensity as the major component of phonemic stress.

Not mentioned in the paper, but of interest to me was the contrast of pitch pattern between final stressed vowel cluster and final -VC (including -y as -C); a final cluster of diverse vowels has downgliding pitch when stressed: /harái/ [harái]; a final -ay sequence has a level pitch pattern as do other final -VC: /haráy/ [harái]. Also of interest to those who study patterns of borrowing is the lengths to which Guajiro goes to differentiate the Guajiro form of a Spanish loan from its form in the source language. Note Guajiro /sanáoořia/ from Spanish zanahoria 'carrot', with stress shifted forward, formerly stressed vowel lengthened, and flap replaced by trill.

1. Introduction. The Guajiro language belongs to the Arawak language family. It is spoken by about 30,000 Indians in the Guajira Peninsula of northern Colombia and Venezuela.

The language data used to write this paper were gathered in Uribia, La Guajira, over a four-month period from July to November, 1964. Ricaurte Henriquez of Uribia has been my language informant.

I owe special thanks to Viola Waterhouse and Alvan Wheeler for their help in organizing the data at a linguistic workshop at Lomalinda, Colombia, during March and April, 1965, and to my language informant who was present at that time for checking the data.

2. Chart of phonemes.

Consonants

	Bilabial	Dental-Alveolar	Palatal	Velar	Glottal
Stops	p	t	č	k	ʔ
Spirants		s	š		h
Nasals	m	n	ñ		
Vibrants		ř, r̃			
Semivowels	w		y		

Vowels

	Front	Central	Back
High	i	ɨ	u
Low	e	a	o

Suprasegmental

stress, written over the vowel of the stressed syllable

3. <u>Consonants</u>. Consonants consist of stops, spirants, nasals, vibrants, and semivowels.

3.1. <u>Contrasts</u>. Voiceless stops are found at bilabial /p/, dental /t/, alveopalatal /č/, velar /k/, and glottal /ʔ/ points of articulation:

/p/	/póotši/ [póot̮ši] 'mud'
/t/	/tóořo/ [t̪óořo] 'man'
/č/	/čahářuuta/ [čahářuut̪ʌ] 'machete'
/k/, /ʔ/	/kóokoʔočeř/ [ḳóoḳoʔočɛř̠] 'rat'

/č/ is an alveopalatal affricate, which patterns like the stops. It contrasts with the dental stop /t/: /čɨtší/ [čɨt̮ší] 'wet', /tɨřá/ [t̮ɨřʌ́] 'she'.

The phonemic status of glottal stop /ʔ/ is established by contrast between /haís/ [haís] 'sting ray', and /haʔís/ [haʔís] 'hot'. It contrasts with the velar stop /k/: /wáttaʔa/ [wát̪t̪aʔʌ] 'tomorrow', /píířakaa/ [píířakaa] 'look!'

Voiceless spirants are found at alveolar /s/, alveopalatal /š/, and glottal /h/ points of articulation. They contrast with each other, and the alveopalatal spirant /š/ contrasts with the alveopalatal stop /č/:

/s/, /š/	/haís/ [haís] 'sting ray'
	/haíš/ [haíš] 'wild potato'

/š/, /č/	/oʔunéeši/ [oʔuṉɛ́ɛši]	'he wants to go'
	/oʔunéeči/ [oʔuṉɛ́ɛči]	'he is going'

Voiced nasals are found at bilabial /m/, dental /n/, and alveopalatal /ñ/ points of articulation. Nasals contrast with each other and with semivowels at corresponding points of articulation:

/m/, /n/	/mařáši/ [mařáši]	'stupid'
	/nařɨ̌řia/ [ṉařɨ̌řiʌ]	'their (masc.) knife'
/n/, /ñ/	/unáʔapu/ [uṉáʔapu]	'mountain'
	/muñáasɨši/ [muñáasɨši]	'I'm thirsty'
/m/, /w/	/mařáaha/ [mařáahʌ]	'bottle'
	/wařáařař/ [wařáařʌṟ̌]	'vine'
/ñ/, /y/	/muñáasɨši/ [muñáasɨši]	'I'm thirsty'
	/huyáařa/ [huyáařʌ]	'debt'

Voiced vibrants are found at the alveolar point of articulation. The simple vibrant /ř/ contrasts with the multiple vibrant /r̃/: /tóořo/ [t̺óořo] 'man', /óor̃o/ [óor̃o] 'gold'.

Voiced semivowels are found at bilabial /w/ and palatal /y/ points of articulation:

/w/	/wopú/ [wopú]	'road'
/y/	/yosú/ [yosú]	'class of cactus'

3.2. <u>Variants</u>. The stops at the bilabial /p/, dental /t/, and velar /k/ points of articulation, and the bilabial nasal /m/ have unreleased variants which occur word final. In some words these phonemes occur final because the final vowel is optionally omitted (see discussion on vowel variants):

/unáʔapu/ [uṉáʔapu] ~ [uṉáʔa^{p}] 'mountain'
/aúunot/ [aúuṉo$^{t̺}$] 'lobster'

/šiřóku/ [šiˇřóku] [šiˇřóᵏ] 'inside (water)'
/piámo/ [piámo] [piáᵐ] 'two'

Velar stop /k/ has palatal [k̟], velar [k], and back velar [k̠] variants which occur adjacent to front, central, and back vowels respectively:

/kéttaasɨ/ [k̟éṯṯaasɨ] 'ready'
/káaša/ [káašʌ] 'drum'
/kóoko?očeř/ [k̠óok̠o?očɛr̃] 'rat'

Glottal stop has a number of variants, each having two characteristic components: a variable glottal effect and a typical dip pattern in the pitch of the adjacent vowels. The pitch pattern is constant; the glottal effect varies. Between identical vowels it varies from full perceptible glottal closure, to laryngealization of the vowels, to no perceptible glottal effect. Hence, in forms with loss of glottal effect, the pitch pattern gives the clue to the phonemic presence of glottal stop: /kóoko?očeř/ [k̠óok̠o?očɛr̃] ~ [k̠óok̠o͡o?očɛr̃] ~ [k̠óok̠o͡očɛr̃] 'rat'. When the sequence /V?V/ of identical vowels occurs before consonant or word break, the second vowel varies between full perceptible vowel and voiced release of the glottal stop: /ayá?ařahaa/ [ayá?ařahaa] ~ [ayá?ɤ̆řahaa] 'to buy'. Between diverse vowels the glottal stop is perceptible, but its occurrence fluctuates freely between intervocalic and postvocalic position: /ahá?ihia/ [ahá?ihiʌ] ~ [ahái?hiʌ] 'ladle'. A velar stop /k/ before a /V?V/ sequence of like or diverse vowels fluctuates freely between a simple velar stop and a glottalized velar stop: /ka?í/ [ka?í] ~ [kˀaí] 'sun'.

Dental nasal /n/ has a velar variant [ŋ] which occurs word medial before velar stop /k/ and glottal spirant /h/, and occurs word final after back vowel. Both the velar variant [ŋ] and the dental variant [n̠] fluctuate word medial

before consonants other than /k/ and /h/, and word final after central vowel /a/. In these environments the phonetic manifestation of the phoneme /n/ ranges from a velar nasal [ŋ] to a simultaneous velar-dental nasal articulation [ŋn̪] to dental nasal [n̪]:

/waš́ánkař/ [waš́áŋk^ř] 'class of lizard'
/nukónhaiñ/ [nukóŋha^ñ] 'he is smoking it'
/won/ [woŋ] 'hat'
/méeř̃ı mapán/ [méɛř̃ımapáŋ] ~ [méɛř̃ımapáŋn̪] ~ [méɛř̃ı-mapán̪] 'after'

The multiple vibrant /ř/ has a voiceless variant which occurs word final: /wař́áař́ař́/ [wař́áař́^ř] 'vine'.

4. Vowels.

4.1. Contrasts. Vowels consist of six phonemic types: front, central, and back, each with high and low counterparts: /i/, /e/, /ı/, /a/, /u/, /o/. These contrast in the following words:

/i/, /e/	/siř́úma/	[si˗ř́úm^] 'cloud'
	/seř́úmaa/	[seř́úmaa] 'chirito bird'
/i/, /ı/	/sı́ttiha/	[sı́t̪t̪ih^] 'ring'
	/sı́ttısı/	[sı́t̪t̪ısı] 'closed'
/ı/, /a/	/asıř̃aa/	[asıř̃aa] 'vein'
	/asář̃aa/	[asář̃aa] 'meat'
/ı/, /u/	/asıř̃aa/	[asıř̃aa] 'vein'
	/asúhaa/	[asúhaa] 'to root up (grass)'
/u/, /o/	/mútsiiya/	[mú˗t̪siiy^] 'black'
	/mótsayı̃i/	[mót̪sayı̃i] 'small'

4.2. Variants. High front vowel /i/ has the following variants: an open variant (ɪ) which occurs in an unstressed closed syllable: /kačéʔuřiš/ [kačéʔuřɪš] 'big ears'; an

open-close variant [i˗] which occurs in a stressed closed syllable and in an unstressed open syllable before the vibrant /ř/: /ehíttaaya/ [ehí˗t̪t̪aay∧] 'cord', /siřúma/ [si˗řúm∧] 'cloud'; and a close variant [i] which occurs elsewhere: /sikí/ [sik̟í] 'fire'. /i/ also has a nonsyllabic variant [i̯] which occurs in a closed syllable: /áippiřua/ [ái̯ppiřu∧] 'six'. The lack of three-consonant clusters causes us to consider this variant an allophone of the vowel /i/ instead of the semivowel /y/.

High back vowel /u/ has variants parallel to the open-close variant [i˗] and the close variant [i] of the high front vowel /i/: /muřút/ [mu˗řú˗u̯] 'animal', /púuřuku/ [púuřuk̟u] 'pig'. It is significant to note the absence of an open variant of the high back vowel /u/. Although the high central vowel /ɨ/ and the high back vowel /u/ contrast, they rarely do so in an unstressed closed syllable. The central vowel /ɨ/ occurs often in this environment, but the back vowel /u/ is rare in this environment. When /u/ occurs there, it occurs phonetically as the close variant [u]: /apótut/ [apó̟tu̯] 'class of tree'.

Low front vowel /e/ has a higher variant [e^] which occurs before the vowel /i/, the semivowel /y/, and before a syllable with the /i/ vowel. It also occurs word final in cluster with /e/: /heyúu/ [he^yúu] 'ant', /ekíwaa/ [e^k̟íwaa] 'the head', /awátsee/ [awá̟tse^e^] 'rib'.

Low central vowel /a/ has a higher variant [∧] which occurs in an unstressed closed syllable: /wáawatsɨ/ [wáaw∧tsɨ] 'air'. Word final this variant fluctuates freely with the lower vocoid [a]: /yawá/ [yaw∧] ~ [yawá] 'pringamosa plant'.

Final short vowels when stressed have an optional voiceless vocoid release of the same quality as the vowel: /amá/ [am∧] ~ [am∧∧] 'horse'. When unstressed they have an optional voiceless variant. Final back vowels may also be optionally omitted: /anáapi/ [a̟náapi] ~ [a̟náapI] 'portable stove', /susépu/ [susɛ́pu] ~ [susɛ́pU] ~ [susɛ́P] 'wall'.

5. Stress. The phonemic status of stress is established by the following contrasts:

/tawařá/ [tawařʌ́] 'my hair'
/tawářa/ [tawářʌ] 'my brother'
/eittáwaa/ [eɨttáwaa] 'to put'
/éittawaa/ [éɨttawaa] 'to return'

High pitch is a more significant component of stress than is intensity. That is, although more than one syllable may have equal perceptible intensity, only one syllable will have high pitch. Occurrence of words with apparent multiple stress points up this observation:

/hařečé/ [hařɛtsɛ́] 'blindness'
/nópotsɨ/ [nópótsɨ] 'there are none'
/sanáoořia/ [sanáoořiʌ] 'carrot'

Pitch is predictable by stress and syllable pattern; therefore, it is nonphonemic. High level pitch is a component of stressed syllables; low level pitch is a component of unstressed syllables: /asářaa/ [asářaa] 'meat'.

/CV/ syllables have step pitch pattern, whereas /V/ syllables have glide pattern:

/hoʔú/ [hoʔú] 'boy (young)'
/yamúřa/ [yamúřʌ] 'sabalo fish'
/kakúaši/ [kakúašɨ] 'he is walking (fast)'
/řuópu/ [řuópu] 'stream'

A sequence of two like vowels has a level pitch when the second vowel is unstressed, but a glide when the second vowel is stressed:

/poořóo/ [poořóo] 'ten'
/oóhiaa/ [oóhiaa] 'bath'

6. Distribution.

6.1. Syllable patterns. The phonemic syllable is a unit of potential stress placement. The contrasting phonemic syllable types are:

/V/	/šiákat/ [šiákaʰt] 'she'
/CV/	/siřúma/ [si˗řúmʌ] 'cloud'
/VC/	/piénčí/ [piɛ̯nčí] 'four'
/CVC/	/kařářokta/ [kařářoktʌ] 'paper'

A /CCVC/ syllable type is found, which fluctuates freely with forms having a vowel between the markers of the consonant cluster: /spána/ [spánʌ] ~ [supánʌ] 'leaf'. Further syllable types with final CC are found when a final vowel is lost in certain variant pronunciations of words like: /kařínokši/ [kařínokši] ~ [kařínokš] 'egg' (see 4.2).

6.2. Consonants. All consonants may occur syllable initial except that /ʔ/ and /ñ/ never occur word initial. The set of consonants /č, k, ʔ, h, ř, w,/ never occurs word final. Syllable final within a word, the set /č, ʔ, h, ř, r̃, w, y,/ never occurs.

Both long consonants and long vowels are analyzed as clusters of geminate phonemes. The phonemic status of length is established by contrast between /náapaheiñ/ [náapaheʰñ] 'he wants to listen to it', and /náapaaheiñ/ [náapaaheʰñ] 'he wants to get it'.

Consonant clusters occur mostly word medial across syllable boundaries. These clusters can be classified by their first member. Word medial consonant clusters begin with a stop or a nasal. When the first member is a stop, the second member may be stop: /hóktai/ [hóktai] 'wind'; it may be spirant: /haŕápši/ [haŕápšʰi] 'at what time?'; or the cluster may be geminate: /púikkařaa/ [púʰkkařaa] 'sit down!'

When the first member of a word medial consonant cluster is a nasal, the second member may be homorganic stop: /híntɨi/ [hí˞n̪t̪ɨi] 'boy (older)'; it may be spirant: /yasíimse/ [yasíimsɛ] 'thorn'; or it may be vibrant: /hayúunr̃er̃/ [hayúuŋr̃ɛṟ̃] 'fly'.

Word initial clusters of spirant plus stop are found. These fluctuate with forms having a vowel between the members of the consonant cluster (see 6.1): /skí/ [skí] ~ [sikí] 'fire'.

6.3. <u>Vowels</u>. Single vowels and geminate vowel clusters have no restriction on their distribution: /ar̃ékɨt/ [ar̃ɛ́kɨᵗ] 'spider', /óor̃or̃ia/ [óor̃or̃iʌ] 'coral snake', /ur̃íuuna/ [ur̃íuun̪ʌ] 'worm', /okór̃or̃oo/ [oḳór̃or̃oo] 'belongings'.

Word medial and word final, the same vowel clusters are found: any vowel plus /i/: /išéišer̃/ [išéišɛṟ̃] class of ant, /ur̃úi/ [ur̃úi] 'oriole'; high vowel plus low vowel: /kakúaši/ [kaḳúaši] 'he is walking (fast)', /sɨnɨ́r̃ia/ [sɨn̪ɨ́r̃iʌ] 'her name'; and low central /a/ plus high central /ɨ/: /paɨ́rɨʔɨ/ [paɨ́rɨʔɨ] 'inside', /paɨ́/ [paɨ́] 'cave'.

Word initial clusters of /a/ or /o/ plus any vowel are found: /aís war̃átši/ [aíswar̃át̪ši] 'it's hot', /oúnuš tayá/ [oún̪ust̪ayá] 'good-bye'.

7. <u>Observations on special phonetic characteristics</u>. Nasalization occurs on vowels adjacent to nasals. It increases in intensity according to whether the vowel follows a nasal consonant, precedes it, or occurs between two nasals. It has not been indicated in the phonetic writing of examples in this paper. To some extent, nasalization distorts the normal phonetic quality of vowels, making them difficult to recognize.

All consonant clusters occur with close transition. The first member of consonant clusters is optionally held. This varies from little perceptible length in geminate clusters, to

some length in a cluster of stops, to almost double length in a cluster of nasal plus stop. Further data may provide contrast between a two-consonant cluster in which the first member is long and one in which it is short. In such a case the long consonant plus the short would be interpreted as a three-consonant cluster. As yet the only example of a three-consonant cluster is: /ánšpia/ [ánšpiʌ] a greeting.

The use of falsetto voice occurs with certain expressions: /hařátuičí taí/ [hařátuičitaí] a salutation said by a person passing by a friend's house. The final [í] said in falsetto voice.

The sequence /V?V/ is heard as one phonetic syllable unless the second vowel is stressed.[1]

[1] A possible alternate interpretation of /V?V/ could be that /C$\overset{(\cdot)}{\text{V}}$?V/ is one of the phonemic syllable types. When a sequence of V?V occurs, either with the first vowel stressed, or with neither vowel stressed, the sequence functions as a close-knit syllable nucleus. In such a nucleus, the glottal stop may be replaced by laryngealization or be actualized only by the typical pitch pattern of such syllables; or the glottal effect of such a nucleus may be seen in glottalization of a preceding velar stop, or by the replacement of the second vowel by a simple vocalic release of the glottal stop. In a sequence of V?V́ with the second vowel stressed, the glottal stop functions like any other consonant, and the /?V/ is simply a manifestation of a /CV́/ syllable.

5

YUCUNA PHONEMICS

Stanley and Junia Schauer

Yucuna has a simple, asymmetrical consonantal system, and a five-vowel system, rather than the six-vowel type found in most of the other Colombian languages so far investigated. Of special interest is the contrast of central and lateral flap phonemes, the great amount of free variation between /s/ and /h/, and the patterns of intrinsic and non-intrinsic stress, plus the shifts resulting from the interaction of the two stress types.

1. Introduction. Yucuna is a member of the Arawak language family and is spoken by some 450 Yucuna and

Matapí Indians living in the Amazon jungle in the state of Amazonas, of southern Colombia. They occupy an area about thirty miles along the middle region of the Mirití river, which is a tributary to the Caquetá river.

The Matapí language has been lost except for a few words that have been retained by some of the elders of the tribe. The Matapies are almost completely assimilated into Yacuna culture.

In the language "yucuna" has the meaning of a story, history, or state of being of someone or something. In their language they refer to themselves as camajeya which means "from the animals."

We are grateful for the many informants who have given their time to help us in the gathering of language data. Our special gratitude goes to three young men (ages 17-19) who have helped us the most: Pedro Matapí, his younger brother Benito, and Arcadio Yucuna. Field work was carried on in the years 1963-65.

2. Phoneme chart.

Consonants

	Bilabial	Alveolar	Palatal	Velar	Glottal
Stops vl.					
Unasp.	p	t	č	k	ʔ
Asp.	p^h	t^h			
Fricatives		s			h
Nasals	m	n	ñ		
Flaps		r			
		l			
Semivowels	w		y		

Vowels

	Front	Central	Back
High	i		u
Mid	e		o
Low		a	

3. Consonants. Consonants consist of stops, fricatives, nasals, flaps, and semivowels.

3.1. Consonant contrasts. Voiceless unaspirated stops are found at bilabial, alveolar, velar, and glottal points of articulation. The alveopalatal affricate /č/ patterns as a stop.

Contrast is found between aspirated and unaspirated stops at bilabial and alveolar points of articulation:

p/p^{h} [wɛpá] /wepá/ 'we wash'
[wɛp^{h}á] /wephá/ 'we arrive'
t/t^{h} [matú] /matú/ 'a jungle fruit'
[mat^{h}úni] /mathúni/ 'strong (adj.)'

t and č contrast in:

[pitə́] /pitá/ 'you close'
[pitš́ə́] /pičá/ 'you dig'

k and ʔ contrast in:

/k/ [paľə́kaka] /palákaka/ 'you are cleaning'
/ʔ/ [řipaləʔatə́ka] /ripalaʔatáka/ 'he is comforting'

Glottal stop also contrasts with glottal fricative /h/:

/ʔ/ [řiwáʔa] /riwáʔa/ 'he calls'
/h/ [řiwahá] /riwahá/ 'he punishes'

Fricatives consist of the alveolar sibilant /s/ and the glottal fricative /h/:

/s/ [r̆isápa] /risápa/ 'he works'
/h/ [há·r̆u] /háru/ 'anteater'

Nasals occur at the labial /m/, alveolar /n/, and alveopalatal /ñ/ points of articulation:

/m/ [pa·ma] /pamá/ 'you see'
/n/ [pinéni] /pináñi/ 'your things'
/ñ/ [piña?á] /piña?á/ 'you weave'

Flaps include the alveolar /r̆/ and alveolar lateral flap /l̆/:

/r/ [nər̆a?á] /nara?á/ 'they push'
/l/ [nəl̆ə?á] /nala?á/ 'they make'

Semivowels include bilabial /w/ and palatal /y/:

/w/ [wawáta] /wawáta/ 'we want'
/y/ [kawaiyá] /kawayá/ 'deer'

3.2. Consonant variants. /p^{h}/ has a fricative variant [ɸ] which occurs in free variation with [p^{h}] in certain words: [r̆ap^{h}ú] ~ [r̆apú] 'hole'.

/č/ has a palatalized variant [tš^{y}] which occurs word medial after /i/: [r̆itš^{y}əpáta] /ričapáta/ 'it hurts'.

/k/ has a labialized variant [k^{w}] which occurs word medial after /u/: [uŋk^{w}á] 'no'. The variant [k^{w}] also occurs as an optional rapid pronunciation of the sequence kuw(v...) as in [k^{w}ahár̆i] /kuwahári/ 'a rodent name'. /k/ has a palatalized variant [k^{y}] which occurs word medially after /i/: [r̆ik^{y}áto] /rikáto/ 'he plays'. /k/ has an aspirated variant [k^{h}] which occurs in free variation with [k] in some words: [r̆ikó] ~ [r̆ik^{h}ó] 'he himself'.

/n/ has a velar variant [ŋ] which occurs before velars: [uŋkʷá] /unká/ 'no'.

/h/ has a velar fricative variant [x] which occurs before consonants: [pixlú] /pihlú/ 'your eye'.

4. Vowels. Yucuna has a five-vowel system with two of the vowels high, two mid, and one low. The high and mid vowels are front unrounded and back rounded.

4.1. Vowel contrasts. Vowel contrasts are shown in the following words:

i/ɛ	[pipinɛ́]	/pipiná/ 'your enemy'
	[pɛ·né]	/pená/ 'your measurement'
ɛ/a	[kɛ́·r̃i]	/kéri/ 'moon'
	[ká·r̃i]	/kári/ 'that'
a/o	[r̃a·lá]	/ralá/ 'its juice'
	[r̃a·ló]	/raló/ 'his mother'
o/u	[r̃uxlú]	/ruhlú/ 'her eye'
	[r̃oxló]	/rohló/ 'for her'

4.2. Vowel variants. /o/ has a variant [i̯] which occurs in free variation with [o] after /h/ when the preceding vowel is /a/: [pilɘhi̯ʔi̯] /pilahoʔó/ 'you stick (it)'. /a/ has a variant [ɐ] which occurs following an alveolar or alveopalatal consonant: [palɐ́ni] /paláni/ 'good'.

5. Suprasegmental phonemes. Stress is phonemic as shown by the following words:

/rirá/ 'he saws'
/ríra/ 'his blood'

/píyuke/ 'old'
/piyúke/ 'all'

Stress is not limited to one syllable per word. Rather, Yucuna appears to have a multiple stress system:

/pirákána/ 'domesticated'
/kalapíčína/ 'howler monkeys'

Nasalization of vowels seems to have limited phonemic status. The closest contrast noted is found in the following words: pikuwą́ʔa 'you cross' and piwáʔa 'you call'. Such contrasts are quite infrequent and nasalization occurs rarely. In some situations it is predictable.

For example, vowels of final hV and V syllables are consistently nasalized:

[ma·hǫ́] /mahó/ 'here'
[heį́] /heí/ 'snake'

Nasalization also occurs with hi and ʔi before k and č, and on some cv́ʔv:

[řitšəhį́ka] /ričahíka/ 'he will dig'
[řiwáʔiką] /riwáʔika/ 'he called'
[pikehą́ʔa] /pikeháʔa/ 'you ask'

6. Distribution.

6.1. Syllable patterns. The syllable in Yucuna is defined as a unit of potential stress placement. This consists of a vowel which may be preceded and/or followed by a consonant. Two contiguous vowels constitute nuclei of two phonemic syllables. The canonical shapes are:

CV /paláni/ 'good'
VC /ainsí/ 'teeth'
V /čiúra/ 'pants'
CVC /ritahánta/ 'it is depleting'

6.2. Single consonants. All consonants, except glottal stop (which occurs only medially), occur word initially and medially. n and h also occur syllable finally within the word.

6.3. Consonant clusters. Consonant clusters in Yucuna include only word medial combinations of two consonants where each belongs to a separate syllable. The first member is limited to syllable codas n and h. n occurs only before syllable onsets t, č, k, and s. h precedes syllable onsets m, n, ñ, l, r, w, and y. Note example:

[řiʔixnahíŋka] /riʔihnahínka/ 'he will go'.

6.4. Single vowels. Any vowel can occur in the nucleus of the syllable initially, medially, or finally after all consonant onsets with the exception of ñ and w. i does not occur after ñ; u does not occur after ñ or w.

6.5. Vowel clusters. The most frequent patterns of vowel clusters are of mid or low vowel followed by a high vowel: ai, au, ei, oi; or high back preceding high front and vice versa: ui, iu.

Examples: /painéko/ 'first'
/au/ 'with'
/heí/ 'snake'
/noí/ 'my tooth'

/puičáni/ 'hard (adj.)'
/čiúra/ 'pants'

Vowel clusters function as two syllables.

6.6. Stress. In relation to words, stress appears to be of two types: intrinsic and nonintrinsic. Various patterns of stress shift occur according to the interaction of

these two stress types. The full system has not yet been worked out, but a few observations can be made.

Intrinsic stress in general is nonperturbable and may cause stress perturbation. Nonintrinsic stress is perturbable. Either stress type is found both on stems and affixes.

In verbs nonintrinsic stress occurs only on final stem syllable. The shift of stress is regularly to the syllable following the stem. Intrinsic stress may occur on any stem syllable. On verb affixes there appears to be intrinsic stress on -la, -ra, and -he.

In two-syllable nouns nonintrinsic stress falls on the first syllable. With such nouns there is shift of stress to the possessive suffix.

Stress shifts are illustrated in the following charts.

VERBS — SOME VERB SUFFIXES

Nonintrinsic		-lača		-kerami		-kaiohe		-kahla	
pata?á	'you steal'	---	´_	---	´´_	---	´_´	---	´´
pi?irá	'you drink'	---	´_	---	´´_	---	´_´	---	´´
pi?iwapá	'you swim'	----	´_			----	´_´	----	´´
Intrinsic									
patá?a	'you try'	_´_	´_	_´_	_´_	_´_	__´	_´_	_´
pinó	'you kill'	_´	´_	_´	_´_	_´	__´	_´	_´
peháta	'you plant'	_´_	´_	_´_	_´_	_´_	__´	_´_	_´
páčo?o	'you get up'	´__	´_			´__	__´	´__	_´

NOUNS		POSSESSIVE AFFIX	POSSESSIVE PLURAL
Nonintrinsic			
yáwi	'dog'	(my) nuyawité	nuyawiténa
péru	'ax'	nuperuné	
héma	'cow'	nomaté	nomaténa
ituhí	'daughter'	nútu	
hirá	'blood'	núra	
Intrinsic			
po?orí	'grill'	nopo?oré	
ye?é	'armadillo'	nuye?éte	nuye?étena
liñéru	'money'	nuliñérute	
túku?učí	'dove'	nutúku?učite	nutúku?učitena
pináhi	'enemy'	nupiná	nupinána

Nonintrinsic			
iapí	'night'	iapiwá	'during the night'
rícu	'in it'	ríčuwá	'within it'
Intrinsic			
pihló	'for you'	pihlúwa	'for you' (in process)
yenú	'above'	yenúwa	'within above'

7. Morphophonemic alternation.

7.1. Vowel fusion. With prefixation, which is generally limited to person markers, a morphophonemic alternation by fusion takes place in stems beginning with vowels. Three prefix vowels i, u, a, fuse with stem vowels according to a definite pattern. The chart below illustrates the direction of fusion.

prefix vowels	stem vowels: e	i	u	o	a
i	e	i	i	i	a
u	o	u	u	o	o
a	e	e	a	a	a

To further illustrate, the person markers in Yucuna are: nu 'I', pi 'you', ri 'he', ru 'she', wa 'we', i 'you pl.', and na 'they'. Prefixed to a stem beginning with a consonant there is no change in the person markers. When the stem begins with e- or he- for example, as in hema?á 'to hear', the person markers change as illustrated in the above chart: noma?á 'I hear', pema?á 'you hear', wema?á 'we hear', etc.

7.2. Vowel harmony. In suffixation there also is a slight amount of morphophonemic alternation but is not as pertinent nor as consistent as it is in prefixation. There is no fusion as is the case with prefixes but a limited type of change of the stem vowel takes place before certain suffixes. The most consistent and most frequent is a change of high front vowel to mid when followed by a syllable having a mid vowel: piwe?epí 'you know', when suffixed by -he becomes piwe?epéhe 'you will know'. Another type of change which occurs in some words is the shift of mid front vowel to mid back before a syllable containing a low central vowel; maáre 'here', when suffixed with -wa becomes maárowa 'around here'.

A second type of morphophonemic change occurs in Yucuna which is morphemically conditioned. Verb stems which contain /a/ in the final syllable change the /a/ to /i/ before aspect markers such as -ča, -čaka, -čari, etc.;

ra?apá 'he walks', becomes ra?apíča 'he walked', with the added aspect suffix. This functions uniformly in all cases with the exception of verb stems ending in ta. In these the ta is replaced by či and the -ča by -ya with resultant forms čiya, čiyaka, čiyari, etc.; thus ripa?atá riká 'he returns it', changes to ripa?ačíya riká 'he has returned it'.

7.3. Free variation. In Yucuna there are several kinds of fluctuation between phonemes. The greatest degree of free variation occurs between the /s/ and /h/. In approximately 90 per cent of the words where one of these two phonemes occurs potential fluctuation is possible. A change of the vowel a to a^i occurs with /s/ if the syllable following /a/ contains a mid front vowel /e/. For example, /wahé/ 'new' becomes /waisé/ when pronounced with /s/. Another factor that contributes to further variation is the frequent dropping of the r. /marí/ 'this' is frequently pronounced /maí/. The combination of h contiguous to r has three possible pronunciations. For example; /wahrúwi?iča/ 'we are getting into night' is pronounced as written or /wahúwi?iča/, or /wasúwi?iča/.

Other free variation which is not as frequent occurs between consonants which have similar points of articulation: between t and t^h, [nəñatɛ́] ~ [nəñat^{h}ɛ́] 'with them'; k and k^h, [řikó] ~ [řik^{h}ó] 'he himself'; l and n, [řiləni?itšé] ~ [řinəni?itšé] 'he wrote'; and the ñ and y, [kiyáha] ~ [kiñáha] 'quick'. Free variation occurs between t and č only before the high front vowel i: [waxmɛ?ɛtšíya] ~ [waxmɛ?ɛtíya] 'we have opened'.

Metathesis with resultant assimilation occurs on some words, for example, [řápumitšu] ~ [řápointšu] 'behind him'.

When one of two like vowels in contiguous syllables is stressed, the consonant between the vowels is frequently lost: [nonótše] ~ [noótše] 'I killed'. The semivowel /y/ is lost before its vowel counterpart /i/: note ruyaka 'she is crying' vs. ruičaka 'she cried'.

6

CAMSA PHONOLOGY

Linda Howard

Camsá is here presented with examples written in the orthography designed for use in teaching the people to read their own language, as an example of the kinds of adjustments that can and often must be made to adapt a sound system to the written form of a trade or national language.

Special features of Camsá are the retroflex consonants, not found in the other languages of this volume; the large number of fricatives and affricates; the contrast of alveolar and palatal laterals; the free fluctuation of bilabial consonants, and of front vowels; the multiplicity and complexity of consonant clusters, all syllable initial; and the large number of Spanish loans freely incorporated into the grammatical system and their resultant influence on the phonology.

6. Special phonetic characteristics

7. Borrowed words

0. Introduction. This paper presents a description of the phonemes of Camsá and a statement of their distribution.[1] Camsá is spoken by approximately 2,500 Indians who live in the Sinbundoy valley. This valley, entirely surrounded by mountains, has an altitude of 6,500 feet and is located three hours by road from Pasto, Nariño. The Indians are mostly bilingual and the large number of Spanish loan words commonly used by the people has exerted much influence on the language. For this reason the language is in a state of flux and some of the phonemes have a very limited distribution. This analysis takes into account both the native sounds and changes due to Spanish influence.

1. Inventory of phonemes. There are 28 segmental phonemes in Camsá: 22 consonants and 6 vowels. Consonant phonemes are classified as follows: voiced obstruents /b d g/, voiceless stops /p t c/, voiceless affricates /ts tx ch/, voiceless fricatives /f s x sh j/, nasals /m n ñ/, laterals /l ll/, vibrant /r/, and semivowels /w y/. These phonemes are charted as follows:

[1]This information is based on an 8 1/2 month study of Camsá: 5 1/2 months in an Indian home and an additional 3 months of concentrated study with Pedro Jacanamejoy, a thirteen-year-old boy. Much valuable help was gained from a paper written by Alberto Juajibioy Chindoy, "Breve estudio preliminar del grupo aborigen de Sibundoy y su lengua Camsá en el sur de Colombia", Boletín del Instituto de Antropología, Medellín, August, 1962. I would also like to express my appreciation to Viola Waterhouse for her help and encouragement in writing this paper.

Consonants

	Labial	Alveolar	Retroflex	Palatal	Velar
Stop vl.	p	t			c
Obstruent vd.	b	d			g
Affric. vl.[2]		ts	tx	ch	
Fric. vl.	f	s	x	sh	j
Nasal vd.	m	n		ñ	
Lateral vd.		l		ll	
Vibrant vd.		r			
Semivowels vd.[3]	w			y	

Vowels

	Front	Central	Back
High	i	ë	u
Low	e	a	o

2. Consonants.

2.1. Consonant contrasts. The voiceless unaspirated stops contrast with the voiced unaspirated obstruents at the same points of articulation.

[2] Homorganic affricates are considered unit phonemes because this is allowed by the CV pattern of nonsuspect sounds and because their being considered as clusters would result in larger clusters than permitted by the nonsuspect pattern of the language: joftsbetxana 'to carry a child'. Phonetic sequences of nasal plus consonant at the same point of articulation and of consonant plus high voiced vocoid are all considered to be two phonemes because this is allowed by the CV pattern.

[3] Suspect /w y/ are considered consonant when occurring syllable initial and vowel when occurring after a consonant according to the nonsuspect CV patterns.

[xanguwána] /janguwana/ 'to blow' [buyíše] /buyishe/ 'water'
[xanguána] /janguana/ 'rotten' [tetiéṣe] /tetiexe/ 'papaya'

/p b/ oyepandayá 'one who does not pronounce words correctly', oyebabaná 'stutterer'
/t d/ mënté 'today', ndé 'reply to native greeting'
/c g/ bebincuá 'daughter-in-law', tanguá 'old man'

The voiceless unaspirated stop contrasts with the voiceless fricative at the same point of articulation.

/c j/ shacuana 'grass', shajuana 'beans'

The voiceless stop /t/ contrasts with the voiceless affricates.

/t ts/ botamaná 'pretty', botsamaná 'to sleep'
/t tx/ mënté 'today', mëntxena 'meat'
/t ch/ taná 'to sleep in another place', chaná 'yam'

The voiceless affricates contrast with the voiceless fricatives.

/s ts/ saná 'dinner', tsashá 'jungle fruit palm'
/x tx/ xocá 'sick', txombiache 'woven belt'
/sh ch/ shanyá 'one who guards', chanyá 'the other one'

The voiceless fricatives /s x sh/ contrast with each other.

/s x/ sësna 'cold', xëxona 'child'
/s sh/ saná 'dinner', shanyá 'one who guards'
/x sh/ xnená 'white woman', shnana 'medicine'

The voiceless affricates contrast with each other.

/ts tx/ tsashá 'jungle fruit palm', txabá 'good'
/ts ch/ tsoca 'inside', choca 'there'
/tx ch/ txabá 'good', chaná 'name'

The nasals[4] contrast with each other.

/m n/ jama 'in order to go', jana 'to go'
/n ñ/ ninacuro 'firefly', niñá 'firewood'
/m ñ/ shema 'woman', niñá 'firewood'

The laterals contrast with each other.

/l ll/ jualiana 'to read', mallajta 'many'

The palatal semivowel /y/ contrasts with the alveopalatal nasal /ñ/ and lateral /ll/.

/ñ y/ niñá 'firewood', miyá 'sweet potato'
/ll y/ miyá 'sweet potato', mullejona 'marble'

The bilabial /b/ contrasts with the semivowel /w/.

/b w/ batá 'aunt', wata 'year'

The alveolar lateral and the vibrant contrast with each other and also with the alveolar nasal.

/n l/ jana 'to go', rala 'money'
/n r/ jana 'to go', chora 'later'
/r l/ rala 'money', chora 'later'

2.2. Consonant variants. The voiced obstruents have fricative and stop allophones. The bilabial stop and fricative allophones freely fluctuate in all environments. The fricative allophone is the most common; the stop tends to occur after another consonant or in absolute word initial, but even in these environments, it may vary with the fricative.

[4]Alberto Juajibioy Chindoy includes a syllabic n̩ in his paper, which I have analyzed as /ën/. Thus his mn̩tjaja 'leg' and ngn̩tsiana 'hummingbird' are written mëntjaja and ngëntsiana according to my analysis.

Examples are: tbëtëja 'root', bembe 'daughter', bebmá 'mother', baco 'uncle', mabo 'come'.

The voiced alveolar and velar stops [d g] occur after nasal.[5] The voiced fricative allophones occur only in loan words, but since these have been so assimilated into the language, they are included in the analysis. Examples of nasal plus stop word initially and medially are: ndayá 'what', ngona 'smoke', intsendbemana 'it is broken', buanganá 'red'. Examples of voiced fricatives [ḏ] and [ǧ] in loan words are: jadibujana 'to draw', jagastana 'to spend'.

The voiceless alveolar fricative /s/ is voiced when it occurs contiguous to /d/. Elsewhere it is voiceless. Examples are: [zdi̶sá] /sdësá/ 'I am eating'; [ndzantsána] /ndsantsana/ 'flea'.

The alveolar /n/ has a velar allophone [ŋ] before velars. Examples are: yengó 'aracacha plant', bebinco 'son-in-law', and chanjá 'I will go'.

The vibrant /r/ is pronounced as a retroflexed voiced alveolar fricative word initially. Elsewhere it is pronounced as a flap like the Spanish r. Examples are: [ẓala] /rala/ 'money', /chora/ 'later'.

The semivowel /y/ has a voiced alveolar affricate allophone [dž] after [n]. Elsewhere it retains its palatal semivowel quality. Examples are: nyetscanga 'everyone', bominyi 'eye', yifse 'tomorrow' and cuaye 'come'.

2.3. Consonant fluctuation. The bilabial phonemes /p b f/ present a difficult problem of analysis due to the amount of fluctuation, and the fact that a statement of complementary

[5] It is possible that at an earlier stage Camsá had nd and ng as unit phonemes. Even now, some speakers tend to write nd and ng as d and g. The introduction and frequent use of Spanish loans with [ḏ] and [ǧ] in contrast to [nd] and [ng], however, make the analysis of [ḏ] and [d] as allophones of /d/ and [ǧ] and [g] as allophones of /g/ more feasible at this stage of the language.

distribution can be made for /f/ and either /p/ or /b/, if loan words are not taken into account.

There is no good contrast between voiceless unaspirated stop /p/ and voiceless fricative /f/ in native words. They are considered separate phonemes because /p/ contrasts with /f/ in loan words and because the people react to them as separate phonemes in native words although /f/ occurs only as first member of a cluster and /p/ occurs in a cluster only in one word: limpe 'everything'. The phonemic pattern of sounds seems to indicate that the voiceless bilabial stop and fricative may be just beginning to show phonemic differentiation and the number of loan words in which they occur contrastively makes it necessary to consider them separate phonemes: plasoca 'in the plaza', flacojema 'thin'.

There is no clear contrast between /f/ and /b/. In clusters /f/ occurs as first member of a cluster before a voiceless phoneme. /b/ occurs as both first and second member of a cluster, but as first member it occurs only before voiced consonants. However, native preference seems to be to consider /b f/ separate phonemes because of their contrast in loan words: flacojema 'thin' and blandëxtxá 'banana', famillanga 'family' and banga 'many'.

The phoneme /f/ presents the most difficult problem of analysis. Because of its limited distribution in native words it could be considered an allophone of either /p/ or /b/.[6] However, because of native reaction and its use in loan words, I have chosen to make it a separate phoneme. In loan words it may be pronounced as a labiodental [f] or bilabial fricative [ɸ]: florxá 'flower', frescuana 'fresh'. When it

[6] An alternative analysis is to consider /f/ as an allophone of /p/: [ɸ] occurs in clusters and [p] occurs elsewhere. Or it could be considered an allophone of /b/: [ɸ] occurs before voiceless phoneme and [b] occurs next to voiced phoneme. Since [p] and [b] occur in contrast before vowels, they cannot be combined.

occurs initial in a cluster it may fluctuate with the stop [p]: pshajantsá-fshajantsá 'white', pshendëshe-fshendëshe 'yucca'. When it occurs word medially it may be replaced by the voiced bilabial fricative [β] in fast speech; in slow speech it is pronounced as a voiceless bilabial fricative [β̥]: [chaβtáca-chaptáca] 'with him', [esconúβta-esconúpta] 'nine'.

3. Vowels.

3.1. Vowel contrasts. The 6 vowels contrast with each other.

/i e/	waciñá 'son', wabensá 'little sister'
/i ë/	jinyana 'to see', jënyá 'sun'
/e a/	ndé 'reply to native greeting', ndá 'who'
/a o/	obaná 'dead', oboná 'fat'
/o u/	boyá 'man', buyishe 'water'
/u e/	cuscungo 'owl', bayajënga 'animals'

3.2. Vowel variants. The front vowels /i e/ are separate phonemes but also may fluctuate in some morphemes as in buyishe-buyeshe 'water', jetiñe-jitiñe 'afternoon'. The back vowels /u o/ may also fluctuate as in beuna-beona 'fish', ochanëshá-uchanëshá 'crown'. The low front vowel /e/ varies in phonetic quality from [ɪ e ɛ]; the norm is [ɛ].

4. Suprasegmental phonemes.

4.1. Stress. Every word contains one phonemic strong stress which may occur on either the penultimate or the final syllable: canyá 'alone', cánye 'one', batá 'aunt', wáta 'year', bebínco 'son-in-law', bebincuá 'daughter-in-law'. Since it most often occurs on the penultimate syllable, it is written only when it occurs on the final syllable.

5. Distribution.

5.1. Syllable patterns. A syllable consists of a nucleus filled by a vowel or vowel cluster plus an optional onset of one to three consonants. However, no syllable contains more than four phonemes, so *CCCVV does not occur. The syllable pattern V occurs only word initial and medial; VV occurs only word initial. The other patterns may occur in any position. A phonological word consists of one or more syllables. (Hyphen indicates syllable division.)

	Initial	Medial	Final
V_1	a-oa 'you'	be-u-na 'fish'	--
V_2V_3	ai-na-na 'heart'	--	--
C_1V_4	ba-tá 'aunt'	be-co-ñe 'near'	bo-yá 'man'
$C_2V_2V_3$	bia-co 'basket'	bua-cua-txe 'forearm'	ja-tra-bi-aiá 'to play'
$C_2C_3V_4$	stë-txa-ja 'back'	bi-chta-ja 'tongue'	be-taco 'feat'
$C_2C_3V_2V_3$	shbua-chá 'middle-aged'	ja-cjua-na-na 'bewitch'	ba-bi-nouá 'daughter-in-law'
$C_4C_5C_6V_4$	stjo-ca 'below'	cie-stri-nyi 'carnival'	ngo-fxná 'green'

5.2. Single consonants. C_1 is the consonant slot of CV and CVV syllables. It is filled by all single consonants. However, /ñ ll/ never occur word initially.

5.3. Consonant clusters of two. Consonant clusters are very common in Camsá. The most frequent type of cluster consists of two voiceless consonants differing as to point of articulation. A nonphonemic transitional vocoid [ə] occurs between stop plus stop or consonant plus nasal at a different point of articulation. Examples are: [t$^{\ominus}$ka-ńí-ñe] /tcanëñe/ 'broken', [wa-k$^{\ominus}$ná] /wacná/ 'cow', [xa-m$^{\ominus}$ná-na] /jamnana/ 'to loan'. Initial fricatives are lengthened and have optional off-glide before nonfricative consonants at a different point of articulation: [f$^{\cup}$tse-ŋgá] /ftsengá/ 'black', [wa-f$^{\cup}$té-na] /waftena/ 'rain', [xua-sh$^{\ominus}$có-na] /juashcona/ 'moon', [x·tá-na] /jtana/ 'blind'. If the following consonant is voiced the lengthening of the fricative becomes slightly voiced as in [s$^{\ominus}$ba-rú-ko] /sbaruco/ 'basket'.

The consonants may be divided into six classes: stops (S), affricates (A), fricatives (F), nasals (N), liquids (L), and semivowels (Sv). The possible combinations in clusters may be charted as follows:

	S	A	F	N	L	Sv
S	X	X	X	X	X	
A	X		X	X		
F	X	X	X	X	X	
N	X	X	X	X		X

The limited distribution of the liquids /l ll r/ and the semivowels /w y/ is discussed below. All combinations of the first four classes are possible word initially except NN, AA. Word medially all combinations are possible except AA. C_2 is the first consonant slot of CCV and CCVV syllables. It is filled by all consonants except /p d g l ll ñ w y/. The second consonant slot is C_3. This is filled by all consonants except /f ll w y/.

Stops. /p/ very seldom occurs in a cluster. There is only one example of an apparently native word in which /p/ occurs in a cluster: limpe 'everything'. /t/ occurs before /c b j m/ both initially and medially and before /r/ word medially. /c/ occurs before /b s ts l/ initially and before /b j ts n r l/ word medially. /b/ does not occur as first member of a cluster word initially. Medially it occurs only before nasals in native words. It may occur before liquids both initially and medially in loan words. It occurs before /l/ in blandëtxá 'banana' which also seems to be a loan word. As second member it occurs both initially and medially. /d g/ never occur as first member of a cluster. They occur only as second member of a cluster after /n/.

Affricates. /ts/ occurs before /j b m/ initially and /j b c n/ medially. /ch/ occurs before /n/ initially and

/c t b j n sh m/ medially. /ts/ does not occur in a cluster word initially. Medially it occurs before /c t n b/.

Fricatives. /f/ occurs before /c sh x ts tx ch j/ word initially and /t c sh s ts j/ medially. /s/ occurs before /t b ch/ initially and /c t n/ medially. /j/ occurs before /t ts/ initially and /t b n s/ medially.

Nasals. /m/ does not occur as first member of a cluster word initially. Medially it precedes /b n ñ/. /n/ occurs before /d g ts tx y/ initially and /b d g t c ts tx y ch/ medially. /ñ/ does not occur initially in a cluster. It occurs only after /m/ word medially.

Liquids. /l r/ occur after stops in Spanish loans. In native words /l/ occurs initially after /sh/ and medially after /s/. /r/ occurs only word medially after /t c/ and before /m/.

Semivowels. /w/ does not occur in a cluster. /y/ occurs after /n/ initially and medially.

The following chart depicts the types of two-consonant cluster combinations possible.

	Vl-Vl	Vl-Vd	Vd-Vl	Vd-Vd
SS	tcanëñe 'broken'	tbëtëja 'root'	---	---
	jatoana 'to break'	intaatbemana 'he is sitting'	---	intsendbemana 'it is broken'
SA	ctsomañe 'he is sleeping'	---	---	---
	toctsoñe 'he went'	---	---	---
SF	tjañe 'mountain'	---	---	---
	montjeshe 'look'	---	---	---
SN	---	tmoyá 'drinker'	---	---
	---	jobatmana 'to wait'	---	ebnëcanëñe 'broken'
SL	---	cleatrinyi 'carnival'	---	blandëtxá 'banana'
	---	jaclaatrinyana 'to dance'	---	---

	Vl-Vl	Vl-Vd
AS	---	tsbuañache 'leaf'
	betsco 'fast'	juatsboca 'up'
AF	tsjasha 'nose'	---
	juatsjinyana 'to study'	---
AN	---	tsmans 'below'
	---	jotansshá 'bed'
FS	jtstamiyana 'to close'	shbuachá 'middle-aged'
	ohiaisjta 'all day'	jashbuana 'to hunt'
FA	ftsangá 'black'	---
	jofchecuacuayana 'to get wet'	---
FF	fshendëshe 'yucca'	---
	coxufja 'needle'	---
FN	---	xnená 'white woman'
	---	sjosnayana 'to cough'
FL	---	shloftxe 'bird'
	---	aslapaya 'thank you'

	Vd-Vl	Vd-Vd
NS	mënté 'today'	ndayá 'what'
	---	bambashe 'tree trunk'
NA	ntsamiashe 'knee'	nyeté 'yesterday'
	bacantxe 'ugly'	jinyana 'to see'
NN	---	---
	---	biamnayá 'weaver'
LN	---	---
	---	intsarmendá 'to sew by hand'
LS	---	---
	---	escardonatxe 'bug'

5.4. Consonant clusters of three. Clusters of three consonants are not as common in the language as clusters of two. C_4 is the first consonant slot of CCCV syllables. It is filled by /b t s sh n/. The second consonant slot is C_5. This is filled by /d t c ch ts j sh x m y/. The third consonant slot is C_6. This is filled by /b c j m n r/. Examples word initially are: stjoca 'below', shcnena 'wooden plate', schbomá 'lazy', tcmënjibobinyna 'wake up', ndmoca 'where'. Examples word medially are: jaclestrinyana 'to dance', joftsbetxana 'to carry a child', jisshconana 'to return', indoafxná 'blind', insendbemana 'it is broken', montjeshe 'look', indmëna 'it is', wamënxnayá 'I am tired', intsenshniñana 'it is hot'. In general, one can say that in clusters of

three consonants, the first consonant is most often a nasal, the second consonant is most often a stop, and the third member is most often a nasal; but other combinations may occur.

5.5. Single vowels. There are six vowels which are distributed in syllables as follows. V_1 consists of all vowels except /ë/ and fills the V slot of V syllables. V_2 consists of /a i o u/ and fills the first slot of VV, CVV, and CCVV syllables. V_3 consists of /a e i o/ and fills the second slot of VV, CVV, and CCVV syllables. However, /ë u/ never occur word final in any syllable type. V_4 consists of all vowels and fills the V slot of CV, CCV, and CCV syllables.

5.6. Vowel clusters. A vowel cluster consists of a strong vowel and a weak vowel. Strong vowels are /a e o/. Weak vowels are /i/ in any position, and /u/ when it occurs as first member of a vowel sequence. Two strong vowels cannot stand together in one syllable. A strong and a weak vowel or two weak vowels together form a diphthong and usually constitute one syllable. If the weak vowel is stressed, the vowels constitute two distinct syllables. Examples of diphthongs are:

[ai]	/ai-ná/ 'living'	[ia]	/bia-co/ 'basket'
[oi]	/sto-noi-ca/ 'back'	[io]	/ndio-xo-ftá/ 'good-bye'
[ui]	/ngui-chi/ 'mud'	[ie]	/tetiexe/ 'papaya'

[ua] /buajtana/ 'good afternoon'
[ue] /juenanana/ 'to sound'

Examples of vowel sequences which are not diphthongs are:

[ai] /aíñe/ 'yes'
[eu] /beuna/ 'fish'
[ao] /jaocupana/ 'to occupy'

[au] /jausana/ 'to use'
[oa] /indoafxná/ 'blind'

6. Special phonetic characteristics.

6.1. Pitch. Pitch appears to be determined by the placement of stress. It may be noted that in general when the final syllable is stressed, all syllables tend to carry the same pitch. When the penultimate syllable is stressed, the final syllable is generally lower in pitch than the stressed syllable. The stressed penultimate syllable may be of the same pitch as the prestressed syllables or somewhat higher. In words of more than three syllables, the initial syllable seems to have a higher tone than the syllables immediately preceding the penultimate stressed syllable. Although this appears to be the general pitch pattern, specific patterns have not been fully analyzed.

6.2. Length. The vowel of the stressed syllable is lengthened slightly. Length is also used to show emphasis, in which case the stressed syllable is lengthened more than usual.

6.3. Other. Words which are stressed on the penultimate syllable may unvoice the final vowel or the vowel may be lost entirely. This may occur in isolation; it generally occurs in a clause. Examples are: [buaxtána ~ buaxtánA ~ buaxtán] /buajtana/ 'good afternoon', [ntxamO tcmojá bobinyna] 'How did you wake up?', [buetA watA cojtsebomna] 'How old are you?'.

Words beginning with /b/ may be introduced by a nonphonemic [ɩ]. Words beginning with /i/ may be introduced by nonphonemic [y]. Examples are: [ˡbuechitsanɨko] /buechitsanëco/ 'hat', [ˡbatá] /batá/ 'aunt', [yíñe-iñe] /iñe/ 'fire', [yinsémna-insémna] /insemna/ 'is'.

Words are pronounced rapidly with vowels practically

eliminated word medially. A degree of emphasis is placed on the vowel of the first syllable with the following syllables squeezed together before the stressed syllable. A lower tone is usually found on the rapid syllables.

7. Borrowed words. There are a large number of Spanish loan words in the language. Nouns and adjectives which are borrowed usually take the Camsá ending for that particular class: redondëñe (redondo) 'round', cuchillëshe (cuchillo) 'knife', sapatëshe (zapato) 'shoe', avionëshá (avion) 'airplane', naranjabé (naranja) 'orange', silensiñe (silencia) 'silence'.

Verbs in most cases add ja- or jo- before the Spanish verb stem. Spanish -ar verbs take the suffix -ana and -er and -ir verbs take -iana. Examples are: jademandana (demandar) 'to demand', joquedana (quedar) 'to stay', ja-descubriana (descubrir) 'to discover', jaserbiana (servir) 'to serve', jatendiana (atender) 'to attend'.

If the stressed syllable is too far forward for Camsá the Spanish is changed by moving the stress back to the penultimate syllable. Examples are: numéro (número) 'number', muséca (música) 'music', lastéma (lástima) 'pity', puestíñe (puesto) 'place', plasóca (plaza) 'in the plaza'.

In some cases phonemes are changed to accommodate the native language. For example the voiceless bilabial fricative does not occur in Camsá as a single consonant. Therefore facil becomes 'paselo'. The vowel is added because words do not end in a consonant.

In a few native words a voiced velar fricative may occur nonphonemically as a transition between vowels as in beuna-beguna 'fish'. Sometimes it is carried over into Spanish in words such as legon (leon) 'lion', bugo (buho) 'owl'.

7

GUAHIBO PHONEMES

Victor and Riena Kondo

1. Introduction
2. Phoneme chart
3. Consonants
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1. Introduction. The Guahibo (or Sicueni) tribe lives in the eastern plains of Colombia and in Venezuela. Other related languages and dialects include Amarua, Chiricoa, Cuiva, Guayabero, and Yaruru.

The population of the Guahibo tribe is estimated at 10,000-20,000. The Guahibo live in small family groups scattered over a large area. They were formerly nomadic but most have now settled down to an agricultural economy. The chief product of the economy is yuca.

The research for this paper took place between 1963 and 1966. The principal informants were Eutimio Vargas and Manuel Granados from Barranco Colorado, near Orocué on the Meta River.

2. Phoneme chart.

Consonants

	Bilabial	Dental	Alveolar	Palatal	Velar	Glottal
Voiceless stops	p	th	t		k	
Voiced stops	b		d			
Affricate			ts			
Voiceless fricatives	f		s		x	h
Voiced fricatives	v		r			
Nasals	m		n			
Lateral			l			
Semivowel				y		

Vowels

	Oral				Nasal		
	Front	Central	Back		Front	Central	Back
High	i	ë	u	High	ĩ	ë̃	ũ
Low	e	a	o	Low	ẽ	ã	õ

3. Consonants. There are twenty-nine segmental phonemes: seventeen consonants and twelve vowels. The consonants consist of two series of stops, one affricate, two series of fricatives, two nasals, one lateral, and one semivowel.

The voiceless stops are the following: /p/ [p] voiceless bilabial stop, as in [pa'pabë] /papábë/ 'a monkey', ['apa] /ápa/ 'to drink', ['puna] /púna/ 'to fly'; /th/ [t͡h] voiceless dental aspirated stop, as in ['t͡hihai] /thîhai/ 'hard', [ne'vët͡hë] /nevëthë/ 'tiger', [do'vat͡hi] /dováthi/ 'devil'; /t/ [t] voiceless alveolar stop, as in ['tanata]

/tánata/ 'to shell', [to'vinabo] /tovínabo/ 'worm', ['tenapa] /ténapa/ 'paddle'; and /k/ [k] voiceless velar stop, as in ['kanali] /kánali/ 'a pot', ['eka] /éka/ 'to sit', ['bahako] /báhako/ 'a greeting'.

The voiced stops are the following: /b/ [b] voiced bilabial stop, as in [bu] /bu/ 'hammock', [o'faebë] /ofáebë/ 'a rodent', [a'behe] /abéhe/ 'bad'; and /d/ [d] voiced alveolar stop, as in ['domae] /dómae/ 'fever', [a'kadale] /akádale/ 'tern', [du'nusito] /dunúsito/ 'pineapple'.

The affricate is /ts/ [ts] voiceless alveolar grooved affricate. Examples are ['tseva] /tséva/ 'to be dry', ['ëtsëxë] /ẽtsëxë/ 'smoke', ['atsa] /átsa/ 'dirt'.

The voiceless fricatives are the following: /f/ [f] voiceless labiodental fricative freely fluctuating with [p^h] voiceless bilabial aspirated stop and [ɸ] voiceless bilabial fricative, as in ['fafana], [$'p^hap^hana$], ['ɸaɸana] /fáfana/ 'light in weight', [o'foto], [$o'p^hoto$], [o'ɸoto] /ofóto/ 'termite', [o'faebë], [$o'p^haebë$], [o'ɸaebë] 'a rodent'; /s/ [s] voiceless alveolar grooved fricative, as in ['saëba] /sáëba/ 'to force', [ma'lisi] /malísi/ 'a fish', [a'saë] /asáë/ 'to be strong'; /x/ [x] voiceless velar fricative, as in ['xaina] /xáina/ 'to have', [e'xana] /exána/ 'to make', ['xuraxi] /xúraxi/ 'parrots'; and /h/ [h] voiceless glottal fricative, which is always a consonant, as in [homo'bëto] /homobẽto/ 'spider', [a'hibi] /ahíbi/ 'none', ['naehava] /náehava/ 'tree'.

The voiced fricatives are the following: /v/ allophone [w] voiced labial semivowel occurs only adjacent to /o/ and preceding /a/ utterance-initial, with allophone [v^w] voiced labialized (or rounded) labiodental fricative ranging to [v] in other environments, as in [pe'wonoto] /pevónoto/ 'tooth', [wa'v^wahai] /vaváhai/ 'to shout', [wo'kona] /vokóna/ 'to split', [homo'wabi] /homovábi/ 'boa', [o'webi] /ovébi/ 'deer', [a'v^wiri] /avíri/ 'dog', [vi'tsaba] /vitsába/ 'to grow', ['bava] /báva/ 'sweet yuca', ['kaehava] /káehava/ 'one thing'; /r/ [ɻ] voiced retroflexed grooved fricative that

fluctuates freely with [ř] voiced alveolar trill, as in ['raëna] /ráëna/ 'blue', ['mera] /méra/ 'water', ['peri] /péri/ 'cassava bread'.

The nasals are the following: /m/ [m] voiced bilabial nasal, as in ['maha] /máha/ 'a large parrot', ['ema] /éma/ 'rain', ['mera] /méra/ 'water'; and /n/ [n] voiced alveolar nasal, as in ['naehava] /náehava/ 'tree', [ma'nepato] /manépato/ 'flea', ['ena] /éna/ 'your mother'.

The lateral is /l/ [l̥] voiced retroflexed lateral flap, as in ['mali] /máli/ 'an egret', [a'lerito] /alérito/ 'a palm worm', ['lisibo] /lísibo/ 'a basket'.

The semivowel /y/ [y] voiced palatal semivowel ranges to [dy] as in ['yaho] /yáho/ 'salt', [a'yaihava] /ayáihava/ 'a lot', [pe'yërë] /peyẽrë/ 'a figure'.

3.1. Contrasts. Consonant phonemes are in contrast in analogous environments in the following examples:

b/p/v ['hoba] /hóba/ 'to bark', ['hopa] /hópa/ 'to fall', ['hova] /hóva/ 'to diminish'.

d/t ['dainato] /dáinato/ 'fly', ['taika] /táika/ 'to grab', [duhu'ainë] /duhuáinë/ 'fish', [tu'hubë] /tuhúbë/ 'armadillo'.

d/y [da'kalinae] /dakálinae/ 'a tree', [ya'kali] /yakáli/ 'a basket', ['daëthë] /dáëthë/ 'a potato', ['yáëta] /yáëta/ 'to arrive'.

d/r ['daëthë] /dáëthë/ 'a potato', ['raëna] /ráëna/ 'blue', ['kudeto] /kúdeto/ 'firefly', ['sureto] /súreto/ 'cricket'.

d/l ['diribatsi] /díribatsi/ 'to have a rash', [li'robatsi] /liróbatsi/ 'to be wiped', [du'nusito] /dunúsito/ 'pineapple', ['lumanae] /lúmanae/ 'a tree'.

t/th [pe'taxu] /petáxu/ 'foot', [pe'thamu] /pethámu/ 'froth', ['thihai] /thîhai/ 'hard', ['tine] /tíne/

'to itch', [thi'thika] /thithíka/ 'to chip', [ti'tika] /titíka/ 'to tear'.

t/ts ['tsane] /tsáne/ 'marker for future tense', ['tane] /táne/ 'to see'.

ts/s ['tseva] /tséva/ 'dry', ['seba] /séba/ 'to roast', ['seta] /séta/ 'to cook', ['tsonë] /tsónë/ 'an anteater', ['sono] /sóno/ 'butterflies'.

k/x/h ['kua] /kúa/ 'to dig', ['xua] /xúa/ 'this', ['hua] /húa/ 'to swim'.

v/f [xania'vaeta] /xaniaváeta/ 'to pack', [a'faetabi] /afáetabi/ 'to be lazy', [humeko'vënëta] /humekovẽnëta/ 'to obey', [nako'fënëta] /nakofẽnëta/ 'to forget'.

f/p [a'faetabi] /afáetabi/ 'to be lazy', [a'paena] /apáena/ 'will drink', ['purana] /púrana/ 'gray', [fu'rana] /furána/ 'blister'.

r/l ['bula] /búla/ 'rattlesnake', ['xura] /xúra/ 'a parrot', [si'ripibo] /sirípibo/ 'blow-gun', ['silipi] /sílipi/ 'a toucan', ['bole] /bóle/ 'bad omen', [ro'bore] /robóre/ 'pull!'

m/n ['ema] /éma/ 'rain', ['ena] /éna/ 'your mother'.

4. Vowels. The vowels consist of two series, one of oral vowels and a second of nasal vowels.

The oral vowels are the following: /i/ [i] voiced high close front unrounded vocoid, as in ['ikotia] /íkotia/ 'sun', ['hitsipa] /hítsipa/ 'to want', [i'soto] /isóto/ 'fire'; /ë/ [ë] voiced high open central unrounded vocoid, as in ['ëtsëxë] /ẽtsëxë/ 'smoke', ['pënë] /pẽnë/ 'intestines', [pe'vënë] /pevẽnë/ 'name'; /u/ [u] voiced high close back rounded vocoid, as in ['unu] /únu/ 'forest', [bu] /bu/ 'hammock', [bu'suto] /busúto/ 'toad'; /e/ [e] voiced mid front unrounded vocoid, ranging from close to open, as in ['ɛma] /éma/ 'rain', [pe'korofɛto] /pekórofeto/ 'feather', [pe'korofe] /pekórofe/ 'feathers', [pe'ɛto] /peéto/ 'spine', [pe'e] /peé/

'spines'; /a/ [a] voiced low open central unrounded vocoid ranging to [ə] voiced mid close central unrounded vocoid and following [i] to [ɛ] voiced mid open front unrounded vocoid, as in [a'faetabi] /afáetabi/ 'to be lazy', ['xurə] /xúra/ 'a parrot', ['perira] /périra/ 'a drink', [itsiéta] /itsiáta/ 'always'; and /o/ [o] voiced mid close back rounded vocoid, as in [o'vʷebi] /ovébi/ 'deer'. [bo] /bo/ casa, [pebo'soto] /pebosóto/ 'tail'.

High vowels /i/ and /u/ are slightly less syllabic when they occur unstressed as first member of a vowel cluster. There is no contrast between /e/ and /a/ after /i/; the [ɛ] vocoid which occurs there is arbitrarily assigned to /a/.

The nasal vowels are the following: /ĩ/ [ĩ] voiced high close front unrounded nasal vocoid, as in [ãĩ'ãĩto] /ãĩáĩto/ 'tigrillo', [ĩɛ̃'ĩɛ̃to] /ĩãĩáto/ 'a small hawk'; /ë̃/ [ë̃] voiced high open central unrounded nasal vocoid, as in ['setahë̃] /sétahë̃/ 'I cook'; /ũ/ [ũ] voiced high close back rounded nasal vocoid, as in [ũhṹ] /ũhṹ/ 'vocative for younger relative', [ũárã] /ũárã/ 'a duck'; /ẽ/ [ẽ] voiced mid close front unrounded nasal vocoid, as in [ũhṹ] /ũhṹ/ 'vocative for younger relative'; in /ã/ [ã] voiced low open unrounded nasal vocoid, as in ['hãhã] /hã́hã/ 'yes', ['yãĩhãĩ 'tsanukae] /yã́ĩhãĩ tsánukae/ 'quiet'; and in /õ/ [õ] voiced mid close back rounded nasal vocoid, as in ['hõko] /hṍko/ 'a bird'.

4.1. Contrasts. Oral vowels are in contrast in analogous environments as indicated in the following examples:

i/e/a ['iri] /íri/ 'mouse', ['ire] /íre/ 'coals', ['ira] /íra/ 'soil'.

i/ë ['tahani] /táhani/ 'I am hungry', ['tahanë] /táhanë/ 'my animal'.

ë/u ['tahë] /táhë/ 'far', [a'tahu] /atáhu/ 'hot', ['bënë] /bẽ́në/ 'a rodent', ['bunuhu] /búnuhu/ 'a fish'.

u/o [bo] /bo/ 'house', [bu] /bu/ 'hammock'.

o/a ['apa] /ápa/ 'to drink', ['apo] /ápo/ 'not'.

a/ë ['tahë] /táhë/ 'far', [a'taha] /atáha/ 'tough', ['xanë] /xánë/ 'I', [e'xana] /exána/ 'to make'.

Nasal vowels contrast with oral vowels in the following examples: ['setahẽ] /sétahẽ/ 'I cook' ['tahẽ] /táhẽ/ 'far'; and [ũhũẽ] /ũhũẽ/ 'vocative for younger relative', [ahué] /ahué/ 'slippery'.

The nasal vowels have a limited distribution and therefore a low functional load. For this reason they are not indicated when they occur in the first two environments below which are predictable. They occur: 1) following a nasal; 2) following an /h/ which follows a nasal vowel, as in ['bunũhũ] /búnuhu/ 'a fish', ['nẽhẽ] /nẽhẽ/ 'howler monkey'; 3) in the suffix [-hẽ] /-hẽ/, 'first person subject marker', as in ['setahẽ] /sétahẽ/ 'I cook'; and the word [ũhũẽ] /ũhũẽ/ 'vocative for younger relative'; and 4) in certain onomatopoetic words, as in ['yãĩhãĩ 'tsanukae] /yãĩhãĩ tsánukae/ 'quiet', ['hõko] /hõko/ 'a bird', [ĩãĩãto] /ĩãĩãto/ 'a small hawk', ['hãhã] /hãhã/ 'yes', [ũãrã] /ũãrã/ 'a duck'.

5. Suprasegmental phonemes. Suprasegmental features include phonemic stress.

5.1. Stress. Stress is phonemic, as seen in the following examples: /aké/ 'to be cold', /áke/ 'scorpions'; /tásito/ 'fecal material', /tasíto/ 'my leg bone'; /yáhota/ 'with salt', /yahóta/ 'to carry inside'. High pitch tends to occur on stressed syllables.

6. Distribution.

6.1. Syllable patterns. A syllable is defined as a unit of potential stress placement. It may consist of a vowel, or a consonant plus a vowel, as in the following patterns: CV as in ['bo] /bo/ 'house', ['se.ta] /séta/ 'to cook', [hi.'ka]

/hiká/ 'a greeting'; CV.V as in [a.'na.'e.pa.na] /anáépana/ 'to be angry', ['ma.pa.na.e] /mápanae/ 'a tree', ['ku.a] /kúa/ 'to dig'; V as in [i.'so.to] /isóto/ 'fire', ['i.so] /íso/ 'firewood', [a.hu.'e] /ahué/ 'slippery', cf. [a.ko.be.hu.'e] /akobehué/ 'slippery hand'; V.V as in ['a.u.ra] /áura/ 'embarrassed', cf. [a.hu.me.'u.ra] /ahumeúra/ 'embarrassed to speak', [a.e.'ko.no.xa.e] /aekónoxae/ 'in a short time'.

6.2. Single consonants. Any consonant may occur as C in the CV syllables, with the following exceptions: /v/ does not occur preceding /u/, /y/ does not occur preceding /i/, and no examples have been found of /th/ preceding /e/. See examples in 6.3.

6.3. Single vowels. Any vowel may occur as nucleus of a V syllable: /ahéna/ 'today', /éneto/ 'a wasp', /íkotia/ 'sunlight', /ohóba/ 'to sharpen', /úba/ 'to plant', /ëva/ 'to be jealous'.

Any vowel may occur as the nucleus of a CV syllable, with the exceptions mentioned in 6.2: /hiká/ 'a greeting', /béxanë/ 'like me', /péri/ 'cassava bread', /bó/ 'house', /bú/ 'hammock', /xámë/ 'you', /pábërë/ 'rack', /mahíta/ 'to sleep', /méra/ 'water', /níkata/ 'to fell', /móya/ 'silently', /núka/ 'to stand'.

6.4. Vowel clusters. All vowel glides function as two vowels. Vowel clusters occur in the following combinations: word-medially occur ai /xáina/ 'to have', ae /anáepana/ 'to be angry', au /báupa/ 'door', aë /nakayáëta/ 'to lean against', aa /náava/ 'dress', io /hiópa/ 'skinny', ia /kiáta/ 'to wash', /ukubíaba/ 'to cut', iu /xiúta/ 'to sharpen', ee /peéto/ 'spine', ua /súaba/ 'to spit', ui /xuípa/ 'a root', ue /tikuéku/ 'a bird', ëa /naxëana/ 'to sing', ëë /këëtatsi/ 'tied', oo /póona/ 'grass'; word-initially occur ai /áitakiri/

'dark', ae /aekónoxae/ 'a short time', au /áura/ 'embarrassed', io /iópoka/ 'to twist', ee /eéka/ 'to sit for a duration', ua /ũárã/ 'a duck'; word-finally occur ai /yórai/ 'hat', ae /pomónae/ 'they', aë /oxáë/ 'a palm', ia /xúalia/ 'to throw', iu /tsáliu/ 'a fish', ee /peé/ 'spines', ua /húnua/ 'to enter', ui /xúrui/ 'a fruit', ue /basúe/ 'sugar cane', ëa /béxëa/ 'late'.

Vowel clusters occur following certain consonants as follows: ai follows x, h, y, n, t, p, v, d, r, m, th, b, k, f; ae follows k,h,n,m,p,v,f,ts,x; au follows b; aë follows k,s, y,r,t,p,m,v,x,d; aa follows n,p,th; io follows h,n; ia follows k,h,s,n,b,v,f,l,p,t,th,ts,m,r,x; iu follows x,k,s, l; ee follows n,p,b; ua follows k,x,h,s,n,b,m,t,f,p; ui follows x,h,r,t,ts,p,s,th; ue follows k,x,h,s,p,l,r,ts,n; ëa follows x,r,b,h,n; ëë follows k,v; oo follows p,k,m.

One cluster of three vowels /uai/ occurs in the dialect of some speakers following k and h. The dialect variants are as follows: /kuaikuáihai/, /kuikuíhai/ 'to chat'; /pekuáibo/, /pekuíbo/ 'mouth'; /kuáito/, /kuíto/ 'frog'; /pekuáito/, /pekuíto/ 'fruit'; /vatsukuáito/, /vatsukáito/ 'a weevil'; /naruhuáita/, /naruháita/ 'to hunt'; /duhuái/, /duhái/, /duhué/ 'fish'.

Two clusters of four vowels occur. These consist of initial clusters of two vowels reduplicated. aëaë /aëáëhai/ 'to cry', ĩãĩã /ĩãĩãto/ 'a hawk'.

7. Observations on special phonetic characteristics. Glottal stop [ʔ] does not function as a phoneme. Phonetically it optionally occurs in the following locations: 1) before an initial vowel, as in [ˈʔema] freely fluctuating with [ˈema] /éma/ 'rain'; 2) between identical vowels at a syllable boundary as in [eˈʔekahẽ] freely fluctuating with [eˈekahẽ] /eékahẽ/ 'to sit for a duration of time'; 3) after a final vowel as in [aˈfaetabiʔ] freely fluctuating with [aˈfaetabi] /afáetabi/ 'to be lazy'; 4) as transition between a vowel and

/b/, /p/, or /d/ as in [piʔbi'sianë] freely fluctuating with [pibi'sianë] /pibisíanë/ 'an ugly man', ['tsaʔbana] freely fluctuating with ['tsabana] /tsábana/ 'to decay', [a'kaʔdale] freely fluctuating with [a'kadale] /akádale/ 'a tern'; 5) in the word ['hãhãʔ] /hấhã/ 'yes'.

A consonant cluster optionally occurs in fast speech where a vowel is dropped between two consonants which have the same point of articulation, as in [ira'bërto], [ira'bə́rëto] /irabə́rëto/ 'clay grill'; [paa'tahumbeje], [paa'tahumëbeje] /paatáhumëbeje/ 'the two of you are warm'; [hava'sirto], [hava'sirito] /havasírito/ 'a bat'.

Vowels tend to be slightly longer on stressed than on unstressed syllables.

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