

A Phonological Sketch of Atorai (Arawak, Guyana) Based on Unique Recordings

Zachary O'Hagan
University of California, Berkeley
Fieldwork Forum
May 2, 2018

1 Introduction

1.1 Arawak Language Family

- The Arawak language family (aka Maipuran) is one of the most widespread in the Americas, ranging from the Caribbean south to Argentina and from Peru to central Brazil (Figure 1)
 - Taino was the first Amerindian language that Columbus encountered in 1492



Figure 1: Distribution of Arawak Languages (Payne 1991:361)

- Italian Jesuit Filippo Gili (1721-1789) proposed Maipure as a language family in his (1782) *Saggio di storia americana*, four years before William Jones' address to the Asiatic Society

- Classifications of Arawak are notoriously coarse-grained, with well established low-level sub-groups and numerous proposals for intermediate groupings

1.2 Atorai Language and People

- The Atorai language belongs to a branch of Arawak that includes Wapishana and Mawayana
 - For Wapishana, a grammar in Santos (2006), SIL and native speaker linguist dictionaries
 - For Mawayana, a phonological description in Coretta (2013), basic morphology in Michels (2014)

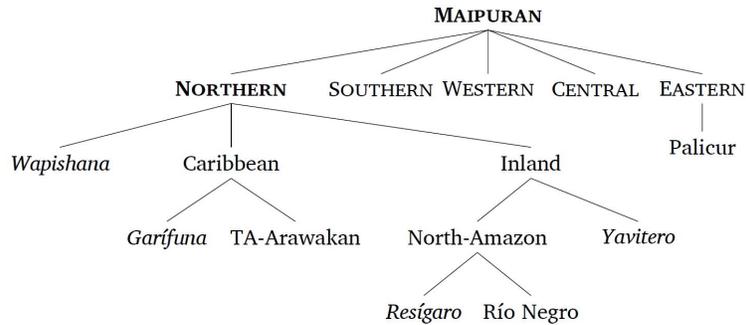


Figure 2: Partial Arawak Classification
(Coretta (2013:6), citing Payne (1991:489))

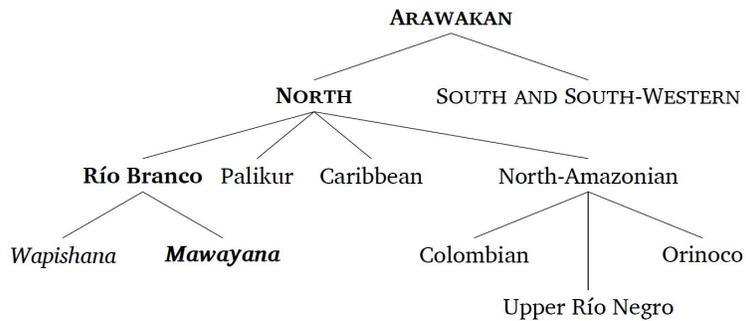


Figure 3: Partial Arawak Classification
(Coretta (2013:6), citing Aikhenvald (1999))

- The Atorai people appear to have first been contacted in 1719 (Bos 1985)

They belong to the Wapisiana-Parauana family, however they are now nearly extinct. I found in 1843 only seven adults of the pure Atorais [...]. Including those arising from an intermarriage between an Atorai female and a Wapisiana, and their sister-tribe the Taurais or Dauris, there might be about 100 individuals, comprising adults and children. (Schomburgk 1848:54)

At present they do not exist as a separate tribe and no longer speak their own language. They have been absorbed by the Wapishanas, whose language is in common use. Very few can speak Atoroi [sic] and the language will disappear with this generation.

(Farabee 1918:131)



Figure 4: Wapishana Settlements
(Farage (2003:108), based on E. Migliazza & J. Forte)

1.3 Reel-to-reel Recordings

- The Atorai data under consideration here is drawn from portions of 13 reel tapes created by G. Kingsley Noble, Jr. (1923-1994) in the Rupununi river basin (Guyana) in 1965
 - Noble received his PhD in anthropology from Columbia in 1962 with a dissertation titled *Proto-Arawakan and its Descendants*
 - Professor at San Jose State University from 1963 to 1982
- In 1972 he applied for but was denied a visa to return for fieldwork during his 1973 sabbatical
- At this time Noble gave the reel tapes to Prof. Vida Kenk (SJSU)

- Around 2005 Kenk gave them to Prof. Manjari Ohala (SJSU), who deposited them with the Survey of California and Other Indian Languages
- There are approximately 2.5 hours of recorded lexical elicitation in Atorai (resulting in over 1,000 tokens of words and short phrases), and one, possibly two, short texts-

2 Phonological Description

- This section describes the basic segmental inventories, phonotactics, phonological processes, and prosodic patterns of Atorai

2.1 Segmental Inventories

- There are 16 phonemic consonants (Table 1), some sparsely attested

Table 1: Atorai Consonant Inventory

	Bilabial	Alveolar	Alveopalatal	Retroflex	Palatal	Velar	Glottal
Plain Stop	p	t				k	
Implosive	ɓ	ɗ					
Affricate		(ts)	tʃ				
Fricative		(s)	ʃ		j(?)		h
Nasal	m	n					
Glide	w				j		
Flap				ɾ			

- Contrasts and distributions of consonants within a word are shown below

/pɪʃawa/ ‘field’	/kupai/ ‘fish’	/ɓiɾai/ ‘back’	/kiɓai/ ‘stone’
/mitʃu/ ‘mosquito’	/tama:ɾiu/ ‘bat’	/-witʃun/ ‘tail’	/awaɾi/ ‘wind’
/tanaɾi/ ‘jaguar’	/kuwitu/ ‘lizard’	/ɗiwi/ ‘salt’	/kuɗui/ ‘tapir’
/tsumaiwi/ ‘pot’	/akutsu/ ‘needle’	/supa/ ‘tortoise’	?
/nau/ ‘1SG’	/mainaɾi/ ‘rainbow’		
/-tʃama/ ‘vulva’	/katʃaɾai/ ‘medicine’	/ʃiwi:/ ‘flower’	/kapaʃi/ ‘armadillo’
/ɾu:mi/ ‘spider monkey’	/kuwiɾu/ ‘basket’		
		/jawanai/ ‘man’	/wajukan/ ‘sky’
/kuɾaitʃi:/ ‘child’	/-ɗaku/ ‘mouth’		
/ha:kaɾi/ ‘partridge’	/ɓahi/ ‘manioc bread’		

- There are 8 phonemic vowels in Atorai (Figure 5), of 4 qualities contrasting in length

i i: ɪ ɪ: u u:
a a:

Figure 5: Atorai Vowel Inventory

- Contrasts between vowels are shown below

/kamui:/ ‘sun’	/kiβau/ ‘frog’
/kuwajaja/ ‘snake’	/kaniji/ ‘bitter manioc’
- Long vowels are generally attested in all positions within a word

/d̥i:ni/ ‘dog’	| ?	| /kaɽiʃi:/ ‘lake’
/p̥i:niki/ 2SG	| /kut̥i:ja/ ‘bird’	| /kuɽaitʃi:/ ‘child’
/bu:ɽai/ ‘capybara’	| ?	| /-kij̥u:/ ‘testicle’
/ɽa:pun/ ‘loincloth’/	| /tama:ɽiu/ ‘bat’	| /baidapa:/ ‘one’
- Diphthongs of falling sonority are attested, i.e., *ai*, *ai*, *au*

2.2 Phonotactics

- No monomoraic words are attested, but bimoraic monosyllabic words are, e.g., *d̥i:* ‘pepper’
- Attested syllable shapes are V, CV, CVN, CVV, and CVVN

2.3 Phonological Processes

- Word-final vowels are frequently and significantly devoiced¹
 - The resulting word-final consonants are also devoiced
- At least *β*, *t*, *j*, and *k* palatalize in the environment *i*_*V*
 - [i'β^jatʃu] ‘shrimp’
 - [i't^ji:] ‘his testicle’
 - [wi:j^jai] ‘village’
 - [ik^jaɪdaiβ(V)] ‘three’
- *t* additionally palatalizes following *u*, e.g., [ku:ʃ^jtu] ‘fishing net’
- *k* labializes following in the environment *u*_*V*

2.4 Stress

- There is a stress system consisting of trochaic feet
 - [ˈmitʃu] ‘mosquito’
 - [i'β^jatʃu] ‘shrimp’
 - [maka'fij(V)] ‘sweet manioc’
- Alignment of feet with a word edge is not discernible from present data
- Syllables containing nasal codas, diphthongs, and/or long vowels attract stress

¹A ‘V’ in parentheses in this document indexes the presence of an indiscernible final vowel.

3 Previously Published Word Lists

- Karl von Martius (1794-1868) was a German botanist and explorer
- Between 1817 and 1820 he traveled throughout Brazil with Johann Baptist von Spix (1781-1826) on an expedition sponsored by the King of Bavaria, Maximilian I Joseph
- This resulted in dozens of vocabularies that are often the sole documentation Brazilian indigenous languages that went extinct in the 19th century (von Martius 1867)
- Von Martius recorded 18 Atoari words (Figure 6)

	9. Mawakwa.	10. Piano-ghotto.	11. Tiveri-ghotto.	12. Wapityan, Wapissiana.	13. Atoari.	14. Taruma.	15. Warau.	16. Arawaak.
sol	kamu	weh	weh	kamo	kamoi	ouang	yah	hadalli
luna	kirsu	nuna	niano	keirrh	keirhe	piwa	wanehu	kasi
sidera	wishi	siriko	serika	weri	watsieirhe	wingra	kiora	wiwa
terra	tshimari	. . .	. . .	emu	tari	loto	hota	ororu
ignis	tshikasi	mallo	apoto	tegherre	tegherre	hua	icko	hikkihi
aqua	wune	tuna	tuna	tuna	tuna	tza	ho	wuniabbo
capul(meum)	unkaua	. . .	oputpa	unruai-aitana	unruai eterna	atta	wakwa	dashi
oculus(meus)	ngnoso	yenei	oneana	ungwawhen	wawanumte	atzi	mamu	dakusi
nasus (meus)	ngndewa	yoanari	. . .	ungwiitippa	ohipe	assa	mehekadi	dasiri
os, oris (meum)	ngnomiti	yefiri	opota	untaghu	olaghu	merukukan-na	maraho	daliroco
manus (mea)	ngnkowa	yenari	. . .	ungwaipan-na	unkuai	ahu	mamuhu	deceabu
pes (meus)	ungeopa	putu	upti	unketewi	unkheli	appa	mumo	daweti
arcus	lhseye	urapa		sumara	parauri	tzeika	hattaboro	semara-hapa
sagilla	kengye	purau		urreghuri	peiiri	kupa	hattabo	semarra
canis	. . .	keikue		arimaragha	teni	hi	peroro	pero
Numeri: 1	apaura			peiteippa	peitaghpa	oshe	hisaka	abaru
2	woaraka			tiatang	pauitegh	tyuwa	monamu	biama
3	tamarsi			itukineita	ihikeitaub	ungkeha	dianamu	kabuin

Figure 6: Vocabulary Comparison (von Martius 1867:313)

- He noted differences between Wapishana and Atoari, e.g., Wap. <kamo> (*kamu:*) vs. Ator. <kamoi> (*kamui:*) ‘sun’; or Wap. <weri> (*wizi:*) vs. Ator. <watsieirhe> (*patfaiɾ(V)*) ‘star’
- Jacob Adrien van Heuvel (1787-1874) was the son of Jan Cornelius van den Heuvel, the governor of the Dutch colony at Demerara until 1790
- The family resettled in New York City, van Heuvel graduated Yale in 1804, and was admitted to the bar in 1808²

²Van Heuvel’s obituary is available here: http://mssa.library.yale.edu/obituary_record/1859,924/1874-75.pdf. The Van den Heuvel family’s time in New York City is described here: <http://daytoninmanhattan.blogspot.com/2013/10/the-lost-van-den-heuvel-mansion.html>.

- Between 1819 and 1820 he returned to Guiana to research Sir Walter Raleigh’s time there in the 16th century and his claims as to the presence of El Dorado

On, or near the Rippununi [sic] are Macoussies, Wapisanas, and some Charibeas, with a few scattering Indians – the remains of tribes who have been reduced by the Charibeas, and the greater portion driven away – all of whom, except this nation, live either on the tops of the mountains, or close to their foot; where the soil is strong and productive. On the Siperouni, are Macoussies and Ackoways, and two or three other tribes. On the east, or main branch of the Essequibo, the two principal nations are the Atorays, or Atorees, and the Turamas [sic], a numerous and warlike nation, besides a number of others. Three of these nations, the Ackoways, Atorays, and Macoussies, were mentioned a century ago, by Nicholas Hortsman, according to Humboldt, as residing in this locality. I obtained vocabularies of their languages, which are, I believe, unknown in Europe; – the two first, taken down by myself [...]

(van Heuvel 1844:47)

- Van Heuvel recorded 34 Atorai words (some as in Figure 7)

V O C A B U L A R I E S					
O F T H E					
L A N G U A G E S O F F I V E I N D I A N N A T I O N S I N G U Y A N A .					
	ACKOWAY.	ATORAY.	MACOUSSIE.	TIBERACOTTI.	GUARANO.
Supreme Being,	Maire,*	Wyeemeeree,			Kwaresabarote.
Evil Spirit,		Parai,			Haiboo.
Man,	Warao,	Yawanai,			Naiboora.
Woman,	Woreesan	Reanaro,			Teera.
Head,	Ayupai,	Reerwoo,	Oopopu,	Oputpa,	Kwa.
Eyes,	Ayainu,	Pandaiee,	Wianu,	Oneana,	Moo.
Mouth,	Onda,	Owo,	Oondah,	Opota,	Moko.
Hair,	Ayunsai,		Apoupi,	Oupootpi,	Heeoo.
Hand,	Yaieena,	Achta,	Quemya,		Mamoohoo.
Foot,	Ochta,	Pee,	Oboro,	Oupti,	Homoo.

Figure 7: Comparison of Guyanese Languages (van Heuvel 1844:164)

- Johann Natterer (1787-1843) was an Austrian naturalist and explorer
- He accompanied von Martius and von Spix in 1817, remaining in Brazil until 1835
- Natterer recorded 192 Atorai words (the largest collection for over 80 years) in July 1832 on the Rio Branco, west of where van Heuvel had located Atorai speakers over a decade earlier³
- There are some lexical differences between Natterer’s list and 20th-century forms, e.g., <papai> ‘Vater’ vs. *uh^w ari* ‘father’
- Other systematic correspondences are present that suggest sound changes, e.g., <jauhanei> ‘Mann’ vs. *yawanai* ‘man’ & <Maitschei> ‘Teufel’ vs. *maitfai* ‘spirit’

³Natterer’s manuscript word lists are available online through the University of Basel, here: <https://baselbern.swissbib.ch/Record/HAN000003785>.

Pis barao. July 332.
 51 Graffproben im kation Aturac, die am Mapping
 des Rio Tacutu im Campo anofut - man sieht
 Juvénis Genovera von Carmo. Man müßte nicht
 was,

Gott - Mau aloü bae	Kanaimu - Feiticéro
Früfel Maitfchei	Zaübräu - die die
qualfalten. Malinau	mit nit gift tötte
Katow - papai	
Mütter ma mai	
Pöfe - o dani	
Kopfer o dani káliu	
Mann jau hanei	

- In general, however, there are not substantial inconsistencies with 20th-century forms

<vua danári> 'Campo' - *wadanári* 'savanna'
 <kupàöu> 'Fisch' - *kupái* 'fish'
 <kodöi> 'Anta' - *kudúí* 'tapir'
 <kapàssi> 'Tatú' - *kapáfi* 'armadillo'
 <bitscha> 'Porco d'Matto' [sic] - *bitfabitsái* 'pig'

Campo - *Suypr. vua danári*
 fisch: *kupàöu* - *Pira iba. Patfchitfchi*
Sorobim kulouvi - *Poto - amana -*
Pireboy - apina - Tartaruga matala
Tatú Schoupa - Tacare Atiure (atüle)
Carumbé Olitau basä *Maia Tou bouli*
 Anta - *Kodöi*
 Tatú *Kapáfi*
 Pöfe - *Kodöi*
 Taciteti *paköla*
 Porco d'Matto *bitfcha*
 *v. l. l.*

- Robert Hermann Schomburgk (1804-1865) was a German botanist and ethnographer who worked on behalf of the British crown
- He was employed by William IV for an expedition to Guyana from 1835 to 1839, and again by Queen Victoria from 1840 to 1844

- Concerned with the boundaries of the young British territory, Schomburgk made some of the most precise descriptions of the distributions of indigenous groups at the time

The *Wapityans*, or *Wapisianas*, are rather a powerful horde, and inhabit the Savannahs of the White Waters, namely, between the Parima, Takutu, Rupununi, and Guidaru. A number are likewise located on the isolated mountain groups of Canucu or Conocon, Tuarutu, and Kaiirite. They are bordered on the north by the Macusis, **on the south by the Atorais, and to the west by the Parauanas. The two last are sister tribes.** The country between the second and third parallel of north latitude, and the eastern bank of the Essequibo and the western of the Parima (Rio Branco) defines the abodes of the Wapisianas, the whole number of which may amount to about 800, and of those about 400 reside in the British territory. [...]

If I except the allied tribes mentioned hereafter, the language of the Wapisiana stands isolated among the Guianians, and as far as my knowledge goes, there is no other among the languages of that province which in structure comes closer to the central families of North America.

The Wapisianas are considered usurpers of the ground which they now inhabit, having pressed the Macusis northward.

The language of the Wapisianas is very peculiar, and its intonations are strong. It has several sounds which it would not be possible to represent by our alphabets. This refers chiefly to some syllables of which I could only give an indication by designating them as resembling nghw, ghkt, rrrh, &c., as in nghwanna, untag'h'k'tef (ph), kei'irrh. They are aspirate and liquid sounds which possess only a similarity in the Celtic languages.

(Schomburgk 1848:53-54)

- He was also intimately familiar with the role of disease spanning his multiple expeditions

[May 24, 1843] Six years have scarcely passed away since I wandered to this spot on visiting the sources of the Essequibo. We left the settlement Eischalli Tuna, and passed on our route to the Taruma Indians, three villages of Atorais or Atorayas, and one of Taurais, the latter containing the remnant of that sister tribe of the Atorai nation. The villages have vanished, death has all but extirpated the former inhabitants, and I am informed that of the true Atorais only seven individuals are alive. From the accounts I received in 1837, I estimated the number of Atorais and Taurais at 200, including the descendants of mixed marriages, and of that number about 60 are now left.

The measles, so fatal to the Indians, has twice decimated the Atorais; and at the commencement of the present year, the small-pox, brought from the colony to Pirara, ravaged from thence southward so far as these poor people. [...]

The language of the Amaripas differed only in dialect from that of the Atorai. They inhabited the regions about the Tuarutu Mountains, near the river Wampuna; and as Miaha well recollected when the late Dr. Hancock was at the Upper Rupununi in 1811, I had a fixed point from which to date my inquiries as to whether the extinction of the Amaripas had been slow or rapid. She told me that at that time their number was not quite so many as two men had fingers and toes (I concluded she meant about 35 individuals), and of that number Miaha alone remained in 1843. (Schomburgk 1845:26-28)

- Schomburgk recorded 18 Atorai words, some of which are shown in Figure 8

COMPARATIVE VOCABULARY OF GUIANIAN LANGUAGES AND DIALECTS.

Name of the Tribe.	Sun.	Moon.	Stars.	Earth.	Fire.	Water.	Head (my).	Eyes (my).	Nose (my).
I. CARIBI-TAMANAKAN.									
1. <i>Caribisi</i>	Wehu	Nuno	Siriko	Yuporo	Watto	Tuna	Yubupo	Yenuru	Yenetari
2. <i>Accawai</i>	Wiyeyu	Nuno	Irema	Ito	Watu	Tuna	Yupopo	Yenuru	Yenotarri
3. <i>Macusi</i>	Weh	Kapoi	Siriko	Nung	Apo	Tuna	Pupe	Uyenu	Uyeuna
4. <i>Arecuna</i>	Wae	Kapui	Serrika	Nunk	Apok	Tuna	Opuwei, or opei	Yenuru	Uyeuna
§ <i>Soerikong.</i>	..	..	..	..	..	..	Ipei	Itaäno	Akone
5. <i>Waiyamara</i>	Weyu	Nuna	Serrika	Nono	Wato	Tuna	Ipawa	Yenuru	Yonari
6. <i>Guinau</i>	Kamuhu	Kewari	Yuwinti	Kati	Tsheke	Oni	Intshebu	Nawisi	Intshe
7. <i>Maiongkong</i>	Tshi	Nuna	Yetika	Nono	Wato	Tuna	Hohuha	Uyenuru	Yoanari
8. <i>Woyawai</i>	Kamu	Nuni	Serego	Roön	Wetta	Kuishamina	Ighteburi	Eoru	Younari
9. <i>Mawakwa</i>	Kamu	Kirsu	Wishi	Tshimari	Tshikasi	Wune	Unkauz	Ngnoso	Nngdewa
10. <i>Pianoghotto</i>	Weh	Nuna	Siriko	..	Matto	Tuna	..	Yenei	Yoanari
11. <i>Tiverighotto</i>	Weh	Niano	Serika	..	Apoto	Tuna	Oputpa	Oneana	..
II. WAPITYAN-PARAUANA.									
1. <i>Wapityan, or Wapisiana</i>	Kamo	Kei'irrh	Weri	Emu	Tegherre	Tuna	Unrusi-aitana	Ungwawhen	Ungwütippa
2. <i>Atorai</i>	Kamoi	Kei'irhe	Watsi'cirhe	Tari	Tegherre	Unnabo	Unruai-eterna	Wawanumto	Ohipe
§ <i>Taurai, or Dauri</i>	Tamoi	Kai'ira	Wonari	Dari	Tekeri	Onabo	Wauünbarra	Wauüni	Ohebe
III. TARUMAN.									
<i>Taruma</i>	Ouang	Piwa	Wingra	Toto	Hua	Tza	Atta	Atzi	Assa
IV. WABAUAN.									
<i>Warau</i>	Yah	Wanehu	Kiora	Hota	Icko	Ho	Makwa	Mamu	Mehekadi
V. ARAWAKAN.									
<i>Arawak</i>	Hadalli	Katsi	Wiwa	Ororu	Hikkihi	Wuniabbo	Dashi	Dakusi	Dasiri
VI. LINGUA GERAL									
	Yuarassu	Yassu	Yasitata-miri	Ekui	Yata	..	Akanga	Sissa	Yutin

REMARKS.—Orthography adopted in the above vocabularies.—The sound of the vowels is that of the Italian language; *ai, ei* is diphthongal, and resembles the sound of *i* in *mile*; *au* resembles the English *ow* in *how*. The consonants have the usual sound; *c, g, x* are, however, rejected, and represented by *k, kw, ks*; *g* is always hard, as in *gate*; *j* is always soft as in *join*; *s* always as in *house*; *h* distinct, as in *grass-hopper*; *ng* is always nasal; *ph, th* are represented by *f, th*, and their occurrence is noted in the general remarks.

Figure 8: Comparison of Guyanese Languages (Schomburgk 1848:59)

- Everard Ferdinand im Thurn (1852-1932) was a British botanist, explorer & administrator
 - He was Curator of the British Guiana Museum (Georgetown) from 1877 to 1882
- Everard recorded 6 Atorai words
- William Curtis Farabee (1865-1925) was an American geneticist, receiving a PhD in physical anthropology from Harvard in 1903
 - He undertook three expeditions to South America, 1906-1908, 1913-1916, and 1921-1923
 - The medial trip, which led to the publication of *The Central Arawaks* in 1918, was sponsored by the University Museum of the University of Pennsylvania
 - Farabee collected historical, ethnographic, and linguistic information on indigenous groups of the region, including a list of 122 Atorai words

EXAMPLES OF THE CHIEF INDIAN LANGUAGES OF GUIANA.

English.	Branch ; Warran	Branch ; Arawak	Branch ; Wapiana		Branch ; Carib			
	Tribe ; Warran	Tribe ; Arawak	Tribe ; True Wapiana	Tribe ; Atorais	Tribe ; True Carib	Tribe ; Ackawot	Tribe ; Macusi	Tribe ; Arecuna
Wood	dow	áda	atomónah	?	wey-weh	ye-hi	yè	Unfortunately I have no Arecuna vocabulary at my disposal; but the language differs merely by very slight varieties of pronunciation from the Macusi. Robert Schomburgk says the same of it. (See <i>Reisen in British Guiana</i> , vol. ii. p. 523.)
Arrow	a-tá-bu	simára	bihiri	?	puròwah	purrow	perrow	
Water	ho	oomiaboo	win	honih	toona	toona	toona	
Fire	y-kung	ikihi	teekari	teekehr	wah-toh	apo	apo	
Sun	ya	adaili	kamoo	kamozh	weya	weyana	wey	
Moon	wa-ne-ka	katchi	kai-er	kaihr	noo-nah	kapoo-i	kapoo-i	
Medicine-man	wisida-a	semtehehi	marinow	?	puyai	peartsan	peartsan	
Jaguar	tobi	arò	baidookori	kitenhur	kaikushi	kaikushi	kaikoosi	
One	ishakka	abaro	bai-dap	baidepah	ohwin	tewin	teween	

Figure 9: Comparison of Guyanese Languages (Thurn 1883:166)

References

- AIKHENVALD, ALEXANDRA Y. 1999. The Arawak Language Family. *The Amazonian Languages*, edited by R. M. W. Dixon and Alexandra Y. Aikhenvald, Cambridge: Cambridge University Press, 65–106.
- BOS, G. 1985. Atorai, trio, tunayana and wai wai in early eighteenth century records. *Folk: Danks Etnografisk Tidsskrift* 27:5–15.
- CORETTA, STEFANO. 2013. *Phonology of Mawayana*. MA thesis, Università degli Studi di Pavia.
- FARABEE, WILLIAM CURTIS. 1918. *The Central Arawaks*. Philadelphia: The University Museum, University of Pennsylvania.
- FARAGE, NÁDIA. 2003. Rebellious Memories: The Wapishana in the Rupununi Uprising, Guyana, 1969. *Histories and Historicities in Amazonia*, edited by Neil L. Whitehead, Lincoln and London: University of Nebraska Press, 107–120.
- GILII, FILIPPO SALVATORE. 1782. *Saggio di storia americana; o sia, storia naturale, civile e sacra de' regni, e delle provincie spagnuole di Terra-Ferma nell'America meridionale*, vol. 3. Rome: L. Perego erede Salvioni.
- MICHELS, MARC. 2014. *Verbal Morphology in Mawayana*. BA thesis, Universiteit Leiden.
- PAYNE, DAVID L. 1991. A Classification of Maipuran (Arawakan) Languages Based on Shared Lexical Retentions. *Handbook of Amazonian Languages*, vol. 3, edited by Desmond C. Derbyshire and Geoffrey K. Pullum, Berlin: Mouton de Gruyter, 355–499.
- SANTOS, MANOEL GOMES DOS. 2006. *Uma gramática do wapixana (aruák) – aspectos da fonologia, da morfologia e da sintaxe*. PhD dissertation, Universidade Estadual de Campinas.



Figure 10: Atorai man, perhaps a language consultant
(Farabee 1918:plate XII)

SCHOMBURGK, ROBERT. 1845. Journal of an Expedition from Pirara to the Upper Corentyne, and from Thence to Demerara. *The Journal of the Royal Geographical Society of London* 15:1–104.

SCHOMBURGK, ROBERT. 1848. Remarks to Accompany a Comparative Vocabulary of Eighteen Languages and Dialects of Indian Tribes Inhabiting Guiana. *Simmond's Colonial Magazine and Foreign Miscellany* XV:46–64.

THURN, EVERARD F. IM. 1883. *Among the Indians of Guiana: Being Sketches Chiefly Anthropologic from the Interior of British Guiana*. London: Kegan Paul, Trench & Co.

VAN HEUVEL, J. A. 1844. *El Dorado: Being a Narrative of the Circumstances which Gave Rise to Reports, in the Sixteenth Century, of the Existence of a Rich and Splendid City in South America, to which that Name was Given, and which Led Many in Search of it; Including a Defence of Sir Walter Raleigh, in Regard to the Relations Made by him Respecting it, and a Nation of Female Warriors, in the Vicinity of the Amazon, in the Narrative of his Expedition to the Oronoke in 1595. With a Map*. New York: J. Winchester, New World Press.

VON MARTIUS, CARL FRIEDRICH PHILIPP. 1867. *Beiträge zur Ethnographie und Sprachenkunde Amerikas*, vol. 2. Leipzig: Friedrich Fleischer.