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Abstract

After reviewing the literature regarding the Jicaque (of Honduras), Subtiaba (of Nicaragua), and Tequistlateco (of Mexico) languages, a detailed study of the sound correspondences that exist between Jicaque and Subtiaba, and between Jicaque and Tequistlateco, is presented for the purpose of demonstrating that the three languages in question trace their origin from a common source. With respect to the degree of relationship that Jicaque bears to the other two, it is found to be closer to Subtiaba than to Tequistlateco. The question of the relationship of proto Jicaque-Subtiaba-Tequistlateco to established language phyla is examined, and, in view of Rensch's recent study of Subtiaba-Tlapanec, an affinity with the Otomanguean languages is proposed, though the idea of a remote relationship between the Hokan and Otomanguean phyla is not overlooked.

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Key to abbreviations and symbols

J	Jicaque
S	Subtiaba
T	Tequistlateco
J-S	Proto Jicaque-Subtiaba
J-T	Proto Jicaque-Tequistlateco
J-S-T	Proto Jicaque-Subtiaba-Tequistlateco
m.c.	Minimum centuries
C	Consonant
V	Vowel
>	Derives
<	Is derived from
#	Silence
/ /	Phonemic transcription
[ ]	Phonetic transcription (when not denoting J-S final C unattested in Subtiaba--see page 15).
~	Fluctuating with

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0. Introduction

The purpose of this study is to demonstrate, by means of the comparative method, that the Jicaque (Honduras), Subtiaba (Nicaragua), and Tequistlateco (Mexico; also known as Chontal of Oaxaca) languages trace their development from a common source. Chapter 1 surveys the literature on the linguistic affiliations of these languages, with special emphasis on Jicaque. Chapters 2 and 3 present the evidence for the genetic unity of Jicaque and Subtiaba, and Jicaque and Tequistlateco, respectively. Chapter 4 presents evidence for the genetic unity of Jicaque, Subtiaba, and Tequistlateco; discusses the internal relationships among the three; and outlines possible affinities of Jicaque-Subtiaba-Tequistlateco to Hokan and Otomanguean.

Jicaque (also known as Xicaque, Tol, Torrupan) is a language spoken by approximately 300 people who live in an area known as the Montaña de la Flor, situated in the northernmost section of the Department of Francisco Morazán, Republic of Honduras. Ever since the publication of Greenberg and Swadesh (1953), which on the basis of a lexicostatistical approach classifies it as Hokan, the Jicaque language has generally been shown in the literature as a member of that phylum, usually as an isolated family (see Chapter 2). Until now, however, no rigorous comparative work involving Jicaque has been undertaken, as Fernández de Miranda (1967:65) observed:

> The affiliation of Hokan with the Yuman, Serian-Tequistlatecan, Subtiaban and Coahuiltecan families ... is generally accepted. Nevertheless, the strict application of the comparative method and of reconstruction has been scarce.

The present study is a first attempt at meeting this deficiency by comparing Jicaque with Subtiaba and with the highland dialect of Tequistlateco, the closest languages geographically to Jicaque, which have generally been recognized as Hokan.

Subtiaba, according to Campbell (1975:81), is now extinct. According to Sapir (1925:402), it was spoken early in the twentieth century '... by only a small number of Indians in a village near León, on the Pacific slope of Nicaragua.' There is a possibility that it was also spoken at the time of the conquest in the village of Guatajiguala in El Salvador, though Campbell (1975:81) questions this.

Tequistlateco (also known as Chontal of Oaxaca), according to Turner and Turner (1971:ix), is spoken by about 10,000 people who live in the southwestern corner of the State of Oaxaca in Mexico. It seems to be about equally divided into two dialects: highland and lowland (the latter also being known as Huamelultec Chontal).

Chapters 3 and 4 show a strong case for the genetic relationship between Jicaque and the other two languages. Rensch (1977), on the other hand, has presented convincing evidence for the relationship of Subtiaba-Tlapanec to Otomanguean, which raises the question of a possible relationship between the two phyla.

Most Jicaque data were gathered by me during the period 1961-1967 while doing field work sponsored by the Summer Institute of Linguistics, Inc. A few items have been supplied by Ronald Dennis, also of S.I.L., who is doing further field work in Jicaque. The immediate source of Subtiaba data is Sapir (1925); I did not have access to Lehmann (1920), the source of Sapir's data, until the study was well advanced. Tequislateco data are from Turner and Turner (1971).

Starred (*) forms in Chapter 2 represent reconstructed Jicaque-Subtiaba (J-S); in Chapter 3, they represent reconstructed Jicaque-Tequistlateco (J-T). In all instances, sets of correspondences and cognates are given with the Jicaque form appearing first (Jicaque : Subtiaba/Tequistlateco), and in each formula for reflexes of a J-S or J-T reconstructed phoneme, the Jicaque reflexes are on the left, while the Subtiaba/Tequistlateco reflexes are on the right. In the formulae that specify reflexes, '/' (diagonal) should be read 'in the environment of'; in Appendix I it should be read 'or'. Items in brackets in the formulae are disjunctive, i.e., they should be read as 'either x or y'. C = any consonant, and V = any vowel in the formulae; in Appendix I they indicate indeterminate consonant and vowel respectively. Conditioning factors are always stated in terms of proto phonemes. Hyphens mark morpheme boundaries. Those portions of cognates which are enclosed in parentheses do not enter into reconstructions. Numbers appearing in parentheses in the text refer to the listing of cognates in Appendix I. The use of square brackets in J-S forms is explained in Section 2.4.1.

To my supervisor, Professor Sarah Gudschinsky, go my special thanks for her patient guidance and counsel throughout the writing of this thesis. Any errors contained herein, however, should be charged to me and not to her. I also wish to express my appreciation to Paul Turner, who generously provided me with a copy of the Tequistlateco dictionary published by him and his wife; to Margaret Langdon who so kindly sent me advance copies of her manuscript (Langdon 1974) and of the forthcoming volume that brings together the papers that were read at the First Conference on Hokan Languages, held in San Diego in April, 1970 (Langdon and Silver ms.); to Calvin Rensch for an advance copy of his manuscript (Rensch 1977); to Eric Hamp for a copy of the paper he read at the First Conference on Hokan Languages (Hamp 1970); and, especially, to the late Dr. Jesús Núñez Chinchilla, Founder and Director of the Instituto Hondureño de Antropología e Historia, and to all the personnel of that Institute, for their cordial and wholehearted

cooperation during my time in the field. I also wish to express my appreciation to Ronald Dennis for supplying me with some additional Jicaque data. Finally, to my wife, Judith, and to my children, I direct my heartfelt gratitude for their love, patience, and understanding throughout the entire period of my degree program.

1. Survey of literature on Jicaque, Subtiaba, and Tequistlateco

1.1 Jicaque

Prior to 1953, most investigators classify Jicaque as a language isolate, though some anticipate possible relationships with other Middle (or North) American languages or language families. Thus Squier (1858:761), on the basis of cultural similarities, expects Jicaque and Paya to be connected:

> I do not discover any relationship between the Xicaque language and any other known aboriginal language of Honduras ... I suspect that when we shall obtain a vocabulary of the Poyas or Payas language it will be found to be very similar to that of the Xicaques, if not identical with it. The habits of these two families are certainly much the same.

Brinton (1891:161) sees no such possible relationship but detects some borrowings from Nahuatl: 'Their language [i.e., Jicaque] contains a few Nahuatl words, but in the body of its vocabulary reveals no relationship to any other stock.' Thomas and Swanton, early in this century, are also reported (von Hagen 1943:75) as considering Jicaque an independent stock which they called Jicaquean. Similarly, Sapir (1929:176-7) classifies Jicaque as an isolate but expects connections to other languages to be revealed in time: 'The Middle American languages proper ... may, with reservations, be classified into 15 linguistic stocks, which are ... Jicaque ...', and 'Both Xinca and Lenca (also Paya and Jicaque?) may be remote southern outliers of the Penutian languages of North America.' Mason (1940:74), though equally reluctant to classify Jicaque as a member of any particular group, reports, nevertheless, a possible connection between Jicaque, Xinca, Lenca, and Paya:

> The affiliations of the Xinca, Lenca, Jicaque and Paya languages are so uncertain and controversial that for the present they had best be left unclassified or independent. There seems to be some sort of connection between all, but the lexical differences are so great that no two of them can be linked.'

He goes on to suggest that these four languages '... may be true mixed languages with double or multiple roots.' Later, although continuing to think of Jicaque as unclassified, he raises the possibility of its being related to Chibchan (1950:175): 'The Chibchan languages ... may have included the Jicaque ... of Honduras.'

A few investigators, on the other hand, do propose some relationships for Jicaque. Lehmann implies a distant relationship of

Jicaque to Lenca. Any imagined close relationship, he asserts, is traceable to the widespread usage of 'Jicaque' and 'Lenca' as generic terms in colonial times. ('Jicaque' still enjoys a limited modern usage meaning 'wild' or 'uncivilized'.) He states (1920: 634): 'Both are separate languages in themselves, between which only a certain old relationship exists.' This 'certain old relationship' is, as Mason (1940:74) reports it, to Xinca, which in turn is related to Aguacatec II,[1] which is related to Mixe-Zoque. Mason thinks that Lehmann's statement is equivocal, however, because he also labels Lenca, Jicaque, and Paya as Chibchan outliers. The statements of Conzemius (1922:163, 166) appear to be somewhat equivocal also, for though expressly denying any relationship among Jicaque, Lenca, and Paya ('... the erroneous belief that the Jicaque, Lencas and Payas are of the same stock'), he nevertheless publishes a Jicaque vocabulary which includes some words from Sumo, Paya, and Miskito which, he says, show '... some relation to the Jicaque language.' Beyond this, he says nothing regarding possible Jicaque relationships. Von Hagen (1943:78), after reviewing much of the literature on the subject as of that time, comes to the conclusion that '... there can exist no doubt but that the Paya, Jicaque, Sumu [sic], and Miskito, in both culture and language, have shared some common source of origin.'

Until 1953, therefore, there was widespread lack of agreement as to whether Jicaque was related--or potentially related--to Paya, Lenca, Mixe-Zoque, Penutian, Chibchan (or others), or whether it was a language isolate. In 1953, Greenberg and Swadesh, on the basis of structural and vocabulary similarities proposed the Hokan affiliation of Jicaque. They state (1953:216, 220): 'We find unmistakable evidence that it [Jicaque] is a Hokan language', and 'That Jicaque is related to Hokan-Coahuiltecan is clearly evident from the quality and quantity of agreements.' By means of a lexicostatistical study, they conclude that the language most similar to Jicaque is Tequistlateco. Kroeber (1955) and Swadesh (1967) concur with Greenberg and Swadesh, not only in classifying Jicaque as Hokan but in placing it closest to Tequislateco within the phylum.

Although agreement has been general in classifying Jicaque as Hokan since 1953, opinions regarding its position within the phylum have been quite varied. Fernández de Miranda, Swadesh, and Weitlaner (1959) place it within their Chontal [i.e., Tequistlatecan]-Comecrudo-Cotonamean stock, thus placing it in the Coahuiltecan side of Sapir's Hokan-Coahuiltecan classification. However, they do not state to which language they consider Jicaque most closely related. Bright (1955:284 fn 7) originally placed Jicaque between Supanec (Subtiaba-Tlapanec) and Coahuiltecan, ' ... principally on geographical considerations.' Later (1956), utilizing von Hagen's word list, he finds Jicaque most similar to Comecrudo and Supanec. It is interesting to note that Bright (1956) and

Swadesh (1967) propose opposite degrees of relationship. Bright places Supanec closest to Jicaque (23% correlates) and makes Tequistlateco more remote (13% correlates). Swadesh (using minimum centuries instead of percentage of correlates) places Tequistlateco closest to Jicaque (39 m.c.) and makes Supanec more remote (49 m.c.). Kroeber (1955) anticipates Swadesh, separating Jicaque from Tequistlateco in terms of 35 m.c., but Fernández de Miranda, Swadesh, and Weitlaner (1959) separate Jicaque from Tequistlateco by 53 m.c. Tax (1960:431) and Voegelin and Voegelin (1965:14, 142 and 1967:578) show Jicaque as an isolate within the Hokan stock, without special relationship to any other language.

Two who do not accord Jicaque membership anywhere within the Hokan--or any--phylum, are McQuown (1955:528) and Fernández de Miranda (1967). The former's view is seen only in the shape of a taxonomic outline, and no reasons for his position are given. The latter is more explicit (1967:77):

> ... the linguistic position of these languages [Xinca, Lenca, Jicaque, and Paya] has not yet been elucidated and ... they ought to be considered, for the moment, as independent languages.

It is curious to note, however, that in an article that purports to list the classificatory materials of Middle American Indians, no mention is made of Greenberg and Swadesh (1953).

1.2 Subtiaba

Prior to Lehmann (1920), Subtiaba seems generally to be considered an isolate, Brinton (1891:160) being typical: 'This language stands by itself among the inter-isthmian stocks.' Lehmann, according to Rensch (1977), '... was the first to point out the close relationship between Subtiaba, or Nicaragua, and Tlapanec, of Mexico.' Sapir (1925:403) confirms this relationship: '... Subtiaba and Tlappanec [sic] are really only dialects of a single language ... It is probable that they are mutually intelligible or nearly so'; as does Radin (1933:45): '... Tlappanec [sic] is far more closely related to Subtiaba than even he [Lehmann] suspected ... both are, in fact, subdialects of one and the same language.'

With respect to wider relationships, Lehmann (1920) proposed a relationship between Subtiaba and Washo, a California language which, at that time, had not yet been classified as Hokan. Subsequent to such classification, Sapir (1925:404) claimed that Lehmann's hypothesis was only partially correct in that

> ... Subtiaba and Tlappanec are to be regarded as a southern outlier of the Hokan-Coahuiltecan stock as a whole, not of a subdivision of this group to which Washo belongs in particular.

Until recently, no one has seriously challenged Sapir's claim. For instance, McQuown (1955:538), Bright (1956), Tax (1960:431), Fernández de Miranda (1967:65), and Voegelin and Voegelin (1965: 13, 142 and 1967:578) all concur in the Hokan affiliation of Supanec.

The possibility that Supanec may be Otomanguean (while not necessarily ceasing to be Hokan) has just recently been proposed by Rensch (1977):

> It is here proposed that the similarities between Subtiaba-Tlapanec and the languages of the Mixtec-Zapotec-Otomi group noticed by Sapir are due not to areal diffusion but, rather, to development from a common ancestor language. It is further claimed that that ancestor language was Proto Otomanguean ... To claim that ... Subtiaba ... is clearly related to the already recognized branches of Otomanguean, however, is not necessarily to deny its Hokan affiliation. If the Tlapanec-Otomanguean hypothesis is accepted, there are at least two possible views regarding the Tlapanec-Hokan hypothesis: (a) that Tlapanec is not genetically related to the Hokan languages; (b) that Otomanguean (including Tlapanec) is a previously unrecognized branch of Hokan-Coahuiltecan.

1.3 Tequistlateco

According to Turner and Turner (1971:333), one of the popular theories that seemed to originate in early post-conquest times is that the origin of Tequistlateco can be traced to Honduras via Tabasco. This theory, however, seems to reflect another case of confusion of generic and specific terms, in this instance 'Chontal'. Apparently 'Chontal' was supposed to be widely spoken in Honduras; but, as Brinton (1891:147, 149) points out: 'The word Chontalli in the Nahuatl language means simply "stranger" and was applied by the Nahuas to any people other than their own', and

> The Chontal of Honduras is located geographically in those regions where the Chorti dialect of the Maya stock prevails, and there is no reasonable doubt but that it is Chorti and nothing more.

Brinton (1891:148), apparently, was the first to link Tequistlateco with a Hokan language (though the term 'Hokan' was unknown until Dixon and Kroeber introduced it in 1913):

> ... the only specimen of their idiom [Tequistlateco] which I have obtained is a vocabulary of 23 words,

> collected by John Porter Bliss in 1871. This is too limited to admit of positive identification; but it certainly shows several coincidences with the Yuman linguistic stock.

A more detailed study of Tequistlateco with respect to Seri and Yuman was published by Kroeber in 1915, in which he comes to the following conclusion (1915:287):

> I trust this presentation will both establish the original unity of Tequistlatecan, Serian, and Yuman, and help to allay the doubts of those who may have remained unconvinced by the announcement of Dr. Dixon and myself that seven Californian languages heretofore considered distinct could be united into the one family which we denominated Hokan.

Since the publication of Kroeber (1915), no serious alternative proposals regarding the affiliation of Tequistlateco have been proffered. Sapir (1917 and 1929), Bright (1955 and 1956), McQuown (1955), Tax (1960), Voegelin and Voegelin (1965 and 1967), Fernández de Miranda (1967), and Waterhouse (1967 and ms.) all agree in classifying Tequistlateco as a Hokan language.

Turner (1967b, 1969, and ms.), however, questions the relationship of Tequistlateco with Seri, and hence with Hokan. His principal argument is that the differences between Tequistlateco and Seri outweigh any similarities that may exist between the two, so much so that it is improper to consider them related. His position is summed up in the following statement (1967b:235):

> ... Chontal and Seri are not related languages. If Seri is a Hokan language, then Chontal is not, and vice versa. It would seem as if neither of these languages has as yet been properly classified.

I am not aware of any support for his position to date. Bright (1970) rebuts Turner's method of argumentation, however, and Waterhouse (ms.) replies by presenting some arguments in favor of Tequistlateco as Hokan. As to whether or not Seri is Hokan, Crawford (ms.) develops the relationship between Seri and Yuman to the point where, in assessing Crawford's work, Langdon (1974: 84) states: '... the results allow the conclusion that Yuman and Seri are definitely related ...' Finally, Langdon (1974:86) apparently does not consider Turner's arguments convincing for, when listing those languages that have been '... seriously disputed ...' as Hokan, she includes only Tonkawa and Karankawa.

2. Comparison of Jicaque and Subtiaba

In this section, proto phonemes are reconstructed from sound correspondences that are manifested in Jicaque and Subtiaba cognates.

2.1 Symbols

Subtiaba examples are presented in an orthography that differs from both Sapir's and Lehmann's in the following points: 1) I use Lehmann's ñ and š, rather than Sapir's nʸ and c; 2) I use Sapir's ɛ, ŋ, and V·, rather than Lehmann's æ, ṅ, and V̄; and 3) for glottalized stops I use C' rather than Lehmann's ʻC or Sapir's Ċ.

There are numerous instances in Lehmann's data where long vowels are indicated. Regarding this, Sapir (1925:494 fn 11) says:

> I do not believe that much reliance is to be placed in Lehmann's vocalic quantities ... Lehmann has not accurately determined the quantities but has merely assimilated them to German speech habits.

In support of this claim, Sapir shows how many Subtiaba vowels alternate between V and VV in Lehmann's material in accordance with normal German speech patterns. Lehmann's vowel quantities are reproduced in all illustrations in the present study, but long vs. short vowels do not enter into the reconstructions.

2.2 Jicaque phonemes

The phonemes of Jicaque are displayed in Chart 2-A. The voiceless stops have voiced allophones when following a homorganic nasal, and /l/ has allophones [l] and [r] in fluctuation. Unless otherwise marked, stress always occurs on the final syllable of the word.

Consonants

p	t	c	k	
pʰ	tʰ	cʰ	kʰ	h
p'	t'	c'	k'	ʔ
b	s			
m	n		ŋ	
	l			
w	y̆	y		

Vowels

i	ɨ	u
e	a	o

Chart 2-A

Jicaque phonemes

2.3 Subtiaba phones

I have not phonemicized Lehmann's material, so that Chart 2-B, rather than purporting to display Subtiaba phonemes, shows only those phones which enter into Jicaque-Subtiaba reconstructions. (The velar nasal ŋ, for example, could quite possibly be an allophone of /n/ occurring only preceding velar stops.) The apparent lack of symmetry, therefore, in the Subtiaba phonological system (e.g., a single glottalized stop t', a single prenasalized stop mb, and the back velar fricative x̣) does not necessarily mean that it is in fact this asymmetrical.

Consonants

p	t		k		
b	d		g		
	t'				
	s	š		x̣	h
m	n	ñ	ŋ		
mb	l				
w		y			

Vowels

	i	u
	a	o

Chart 2-B

Subtiaba phones that enter into Jicaque-Subtiaba reconstructions

Sapir's insights (1925) regarding Subtiaba morphology, especially the verbal and adjectival preposed elements, were extremely helpful in reconstructing Jicaque-Subtiaba in that they rendered the stems more easily recognizable.

2.4 Some general characteristics of Jicaque-Subtiaba

2.4.1 Loss of final consonant

As Sapir has noted (1925:429), 'Subtiaba seems to tolerate no final consonants.' Jicaque stems may terminate in either a vowel or a consonant, so that a final vowel in Subtiaba may correspond to zero in Jicaque, or a final consonant in Jicaque correspond to zero in Subtiaba:

ʔïm : -amo *to burn, set fire to*

tok *to dig* : -i·du· *to bury*

In these instances, I have chosen to reconstruct the final consonants, but to consider the final vowels to be prothetic in Subtiaba:

*ito[k] > tok *to dig* : -i·du· *to bury* (17)

*im > ʔïm : -am(o) *to burn, set fire to* (9)

I have done this for the following reasons: 1) The regular pattern of S final V suggests either a regular loss of final *C or a regular development of V following final *C. The alternative hypothesis that there was random loss of *V or development of C in Jicaque seems far less likely. 2) Sapir (1925:429), looking at Subtiaba in terms of all the then known Hokan languages, hypothesized a special development of final *C in Subtiaba. He proposed the development of a 'diphthongized' consonant as the result of the loss of a final unaccented vowel:

*ixakV > *ixak > *ixau > i·su· *bone*

However, this hypothesis would be of limited value in this study because it can be applied to these data in only one instance (tok *to dig* : -i·du· *to bury* (17)), and then with only partial success because, though the development in Subtiaba is straightforward (*itakV > *itak > *itau > -i·du· *to bury*), there is no evidence at this point to suggest how the development would take place in Jicaque. 3) On the other hand, there are at least <u>two</u> cases where *C in Subtiaba is conditioned by its stem-final position (see 2.5.1), so that the modern following V must be a recent development:

*tot > -tut *saliva* : (-n)t'o·t(a) *to spit* (42)

*as > ʔas *raw (meat)* : -a·š(a) *raw (green)* (41)

4) There is also at least one instance of the development of a penultimate *V in Subtiaba being conditioned by the presence of a final stop (see 2.5.2):

*ap+[t] > pït : -apo *to lie down* (29)

5) There are eighteen instances of loss of stem-final *C in Subtiaba which contrast with the pattern of prothetic V development: (2), (6), (14), (16), (17), (19), (26), (27), (29), (30), (33), (34), (36), (37), (40), (43), (52), and (53). 6) Finally, although no conditioning factor can be found which would explain the loss of final *V in Jicaque, there is some evidence for a pattern in the development of the prothetic V in Subtiaba, viz., they are all back vowels.

The decision to reconstruct the final C from the correspondence set -VC# : -V#, and, from the correspondence set -C# : -CV#, to consider the final vowel in Subtiaba as prothetic, is reflected by the use of square brackets for the former (*ito[k] > tok *to dig* : -i·du· *to bury* (17)), and parentheses for the latter (*as > ʔas *raw (meat)* : -a·š(a) *raw (green)* (41)).

2.4.2 Loss of initial vowel

S initial vowel frequently corresponds to zero in Jicaque:

te : -ida(gina) *black* (7)

See also: (17), (19), (23), (29), (32), (48), and (53). I have chosen to reconstruct vowels in this position for the following reasons: 1) In at least two instances the development of the following vowel in Jicaque depends on the presence of an initial *V (see 2.5.2):

*ita > te : -ida(gina) *black* (7)

See also: (48). 2) In five instances the development of the following consonant in Subtiaba is dependent on its occurrence between vowels (see 2.5.1):

*ito[k] > tok *to dig* : -i·du· *to bury* (17)

See also: (3), (7), (32), and (34). 3) The loss of the *V is predictable in Jicaque as follows: Unless a preceding C develops from some still undetermined source (e.g., (6) and (35)), stem-initial vowels are lost in Jicaque when they precede a stop, an affricate, or a syllable-initial nasal; elsewhere they develop normally, with a prothetic /ʔ/ preceding them. No words begin with a V in Jicaque.

An initial *i- has been reconstructed in certain cases, even though it is lost in both Jicaque and Subtiaba. It is needed to account for *a > e in Jicaque (see 2.5.2):

*ɨpʰax > -pʰel : paẋ(pu·) ~ pah(pu) *arm* (4),

and to account for some instances of *n > ñ in Subtiaba (see 2.5.1):

*ɨna > ne : ña *and* (3)

2.4.3 Leveling

A process of leveling to a seems to have taken place in Subtiaba, where *ɨ, *u, and *o > a, usually in syllables that precede or follow a syllable with another *a (see 2.5.2).

There is one instance involving leveling to a in which a single proto form developed two daughter forms: *apɨ > (suñ)amba *buttocks* (10a) via leveling of *ɨ > a following a syllable with *a; vs. *apɨ > (r)umbɨ *anus* (10b), where *a > u under obscure conditions, but where the *ɨ develops in the normal manner (see 2.5.2).

2.5 Jicaque-Subtiaba reconstructions

Chart 2-C shows the proto phonemes I have reconstructed for Jicaque-Subtiaba. There is a complete series of unaspirated and glottalized stops at the bilabial, alveolar, and velar points of articulation, and of affricates at the alveolar point of articulation. Asymmetry is seen in the presence of the single aspirated stop *pʰ and the single prenasalized stop *mb.[2] Symmetry is seen in the development of the stop-affricate series, in that the proto unaspirated, aspirated, and glottalized phonemes generally develop unaspirated and voiced reflexes in Subtiaba while maintaining their identity in Jicaque.

Consonants				
*p	*t	*c	*k	*ʔ
*pʰ				
*p'	*t'	*c'	*k'	
	*s		*x	*h
*m	*n			
*mb	*l(?)			
*w		*y		
Vowels				
*ɨ	*ɨ	*u		
		*o		
	*a	*ɔ		

Chart 2-C

Proto Jicaque-Subtiaba phonemes

2.5.1 Consonants

*p is reconstructed from the correspondence sets p:mb, p:p, and p:b, so that it has the following reflexes:

*p > p : > p / in syllables terminating with a stop
b / m____
mb / elsewhere.

Examples:

*apu[y] > puy : amba *excrement* (19)

*ap+[t] > pït : -apo *to lie down* (29)

*kampa > kámpa *long* : gamba *road* (31)

See also: (5), (10), (15), and (37).

Note that the sequence mb in S gamba *road* (31) is not the reflex of *mb but is rather a sequence of reflexes derived from two proto consonants, *m and *p, as attested by J kámpa *long*.

It is interesting that the most common correspondence for *p is p:mb, especially in view of Sapir's claim (1925:431) that prenasalized stops in Subtiaba were a recent development deriving from simple stops in Hokan.

A correspondence that the above formula does not handle is ƀ:b in *ipa > ƀe : i·ba *tamal* (48), which I am tentatively positing as *p > ƀ / i___ : > b / i____. The clear pattern of the loss of the initial vowel in Jicaque, plus the expected J reflex e < *a (see 2.5.2), adds credence to this reconstruction. On the other hand, it may represent dialect variation at some level or a fairly recent case of dialect borrowing.

*t is reconstructed from the correspondence sets t:t', t:d, and t:t, so that it has the following reflexes:

*t > t : > t' / initially
d / V___V
t / elsewhere.

Examples:

*tot > -tut *saliva* : (-n)t'o·t(a) *to spit* (42)

*ita > te : -ida(gina) *black* (7)

*osto[t] > (i)otot : osto *bark (of tree)* (6).

See also: (17).

The unexpected correspondence t:t' occurs only in (42). It is in contrast with the correspondence t':t, however:

*t'ɨ > t'ɨ : (-spa·)tu *to chop* (11).

Since in the stop series Jicaque regularly retains the older manner of articulation, t:t' is assigned to *t and t':t to *t'.

*k is reconstructed from the correspondence sets k:k and k:g, so that it has the following reflexes:

*k > k : > g / { initial in polysyllabic stems and prefix[3] ; N____ }
k / elsewhere

where N = any nasal.

Examples:

*ko[m] > -kom : (gɨ·)ko *liver* (30)

*kampa > kámpa *long* : gamba *road* (31)

*onka > (c'y)óŋka *old, ripe* : -aŋga *old, worn out* (38).

See also: (12), (13), (16), (21), and (46).

*p' is reconstructed from a single instance of the correspondence p':p.

Example:

*xap'ɔ > (-ʔu)láp'a *throat* : ha·pu· *nape* (51).

The strong evidence for this reconstruction comes from the parallel development of the alveolar and velar glottalized stops and the fact that the remainder of the lexical item represents correspondences which occur with greater regularity.

*t' is reconstructed from the correspondence sets t':t and t':d, so that it has the following reflexes:

*t' > t' : > d / initially
t / elsewhere.

Examples:

*t'ɨ > t'ɨ : (-spa·)tu *to chop* (11)

*t'oʔo[n] > t'oʔon *to shut* : do·ko *to close* (43).

*k' is reconstructed from the single correspondence set k':k.

Example:

*k'ɔ > k'a : (-gu·x̣)ku· *hard* (25).

See also: (54).

A single aspirated stop *pʰ is reconstructed from the correspondence sets pʰ:b and pʰ:p, so that it has the following reflexes:

*pʰ > pʰ : > b /_____V#
p / elsewhere.

Examples:

*pʰɨ > pʰï : ba·- *all* (1)

*lpʰax > -pʰel : pax̣(pu·) ~ pah(pu) *arm* (4).

See also: (26).

There is a possibility that with further research aspirated stops at the alveolar and velar points of articulation, as well as an aspirated alveolar affricate, could be reconstructed. However, there are as yet no data to substantiate the reconstruction of *tʰ; sole evidence for *kʰ is kʰ:k from the dubious cognate set kʰul : ɛkl *fish*; and the set cʰ:š from *aCu[c] > cʰuc *weed* : -ašа *grass* (53) is the only support for *cʰ.

*c is reconstructed from the correspondence sets c:s and c:š, so that it has the following reflexes:

*c > c : > š /____u
s / elsewhere.

Examples:

*coc' > coc' : sos(to) *breast* (8)

*acu > cu : -a·ša *green, blue* (23).

See also: (52).

*c' is reconstructed from the single correspondence set c':s.

Example:

*coc' > coc' : sos(to) *breast* (8).

See also: (24). There is a possibility that the correspondence in set (8) is more properly c:st. However, to posit a metathesis

here seems somewhat awkward, especially since there is no evidence for such a process having taken place elsewhere in Jicaque-Subtiaba.

*s is reconstructed from the correspondence sets Ø:s, s:s, and s:š, so that it has the following reflexes:

*s > Ø /___C : > š / finally
s / elsewhere s / elsewhere.

Examples:

*osto[t] > (l)otot : osto *bark (of tree)* (6)

*as > ?as *raw (meat)* : -a·š(a) *raw (green)* (41)

*ɨsɨ[s] > ?ɨ̈sɨ̈s : -u·su *pretty* (40).

It is interesting to note how three different proto morphemes in Jicaque-Subtiaba develop independently into homophonous (and possibly synonymous) morphemes in Subtiaba:

*aco > m-a·ša *green, blue* (23)

*aCuc > d-a·ša *grass* (53)

*as > m-a·š(a) *raw* (41).

The preposed d- and m-, as Sapir has pointed out (1925:495-7, 506-12), seem to function in Subtiaba as nominal and adjectival class markers respectively.

*x is reconstructed from the correspondence sets Ø:x̣ and l:x̣ ~ h, so that it has the following reflexes:

*x > Ø /___C : > x̣ ~ h
l / elsewhere.

Examples:

*uxk'u > ?uk'u *woman* : -u·x̣ku *moon* (54)

*lpʰax > -pʰel : pax̣(pu·) ~ pah(pu) *arm* (4).

See also: (24), (49), and (51). The fluctuation between S x̣ and h is due to inconsistencies among Squier's, Arragon's, and Lehmann's transcriptions. Lehmann (1920:925, 929, 943) noted these inconsistencies in reporting the others' word lists.

The correspondence between J l and a velar/laryngeal in Subtiaba echoes a correspondence of l:? in Jicaque-Tequistlateco (see 3.4.1).

*ʔ is reconstructed from the single correspondence set ʔ:k.

Example:

*t'oʔo[n] > t'oʔon *to shut* : do·ko *to close* (43).

See also: (44).

*h is reconstructed from the single correspondence set h:g.

Example:

*ha > ha *to sleep* : ga·(ya) *to pass the night* (45).

See also: (14) and (27).

*m is reconstructed from the single correspondence set m:m.

Example:

*mik > (c'ï)mïk : m-i·k(a) *sour* (46).

See also: (9) and (31).

In (46) above, the correspondence involves a S preposed element which usually functions as an adjectival classifier. If this is a valid correspondence (and the remainder of the stem leads me to think it is), it would suggest the origin of the S preposed classifier in such stem-initial consonant, or the later reinterpretation of stem-initial m- as an instance of a productive morpheme. (See below, where a similar correspondence occurs involving S -lu·.)

*mb is reconstructed from the single correspondence set m:mb.

Example:

*ɔmba > ʔama : umba *dirt, earth* (18).

See also: (33). *mb is an asymmetrical reconstruction in that it represents the only J-S prenasalized stop. However, there is rather clear contrast between m:m, m:mb, and p:mb:

(c'ï)mïk : m-i·k(a) *sour* (46)

makʰ : (nu·x̣)mba *mestizo* (33)

po- *augmentative prefix* : -mba *augmentative suffix* (5).

*n is reconstructed from the correspondence sets n:n, n:ñ, and ŋ:ŋ, so that it has the following reflexes:

*n > ŋ /___ k
n / elsewhere

: > ŋ /___ k
ñ / # { i ___ / u ___ }
n / elsewhere

Examples:

*na[m] > (kí)nam : -naa *now* (36)

*ina > ne : ña *and* (3) (see 3.4.2 regarding *i > Ø:Ø)

*onka > (c'y)óŋka *old, ripe* : -aŋga *old, worn out* (38).

See also: (2), (32), (34), and (50).

A single lateral *l is tentatively reconstructed from the correspondence set l:l.

Example:

*uñulu > nulu *maguey* : -u·ñu-lu· *string* (32).

This is a tentative reconstruction because, in addition to the only example being the one given here, it employs the S postposed article -lu·. If this reconstruction is valid, it offers a possible explanation of the origin of the S postposed article, or perhaps represents a later reinterpretation of a postposed element as a productive morpheme. (See above, where a S adjectival m- seems to enter into the reconstruction of a stem.)

*w is reconstructed from the correspondence sets w:g and w:gw, so that it has the following reflexes:

*w > w : > g / a___
gw / elsewhere

Examples:

*awɔ > ʔáwa : a·gu· *fire* (20)

*wa > wa : gwa *house* (28).

See also: (35).

*y is reconstructed from the single correspondence set y:y.

Example:

*kuy > kuy *you sg. come* :-kṵ·i, read kṵy *to come* (13).

See also: (15), (22), (47), and (49).

Consonant correspondences that do not participate in any reconstructions herein are:

1) ɨ:t in *kuCa > kuɨa *you pl. come* : ga·ta *to arrive* (12);

2) p^h:mb in *ɨCa > p^ha(nɨ) : ɨ·mba *one* (39), where a potential reconstruction of an aspirated stop lacks the support of additional correspondences of the type aspirated stop : prenasalized stop;

3) k^h:k in the dubious set k^huɨ : ɛkɨ *fish*;

4) c^h:š in *aCu[c] > c^huc *weed* : -aša *grass* (53).

2.5.2 Vowels

*ɨ is reconstructed from the correspondence sets ɨ:a, ɨ:u, ɨ:ɨ, and ɨ:i, so that it has the following reflexes:

*ɨ > ɨ̈ /___ k
ɨ / elsewhere

: > u /___ x
a /___ { na, # }
ɨ / elsewhere.

Examples:

*pɨ > -pɨ : (suña)mba *buttocks* (10)

*c'ɨx > c'ɨɨ : su·h(u) *hair* (24)

*mɨk > (c'ɨ̈)mɨ̈k : m-ɨ·k(a) *sour* (46)

*ɨyɔ > ʔɨya *sweet* : -ɨ·u, read -ɨ·yu *bitter* (47)

*nɨna > nɨna *this (proximate)* : nana *here* (50).

See also: (7), (15), (17), (39), and (48). (See 2.4.2 for discussion regarding *ɨ > ∅:∅ as in (3) and (4).)

*ɨ̈ is reconstructed from the correspondence sets ɨ̈:a, ɨ̈:o, and ɨ̈:u, so that it has the following reflexes:

*ɨ̈ > ɨ̈ : > o / C___stop
u / { t'___, ___s }
a / elsewhere.

Examples:

*pʰɨ > pʰɨ̈ : ba·- *all* (1)

*apɨ[t] > pɨ̈t : -apo *to lie down* (29)

*t'ɨ > t'ɨ̈ : (-spa·)tu *to chop* (11)

*ɬsɨ[s] > ʔɨ̈sɨ̈s : -u·su *pretty* (40).

See also: (9) and (37).

*a is reconstructed from the correspondence sets e:a and a:a, so that it has the following reflexes:

*a > e / #ɪC ____ : > a

a / elsewhere

Examples:

*ita > te : ida(gina) *black* (7)

*as > ʔas : -a·š(a) *raw* (41).

See also: (2), (3), (4), (12), (15), (18), (19), (20), (21), (22), (23), (27), (28), (29), (31), (33), (35), (36), (38), (44), (45), (48), (49), (50), (51), and (53).

With but one exception (50), every J e < *a is stressed. Perhaps with further study it could be shown that in J-S this particular vowel change occurs only in stressed syllables, which would allow a somewhat simpler formula: *a > e / in stressed syllables following *ɪ.

*u is reconstructed from the correspondence sets u:a and u:u, so that it has the following reflexes:

*u > u : > a / { ___Ca ; aC___ }

u / elsewhere.

Examples:

*kuCa > kula *you pl. come* : ga·ta *to arrive* (12)

*apu[y] > puy : amba *excrement* (19)

*uxk'u > ʔuk'u *woman* : -u·x̣ku *moon* (54).

See also: (13), (16) (23), (26), (32), (52), and (53).

*o is reconstructed from the correspondence sets o:o, o:a, o:u, and u:o, so that it has the following reflexes:

*o > u / stop____stop :
o / elsewhere

a / ____ { Ca, #
u / ____ { x#, l#, k#
o / elsewhere.

Examples:

*ko[m] > kom : (gi·)ko *liver* (30)

*yoxa > -yóla *you pl. think* : -ya·x̣a *to think* (49)

*po > po- *augmentative prefix* : -mba *augmentative suffix* (5)

*ito[k] > tok *to dig* : -i·du· *to bury* (17)

*ino[l] / *ino[x] / *uno[l] / *uno[x] > nol : -ñu *much, many* (34)

*tot > -tut *saliva* : (-n)t'o·t(a) *to spit* (42).

See also: (8), (22), and (43).

*ɔ is reconstructed from the single correspondence set a:u.

Example:

*ɔmba > ʔama : umba *dirt, earth* (18).

See also: (20), (25), (47), and (51).

3. Comparison of Jicaque and Tequistlateco

In this section, proto phonemes are reconstructed from sound correspondences that are manifested in Jicaque and Tequistlateco cognates.

3.1 Source

Tequistlateco data represent the highland dialect as recorded in Turner and Turner (1971). Although Turner (1969) and Waterhouse (1969, ms.) have published papers on the phonemes of proto Tequistlateco, they will not figure in this study because no reconstructed cognates are given.

3.2 Tequistlateco phonemes

The phonemes of Tequistlateco are displayed in Chart 3-A. These represent a reanalysis of Turner and Turner (1971) in that I have reinterpreted their phonemes /W/ and /N/ as sequences of /hw/ and /hn/. I have made this adjustment for the following reasons: 1) Although intra-syllable sequences of C + w occur in Turner and Turner's material quite often, h + w and h + n never do.[4] 2) The distribution of /W/ and /N/ in the syllable seems to follow the patterns of a sequence rather than a segment.

Unless otherwise marked, stress is always on the penultimate syllable of the word in Tequistlateco. However in this study stress normally falls on the final syllable of the verb stem because in Turner and Turner (1971) the verbs appear in a uniform inflected form that utilizes a monosyllabic suffix. (For Jicaque phonemes, see 2.2.)

Consonants

p	t	c	č	k		
f'		c'	č'	k'	?	+'
f	s		š		h	+
b	d			g		
m	n			ŋ		l
w			y			

Vowels

i		u
e		o
	a	

Chart 3-A

Tequistlateco phonemes

3.3 Vowel addition

There are 22 instances in the present data where a final or initial vowel in either Jicaque or Tequistlateco corresponds to zero in the other language. I have chosen not to reconstruct vowels in these positions because: 1) In 15 instances the added vowel is equal in quality (or nearly so) to the vowel in the preceding or following syllable, which suggests independent developments in terms of vowel harmony:

*ɓalV > -wála : (-a)bali *forehead* (86)

*wi > (-ɾ)we : -gwi *to be sleepy* (112)

*kol' > -kol : -gu?(u) *abdomen* (55)

*tVn > -tïn(ï) : -doh- *to grow* (87).

See also: (64), (65), (69), (78), (79), (82), (85), (89), (98), (104), (105), (108), (119), (121), (123), and (127). 2) In these instances, there is no evidence in the remaining portions of the cognates to support the existence of an archaic final or initial vowel. (Contrast Jicaque-Subtiaba, where the reconstruction of a preceding or following consonant is often dependent upon the presence of a final or initial vowel. See 2.4.1 and 2.4.2.)

3.4 Jicaque-Tequistlateco reconstructions

Chart 3-B shows the proto phonemes I have reconstructed for Jicaque-Tequistlateco. There is a complete series of unaspirated, aspirated, and glottalized stops at the bilabial and velar points of articulation, and of affricates at the alveolar point of articulation, but the nearly symmetrical series of stops is marred by the absence of *t^h. There is a complete set of plain and glottalized laterals, both voiced and voiceless. Asymmetry is seen in 1) a single voiced fricative, and 2) only two front vowels versus three central and three back vowels.

Consonants

*p	*t	*c	*k	
*p^h		*c^h	*k^h	*h
*p'	*t'	*c'	*k'	*?
*m	*n			
	*l	*ɬ		
	*l'	*ɬ'		
*ɓ				
*w		*y		

Vowels

*ɨ	*ɨ	*u
*e	*ə	*o
	*a	*ɔ

Chart 3-B

Proto Jicaque-Tequistlateco phonemes

3.4.1 Consonants

*p is reconstructed from the correspondence sets p:w, p:p, and p:b, so that it has the following reflexes:

*p > p : > w /___ ə
p ~ b / elsewhere.

Examples:

*pən > pon : -weh- *to believe* (62)

*pelɬk' > pïlïk : (ʔaš)pelaʔ *many* (99)

*pi > -pi : -bi(culaʔ) *buttocks* (68)

See also: (67), (70), (79), (82), (116), (119), (123), (125), and (127).

The contrast between voiced and voiceless stops seems to be minimal in Tequistlateco. Turner and Turner (1971:xiii) observe: '... [the] Chontals vary the pronunciation of some words, varying from ... voicing of the stops to voiceless and vice versa ...' An examination of Turner and Turner's material shows clearly that the voiced and voiceless stops contrast in very few places. With reference to the voiced vs. voiceless stops, therefore, I have chosen to show them in fluctuation in the various formulae that describe the development of T reflexes, in those cases where evidence for such fluctuation exists.

*t is reconstructed from the single correspondence set t:t ~ d.

Example:

*tɬ > tï : (agun)da(ʔ) *heavy* (91).

The fluctuation between voiced and voiceless stop is seen in this example in that the phonetic transcription that Turner and Turner provide (1971:5) for this item is [ʔə.gún.təʔ]. See also: (56), (87), and (89).

*k is reconstructed from the correspondence sets h:k, k:k ~ g, and k:gw, so that it has the following reflexes:

*k > h / initially in disyllabic stems
k / elsewhere
: > gw /___ u
k ~ g / elsewhere.

Examples:

*kɔnmak' > hanmak : (?iŋ)kohma? *always* (59)

*pʰuk > -pʰuk : -hwak *head* (90)

*kol' > -kol : -gu?(u) *abdomen* (55)

*kuy > -kuy *you sg. come* : -gway- *to arrive* (72).

See also: (69), (105), and (116).

*pʰ is reconstructed from the correspondence sets pʰ:h, pʰ:hw, and pʰ:b, so that it has the following reflexes:

*pʰ > pʰ : > h / initially in disyllabic stems
hw / preceding nonfinal u
b / elsewhere.

Examples:

*pʰolol > pʰolol : -holol(ó) *(a specific) flower* (85)

*pʰuk > -pʰuk : -hwak *head* (90)

*ɨpʰɨ > (?)ïpʰï : -abi *ashes* (60).

See also: (57), (69), and (110).

*kʰ is reconstructed from a single instance of the correspondence set kʰ:g.

Example:

*kʰeɬ > kʰel(e) : -(e)gaɬ *bone* (65)

By itself, this single example of this correspondence would not constitute convincing evidence for the existence of J-T *kʰ. However, it matches the well attested pattern of the bilabial *pʰ > pʰ:b. Also, the remainder of the lexical item in question involves more frequently recurring correspondences.

*p' is reconstructed from the single correspondence set p:?.

Example:

*p'iɬ > pel : -?iɬ *flea* (84).

See also (58) and (94). Note that a similar correspondence of stop:? occurs at the velar position.

*t' is reconstructed from a single instance of the correspondence t':d.

Example:

*t'eh > t'ïh : -deh- *to cut* (74).

The evidence for *t' is admittedly weak, but it seems likely that it can be reconstructed without doing violence to the data because: 1) A similar correspondence occurs in the affricate series, where the correspondence set c':c reflects *c' (see below). (The occurrence of T d in place of the expected t can be explained by the indeterminate nature of the voiced vs. voiceless contrast in Tequistlateco.) 2) The remainder of the lexical item in question represents correspondences which occur with greater regularity.

*k' is reconstructed from the correspondence sets k:ʔ and k':k', so that it has the following reflexes:

*k' > k / stem finally except following a back vowel
k' / elsewhere

: > ʔ / stem finally except following a back vowel
k' / elsewhere.

Examples:

*lik' > -lik : (-špu)la? *back (body part)* (61)

*+ɔk' > (la)lak'(on) +uk' *smooth* (113).

See also: (59), (99), and (108). The correspondence set k:k' could possibly be added here from the cognates -ke(t) : -k'e- *to bring* (66), with the conditioning environment for Jicaque being *k' > k / stem initially preceding a front vowel. I am tentatively positing this solution, so that the example here will reconstruct as *k'e > -ke(t) : -k'e- *to bring* (66).

*c is reconstructed from the correspondence sets c:c and cʰ:c, so that it has the following reflexes:

*c > cʰ / V___V
c / elsewhere

: > c

Examples:

*pɔc > pac : -boc(o) *to wash clothes* (127)

*ɔco > (ʔ)ocʰo *snail* : -aco(+) *snail shell* (114).

See also: (77) and (126).

*cʰ is reconstructed from the single correspondence set cʰ:š.

Example:

*cʰɨɨ > cʰɨ̈ɨ(ɨ̈k) *sticky* : (-un)šaɨ *pine sap* (118).

See also: (121) and (127).

*c' is reconstructed from the correspondence sets s:c', c':c, and c':c', so that it has the following reflexes:

*c' > s / { ___ # : > c / initially in disyllabic stems
V ___ V : c' / elsewhere.
c' / elsewhere

Examples:

*hac' > ʔas : -hwac' *blood* (63)

*c'ole > c'olo(l) *oak* : -cole *a type of tree* (102)

*c'V > -c'l : (fa)c'u *to throw* (122).

*h is reconstructed from the correspondence sets ʔ:hw, h:h, and h:hw, so that it has the following reflexes:

*h > ʔ / ___ a : > hw / ___ { l, a
h / elsewhere
h / elsewhere.

Examples:

*hac' > ʔas : -hwac' *blood* (63)

*hu+' > hul *door* : (-a)hu+' *house* (78)

*hiyo > hiyo(mak) : -hwiyu (hu+'e) *wild cat* (128).

See also: (74) and (93).

*ʔ is reconstructed from the correspondence sets h:ʔ and ʔ:ʔ, so that it has the following reflexes:

*ʔ : > ʔ

> h / ___ { u, l, e, ɔ
ʔ / elsewhere.

Examples:

*ʔu > hu(n) *his eye* : -ʔu *eye* (81)

*ɨʔi > (w)ɨ̂hï : (ʔan)iʔɨ *sweet* (120)

*piʔe > pehe(y) : (-a)biʔe *egg* (79)

*ʔɔwe > háwa : ʔogwe(na) *other* (103)

*aʔa > (ɨap)áʔa : (-em)aʔa *sky* (111).

See also: (76), (92), (93), and (97).

*m is reconstructed from the single correspondence set m:m.

Example:

*ama > (ʔ)ama : -ama(c') *dirt, earth* (75).

See also: (59), (64), (82), (88), and (130).

*n is reconstructed from the correspondence sets n:h and n:n, so that it has the following reflexes:

*n > n : > h / syllable final
n / elsewhere.

Examples:

*pən > pon : -weh- *to believe* (62)

*nɨ > nï *to shoot* : na *to perforate* (109).

See also: (59), (87), (89), (94), and (98),

*ɨ is reconstructed from the single correspondence set ɨ:ɨ.

Example:

*ɨik' > -ɨik : (-špu)ɨaʔ *back (body part)* (61).

See also: (64), (83), (85), (86), (95), (96), (97), (99), (102), (104), and (118). A possible cognate pair is kulu(pwen) : nolo-(hmayʔ) *middle*. However, the correspondence sets k:n and u:o do not, at present, reflect any proto phonemes.

*ɨ is reconstructed from the single correspondence set ɨ:ɨ.

Example:

*kʰeɨ > kʰeɨ(e) : (-e)gaɨ *bone* (65).

See also: (70), (84), (98), (113), (117), and (123).

*l' is reconstructed from the single correspondence set l:?.

Example:

*kol' > -kol : -gu?(u) *abdomen* (55).

See also: (70), (71), (115), and (129).

*+' is reconstructed from the single correspondence set l:+'.

Example:

*hu+' > hul *door* : (-a)hu+' *house* (78).

See also: (110).

*ƀ is reconstructed from the correspondence sets ƀ:b and w:b, so that it has the following reflexes:

*ƀ > ƀ /___ high vowel : > b
w / elsewhere.

Examples:

*ƀl > ƀe(pum) : (-ce)bl *nixtamal* (101)

*ƀalV > -wâla : (-a)bali *forehead* (86).

*w is reconstructed from the correspondence sets w:gw and w:w, so that it has the following reflexes:

*w > w : > gw /___ non-low vowel
w / elsewhere.

Examples:

*wl > (-i)we : -gwi *to be sleepy* (112)

*wa > -wa : (howk')wa *too* (124).

See also: (103) and (107). I have tentatively reconstructed *we from the pair wa(s) : -we(?) *come!* (73), where the expected T form would be -gwe(?). A possible explanation for the unexpected w is that these cognates have survived as single-syllable stems, whereas the regular w:gw correspondence preceding a non-low vowel occurs in the data only in polysyllabic words.

*y is reconstructed from the single correspondence set y:y.

Example:

*kuy > -kuy *you sg. come* : -gway- *to arrive* (72).

See also: (80) and (128). The pair mya- *you (objective)* : (?)ima(?) *you (nominative?)* (130) is tentatively reconstructed as *mya, hypothesizing a metathesis of the high vowel and *m.

There are a few correspondence sets of the type nasal:stop or stop:nasal: 1) m:b occurs in *Cul > mul : (-ɨ)bul(u) *pellets* (104); 2) n:d occurs in the possible cognate pair na(sway) : da *almost*; 3) p:m occurs in two possible cognate pairs: pə́(?e) : -me(hngo-) *to forget*, and pok : -mof- *to uproot*; 4) k:n occurs in one cognate pair and in one possible cognate pair: *Col'o > kolo(k^h) : -no?o *spider*, and kulu(pwen) : nolo(hmay?) *middle*. Although the possibility of the existence of prenasalized stops, or of stop-nasal or nasal-stop sequences, is suggested by these correspondences, the data are nevertheless lacking in regularity to warrant the reconstruction of anything like *mb, *nd, or *ŋg.

There are four correspondences of the type stop:f: 1) t':f occurs in *Co+ > t'ol *to stack neatly* : -fo+- *to bring together* (117); 2) p:f occurs in *Cuy > puy : -fay *excrement* (180), and in *Cɔla > -pala(n) : -fule- *to fight* (83); 3) k:f occurs in *Ci?a > ki?a : fa?a *here* (92) and in the possible cognate pair pok : -mof- *to uproot*; and 4) c':f occurs in the possible cognate pair pic' : -buf- *to weave*. Any reconstructions from the foregoing correspondences are obscure to me at the present.

The correspondence set ?:b occurs in *Cɔla > ?ala : -bule *leaf cutter ant* (96). The correspondence set c':+' occurs in *Cəl' > c'ol *coati* : -+'e? *fox* (71). Although c' and +' are quite similar in both point and manner of articulation, any reconstructions from these two correspondence sets are equally obscure to me at the present.

3.4.2 Vowels

*ɨ is reconstructed from the correspondence sets e:ɨ, ɨ̈:ɨ, ɨ:a, and ɨ:ɨ, so that it has the following reflexes:

*ɨ > e / #P___

ɨ̈ / { ɨC___ ; ___?___ }

ɨ / elsewhere

:

> a / { ___Ca ; ___k' }

ɨ / elsewhere

where P = any bilabial consonant.

Examples:

*pi?e > pehe(y) : (-a)bi?e *egg* (79)

*ɨp^hɨ > (?)ɨ̈p^hɨ̈ : -abi *ashes* (60)

*ɨʔɨ > (w)ɨ̈hɨ̈ : (ʔan)ɨʔɨ *sweet* (120)

*ɨɨk' > -ɨɨk : (-špu)ɨa? *back (body part)* (61)

*CɨʔV > kiʔa : faʔa *here* (92)

*hiyo > hiyo(mak) : -hwiyu (hu+'e) *wild cat* (128).

See also: (67), (84), (101), (107), (112), and (119). Because the corresondence set ɨ̈:ɨ reflects *ɨ in other environments, I am tentatively positing the same reconstruction for *pV+ɨɨ' > pɨ̈ɨɨ̈ɨ : -bo+(c)iʔ *clothes* (70), though the conditioning environments are obscure.

*e is reconstructed from the correspondence sets e:a, a:e, ɨ̈:e, and e:e, so that it has the following reflexes:

*e
- > a / { ʔ___ ; w___ } : > a / ___+#
- e / elsewhere.
- ɨ̈ / { ___C+ ; ___h }
- e / elsewhere

Examples:

*pe+ > pei(am) : (-a)ba+ *tongue* (123)

*we > wa(s) : -we(ʔ) *come!* (73)

*ʔe > (ie)ha(y) : -ʔe- *to do* (76)

*peɨ+k' > pɨ̈ɨɨ̈k : (ʔaš)peɨaʔ *many* (99)

*t'eh > t'ɨ̈h : -deh- *to cut* (74)

*k'e > -ke(t) : -k'e- *to bring* (66).

See also: (65) and (103). I am tentatively reconstructing *e from the correspondence set e:e in *piʔe > pehe(y) : (-a)biʔe *egg* (79), where the expected form in Jicaque is peha(y). A possible explanation for this is that the final y has somehow tended to retain the quality of the *e rather than allowing the preceding *ʔ to lower it to a. I am also tentatively reconstructing *e from the correspondence set e:a in *pVke > pɨ̈k(ɨ̈)e : -bu(y)ga(ʔ) *spotted* (116), where the expected form in Tequistlateco is -bu(y)ge(ʔ). A possible explanation here is that the backing effect of the preceding back vowel and velar stop tended to move the *e back to a.

There is an interesting case of bidirectional partial fusion involving *e and *ʔ in *ʔe > (le)ha(y) *to do* (76) in Jicaque. The lowering effect of *ʔ causes *e > a, while the raising effect of *e causes *ʔ > h.

*ɨ is reconstructed from the single correspondence set ï:a.

Example:

*ɨpʰl > (ʔ)ïpʰï : -abi *ashes* (60).

See also: (91), (99), (109), and (118).

*ə is reconstructed from the single correspondence set o:e.

Example:

*pən > pon : -weh- *to believe* (62).

See also: (69), (71), and (102).

*a is reconstructed from the correspondence sets a:a and a:e, so that it has the following reflexes:

*a > a : e / { c'____# ; l____# } ; a / elsewhere.

Examples:

*ac'a > (sy)asa : (ʔ)ac'é *new* (100)

*Cɔla > ʔála : -bule *leaf cutter ant* (96).

See also: (56), (58), (59), (63), (75), (83), (86), (88), (92), (93), (97), (105), (111), (121), (124), (125), and (130).

An interesting case of partial overlap involving the correspondence set a:e occurs in Jicaque-Tequistlateco. The reconstructed phonemes with the allophonic sets are as follows:

/*e/ [l:e] Occurs preceding *h or preceding *ɨ in a following syllable.

[a:e] Occurs following *ʔ or *w.

[e:a] Occurs preceding a final *ɨ.

[e:e] Occurs elsewhere.

/* / [a e] Occurs finally, following *c' or *l.

[a a] Occurs elsewhere.

Note that the correspondence a:e is shown as an allophone of both *e and *a, but in contrastive environments.

*u is reconstructed from the correspondence sets u:u and u:a, so that it has the following reflexes:

*u > u : > u /___ L

a / elsewhere

where L = any lateral.

Examples:

*hu+' > hul *door* : (-a)hu+' *house* (78)

*cu > cu(s) : -ca(lay) *to urinate* (126).

See also: (72), (80), (90), (98), (104), and (129). I am tentatively reconstructing *u from the correspondence set u:u in *?u > hun *his eye* : -?u *eye* (81), where the expected form in Tequistlateco is -?a. A possible solution to this would be to add the following statement for Tequistlateco: *u > u / ?___ .

*o is reconstructed from the correspondence sets o:u and o:o, so that it has the following reflexes:

*o > o : > u / { cʰ___ ; y___ ; ___ { L ; n }

o / elsewhere

where L = any lateral.

Examples:

*cʰo > cʰo(?oy) : (-abɨ)šu *pot* (106)

*hɨyo > hɨyo(mak) : -hwiyu (hu+'e) *wild cat* (128)

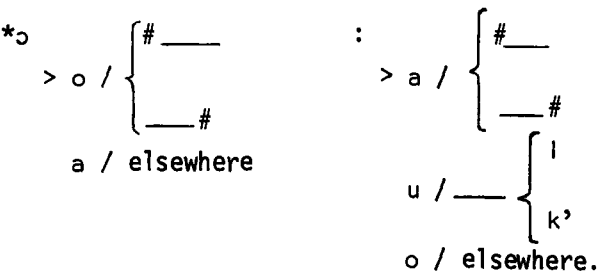
*koɨ' > -koɨ : -gu?(u) *abdomen* (55)

*ton > ton(a) : -duh- *to harvest* (89)

*ɔco > (?)ocʰo *snail* : -aco(+) *snail shell* (114).

See also: (64), (85), (94), (102), (115), and (117).

*ɔ is reconstructed from the correspondence sets o:a, a:u, and a:o, so that it has the following reflexes:



Examples:

*ɔco > (ʔ)ocʰo *snail* : -aco(+) *snail shell* (114)

*lɔ > lo : (-lbe)la *leaf* (95)

*Cɔla > -pala(n) : -fule- *to fight* (83)

*+ɔk' > (la)lak'(on) : +uk' *smooth* (113)

*pɔc > pac : -boc(o-) *to wash clothes* (127).

See also: (59), (96), and (103). I am tentatively reconstructing *ɔ from the correspondence set a:u in *ɔpa > (kas)ápa : -uba *top* (125), where the expected form in Jicaque is (kas)ópa and in Tequistlateco is -aba because, though the conditioning environments are obscure in this instance, the correspondence set a:u reflects *ɔ elsewhere.

Reconstructions from the following vowel correspondences are obscure to me at the present: 1) a:i in *balV > -wála : (-a)bali *forehead* (86); 2) i:u in *c'V > -c'i : (fa)c'u *to throw* (122); 3) ï:o in *pV+ll' > pïlïl : -bo+(c)i? *clothes* (70), and *tVn > -tïn(ï) : -doh- *to grow* (87); 4) ï:u in *pʰV > pʰï : bu(laf'kaʔ) *all* (57), and *pVke > pïk(ï)e : -bu(y)ga(ʔ) *spotted* (is there a possible correlation between J ï and T y in this pair?) (116); 5) o:l in *pVm > pom : -blm(i) *feather* (82), and *pʰVl' > pʰol(ok) : -bi+' *skin, hide* (110); 6) u:e in *k'V > (ʔu)k'u : -k'e(hwa) *roasting ear* (108); and 7) u:o in the possible cognate pair kulu(pwen) : nolo(hmayʔ) *middle*.

4. Conclusions

4.1 Jicaque-Subtiaba-Tequistlateco

That Jicaque is genetically related to both Subtiaba and Tequistlateco is clearly established by the reconstruction of phonologically reasonable proto systems based on recurring sound correspondences between Jicaque and Subtiaba, and Jicaque and Tequistlateco, as detailed in Chapters 2 and 3.

That these relationships are not traceable to borrowing or areal influences is seen in the fact that the cognate sets in both systems, with but few exceptions, represent such core vocabulary

items as body parts (e.g., *breast* (8), *buttocks* (10) and (68), *hair* (24), *blood* (63)), natural phenomena (e.g., *dirt, earth* (18) and (75), *ashes* (60), *fire* (2), *rain* (107)), and everyday activities (e.g., *to cry* (15), *to urinate* (52) and (126), *to sleep* (45), *to wash clothes* (127)). The number of cognates that represent cultural items, on the other hand, are so few as to be insignificant: *road* (31), *string* (32) and (98), *mestizo* (33), *tamal* (48), *dog* (77), *(a specific) flower* (85), *leaf cutter ant* (96), *oak* (102), *pellets* (104), and *pot* (106)--only ten out of a total of 126.

It is reasonable to assume that if Jicaque is related to both Subtiaba and Tequistlateco, a common development for all three languages can be hypothesized. By comparing the eight cognate sets which are shared by Jicaque-Subtiaba and Jicaque-Tequistlateco, eleven phonemes can be postulated for proto Jicaque-Subtiaba-Tequistlateco: **p, **c, **k, **pʰ, **m, **n, **l, **y, **i, **a, and **u. A possible **s and **ɨ are not as clear as the others. The shared J-S and J-T cognate sets, along with possible reconstructions for Jicaque-Subtiaba-Tequistlateco are:

	J-S-T	J-S	J-T	
1.	**pʰɨ	> *pʰɨ	: *pʰV	*all* (1) and (57)
2.	**pl	> *pi	: *pl	*buttocks* (10a) and (68)
3.	**kuy	> *kuy	: *kuy	*to come* (13) and (72)
4.	**amba	> *ɔmba	: *ama	*dirt* (18) and (75)
5.	**apuy	> *apu[y]	: *Cuy	*excrement* (19) and (80)
6.	**pʰuk	> *pʰu[k]	: *pʰuk	*head* (26) and (90)
7.	**unulu	> *unulu	: *nuɨ	*maguey* (32) and (98)
8.	**cu[s]	> *cu [s]	: *cu	*to urinate* (52) and (126).

4.2 The position of Jicaque in Jicaque-Subtiaba-Tequistlateco

Jicaque seems to be more closely related to Subtiaba than to Tequistlateco: 1) There are no residual vowel correspondences in Jicaque-Subtiaba; there are seven in Jicaque-Tequistlateco; 2) there are only four residual consonant correspondences in Jicaque-Subtiaba; there are ten in Jicaque-Tequistlateco; 3) the system of vowel addition and loss is quite regular in Jicaque-Subtiaba, which suggests a more recent relationship on that side than in Jicaque-Tequistlateco, where vowel addition and loss is more random in nature; 4) the percentage of cognate pairs in Jicaque-Subtiaba that contain nonreconstructable elements is much lower (50%) than in Jicaque-Tequistlateco (86%); and 5) a greater quantity of data was available from Tequistlateco than from Subtiaba, which would have tended to make Tequistlateco seem more closely related.

4.3 Wider relationships of Jicaque-Subtiaba-Tequistlateco

Until recently, Jicaque, Subtiaba, and Tequistlateco have all been generally recognized as Hokan languages (see Chapter 1). Turner (1967b, 1969, and ms.) seriously questions the Hokan affiliation of Tequistlateco. However, Waterhouse's list (ms.) of some Tequistlateco words along side some words in a number of Yuman languages , upon inspection, suggests a relationship between Tequistlateco and Yuman.

The Hokan affiliation of Subtiaba has been generally accepted ever since Sapir (1925). Rensch (1977), however, proposes the genetic relationship of Supanec to the Otomanguean languages, and presents convincing evidence to support his claim.

There are three logically possible solutions, therefore, to the problem of affiliation of Jicaque-Subtiaba-Tequistlateco:

1. That Jicaque-Subtiaba-Tequistlateco is related exclusively to the Hokan languages. But this would imply 1) that Rensch's claim regarding the relationship of Supanec to Otomanguean is incorrect; and 2) that it would not be possible to demonstrate genetic relationship between the Hokan and Otomanguean languages. Also, this would require the formal demonstration of relationship of Jicaque-Subtiaba-Tequistlateco to the Hokan phylum. This alternative is clearly untenable in the light of the quality and quantity of evidence in Rensch (1977).

2. That Jicaque-Subtiaba-Tequistlateco is related exclusively to the Otomanguean languages. In view of the evidence, as presented by Rensch, for the affiliation of Supanec with Otomanguean, this alternative deserves careful consideration. This alternative would imply 1) that Turner's claim regarding the nonrelationship of Tequistlateco and Seri (and therefore Hokan) is correct, and that any similarities between them is due to borrowing and/or areal influences; and 2) that it would not be possible to demonstrate genetic relationship between the Hokan and Otomanguean languages.

3. That Jicaque-Subtiaba-Tequistlateco is somehow related to both the Hokan and Otomanguean phyla, as Rensch (1977) has already suggested. Before this alternative could be considered proven, however, the following steps must be taken: 1) the development of a more precise picture of proto Hokan and of its branches; 2) the establishment of the position of Otomanguean within Hokan (or vice versa), or as a parallel branch with Hokan of a larger grouping; 3) the establishment, by the comparative method, of the genetic position of Jicaque-Subtiaba-Tequistlateco within the resulting Hokan-Otomanguean grouping. Only through these steps will the broader picture of Hokan-Otomanguean relationships, as well as the more narrow question regarding the position of Jicaque-Subtiaba-Tequistlateco, be understood. Such a project, naturally, is one of staggering proportions; as Rensch (1977) states:

> ... the comparison of the whole range of Otomanguean and Hokan-Coahuiltecan languages is such an enormous task that a detailed study may well require the work of a whole corps of scholars.

Whatever future research reveals, it seems clear that Jicaque, Subtiaba, and Tequistlateco will have to be considered as tracing their development from a common source.

Appendix I

Cognates

Part 1: Jicaque-Subtiaba

1. *pʰɨ > pʰɨ̈ : ba·- *all.*
2. *na[s] > nas *already* : na- *present tense prefix.*
3. *ɨna > ne : ña *and.*
4. *ɨpʰax > -pʰei : paχ(pu·) ~ pah(pu) *arm.*
5. *po > po- *augmentative prefix* : -mba *augmentative suffix.*
6. *osto[t] > (ɨ)otot : osto *bark (of tree).*
7. *ɨta > te : -ida(gina) *black.*
8. *coc' > coc' : sos(to) *breast.*
9. *ɨm > ʔɨ̈m : -am(o) *to burn, set fire to.*
10. *pɨ > { -pɨ : (suña)mba *buttocks.* (10a.) / -- : (r)umbi *anus.* (10b.)
11. *tʼɨ > tʼɨ̈ : (-spa·)tu *to chop.*
12. *kuCa > kuɨa *you pl. come* : ga·ta *to arrive.*
13. *kuy > kuɏ : *you sg. come* : -kɏ·i, read kɏ·y *to come.*
    The nasalized vowel in this set is the only one that participates in a cognate. No attempt at reconstructing the nasalization is made.
14. *hoho[n] > (ko)hohon *puede cocer* : ga·ga *cooked.*
    The development of S a ... a is anomalous. See 2.5.2.
15. *pɨya > -pɨ́ya : -mbɨ·ya *to cry.*
16. *ku[s] > (ku)kus *daughter* : -ku *child.*
17. *ɨto[k] > tok *to dig* : -ɨ·du· *to bury.*
18. *ɔmba > ʔama : u·mba *dirt, earth.*
19. *apu[y] > puy : amba *excrement.*
20. *awɔ > ʔáwa : a·gu· *fire.*
21. *ka > ka- : ga- *future prefix.*
22. *oya > ʔoya *to give* : -aya·a *to bring.*
23. *acu > cu : -a·ša *green, blue.*
24. *cʼɨx > cʼɨɨ : su·h(u) *hair.*
25. *kʼɔ > kʼa : (-gu·χ)ku· *hard (substance).*

26. *pʰu[k] > -pʰuk *head* : (-axᵛ)pu *body*.
27. *ha[s] > -has : (gi·)ga *heart*.
28. *wa > wa : gwa *house*.
29. *apɨ[t] > pïït : -apo *to lie down*.
30. *ko[m] > -kom : (gi·)ko *liver*.
31. *kampa > kámpa *long* : gamba *road*.
32. *unuiu > nuiu *maguey* : -u·ñu-iu· *string*.
33. *mba[k] > makʰ : (nu·xᵛ)mba *mestizo*.
34. *ino[i] / *ino[x] / *uno[i] / *uno[x] > noi : -ñu *much, many*.
35. *uwa > (k)uwa : -agwa *none*.
36. *na[m] > (kí)nam : -naa *now*.
37. *pɨ[i] / *pɨ[x] > pïï *old (inanimate)* : -mba *old*.
38. *onka > (c'y)óŋka *old, ripe* : -aŋga *old, worn out*.
39. *iCa > pʰa(ni) : i·mba *one*.
The development of J a is anomalous. See 2.5.2.
40. *ɨsɨ[s] > ?ïsïs : -u·su *pretty*.
41. *as > ?as *raw (meat)* : -a·š(a) *raw (green)*.
42. *tot > -tut *saliva* : (-n)t'o·t(a) *to spit*.
43. *t'o?o[n] > t'o?on *to shut* : do·ko *to close*.
44. *?a > (tá)?a : -ka *sister*.
45. *ha > ha *to sleep* : ga·(ya) *to pass the night*.
46. *mik > (c'ï)mïk : m-i·k(a) *sour*.
47. *iyɔ > ?íya *sweet* : -i·u, read -i·yu *bitter*.
48. *ipa > be : i·ba *tamal*.
49. *yoxa > -yóia *you pl. think* : -ya·xᵛa *to think*.
50. *nina > nina *this (proximate)* : nana *here*.
51. *xap'ɔ > (-?u)iáp'a *throat* : ha·pu· *nape*.
52. *cu[s] > cus *to urinate* : (-mi·)šu *urine*.
53. *aCu[c] > cʰuc *weed* : -aša *grass*.
54. *uxk'u > ?uk'u *woman* : -u·xᵛku *moon*.

Part 2: Jicaque-Tequistlateco

55. *koi' > -koi : -gu?(u) *abdomen*.
56. *ta > ta(w) *afternoon* : (?umuy)da *late*.

57. *pʰV > pʰï : bu(laf'ka?) *all.*
58. *ap' > (-s)ap : (-idug)a? *alone.*
59. *kɔnmak' > hanmak : (?iŋ)kohma? *always.*
60. *ɨpʰi > (?)ïpʰï : -abi *ashes.*
61. *lik' > -lik : (-špu)la? *back (body part).*
62. *pən > pon : -weh- *to believe.*
63. *hac' > ?as : -hwac' *blood.*
64. *mol > mol(k) : (-m)mul(e) *to boil.*
65. *kʰe+ > kʰel(e) : (-e)ga+ *bone.*
66. *k'e > -ke(t) : -k'e *to bring.*
67. *pi > p(w)e : -bi- *to be burned.*
68. *pi > -pi : -bi(cula?) *buttocks.*
The development of J i is anomalous. See 3.4.2.
69. *pʰək > -pʰok : -beg(é) *cheek.*
70. *pV+il' > pïlïl : -bo+(c)i? *clothes.*
The development of J ï from the correspondence ï:i is anomalous. See 3.4.2.
71. *Cəl' > c'ol *coati* : -+'é *fox.*
72. *kuy > -kuy *you sg. come* : -gway- *to arrive.*
73. *we > wa(s) : -we(?) *come!.*
74. *t'eh > t'ïh : -deh- *to cut.*
75. *ama > (?)ama : -ama(c') *dirt, earth.*
76. *?e > (le)ha(y) : -?e- *to do.*
77. *ci > ci(yo) : -ci(ki) *dog.*
78. *hu+' > hul *door* : (-a)hu+' *house.*
79. *pi?e > pehe(y) : (-a)bi?e *egg.*
The development of J e from the correspondence e:e is anomalous. See 3.4.2.
80. *Cuy > puy : -fay *excrement.*
81. *?u > hu(n) *his eye* : -?u *eye.*
The development of T u is anomalous. See 3.4.2.
82. *pVm > pom : -bim(l) *feather.*
83. *Cɔla > -pala(n) : -fule- *to fight.*
84. *p'i+ > pel : -?i+ *flea.*

85. *pʰolol > pʰolol : -holol(ó) *(a specific) flower.*
86. *ƀalV > -wála : (-a)bali *forehead.*
87. *tVn > -tïn(ï) : -doh- *to grow.*
88. *ma > -ma(s) : -ma(ne) *hand.*
89. *ton > ton(a) : -duh- *to harvest.*
90. *pʰuk > -pʰuk : -hwak *head.*
91. *tɨ > tï : (agun)da(?) *heavy.*
92. *Cl?a > kl?a : fa?a *here.*
93. *hV?a > (nawo)há?a : hl?(w)a *in time past.*
94. *p'on > pon(es) : ?uh(šl) *large.*
95. *lɔ > lo : (-ibe)la *leaf.*
96. *Cɔla > ?ála : -bule *leaf cutter ant.*
97. *la?wa > la?wa(y) : lá?(a)wa(tá?) *little, few.*
98. *nuɨ > nul(u) *maguey* : (-ay)nuɨ *fiber.*
99. *pelɨk' > pïlïk : (?aš)pela? *many.*
100. *ac'a > (sy)ása : (?)ac'é *new.*
101. *ƀi > ƀe(pum) : (-ce)bi *nixtamal.*
102. *c'ole > c'olo(l) *oak* : -cole *a type of tree.*
103. *?ɔwe > háwa : ?ogwe(na) *other.*
104. *Cul > mul : (-i)bul(u) *pellets.*
105. *ka > ka- : (?a)ga *perhaps.*
106. *cʰo > cho(?oy) : (-abi)šu *pot.*
107. *wl > (hí)we : (-a)gwl *rain.*
108. *k'V > (?u)k'u : -k'e(hwa) *roasting ear.*
109. *nɨ > nï *to shoot* : na *to perforate.*
110. *pʰVl' > pʰol(ok) : -blɨ' *skin, hide.*
111. *a?a > (lap)á?a : (-em)a?a *sky.*
112. *wl > (-í)we : -gwl *to be sleepy.*
113. *ɨɔk' > (la)lak'(on) : ɨuk' *smooth.*
114. *ɔco > (?)ocʰo *snail* : -aco(ɨ) *snail shell.*
115. *Col'o > kolo(kʰ) : -no?o *spider.*
116. *pVke > pïk(ɟ)e : -bu(y)ga(?) *spotted.*
The development of T a is anomalous. See 3.4.2.

117. *Co+ > t'ol *to stack neatly* : -fo+- *to bring together.*

118. *c^h+l > c^hïl(ïk) *sticky* : (-un)šal *pine sap.*

119. *pl > pe : (-a)bí(k) *stone.*

120. *i?i > (w)îhï : (?an)l?i *sweet.*

121. *c^ha > c^ha(c) : (?a)ša(lóf) *thin.*

122. *c'V > -c'i : (fa)c'u *to throw.*

123. *pe+ > pel(am) : (-a)bá+ *tongue.*

124. *wa > -wa : (howk')wa *too.*

125. *ɔpa > (kas)ápa : -uba *top.*
The development of J a and of T u from the correspondence a:u is anomalous. See 2.5.2 and 3.4.2.

126. *cu > cu(s) : -ca(lay) *to urinate.*

127. *pɔc > pac : -boc(o-) *to wash clothes.*

128. *hiyo > hiyo(mak) : -hwiyu (hu+'e) *wild cat.*

129. *l'u > lu : ?a(bo?ó) *yellow.*

130. *mya > mya- *you (objective)* : (?)ima(?) *you (nominative?)*

Appendix II

Glossary of languages

Aquacatec II. According to Lyle Campbell (p.c.), "... not a real language, but a fake that Otto Stoll's maid created."

Chorti. A Mayan language currently being spoken in the eastern portion of Guatemala, principally in the department of Chiquimula.

Coahuilteco. Now extinct. Formerly spoken in what is now southern Texas and the area of the state of Coahuila, Mexico.

Comecrudo. Now extinct. Formerly spoken in what is now southern Texas and northern Mexico.

Cotoname. Now extinct. Formerly spoken in what is now southern Texas and northern Mexico.

Karankawa. Now extinct. Formerly spoken in what is now south coastal Texas.

Lenca. A language, nearly extinct, spoken in the vicinity of the towns of La Esperanza and Marcala in southern Honduras. Sapir considered Lenca a possible southern outlier of Penutian. Lehmann considered it Chibchan, and Fernández de Miranda classified it as a language isolate.

Miskito. A language currently being spoken along the eastern Caribbean coastal area of Honduras and Nicaragua.

Mixe-Zoque. A language family, consisting of the Mixe and Zoque languages which are currently being spoken in the state of Oaxaca, Mexico.

Mixtec. An Otomanguean language, currently being spoken in the states of Oaxaca, Guerrero, and Puebla, Mexico.

Otomi. An Otomanguean language, currently being spoken principally in the states of Mexico and Hidalgo, Mexico.

Paya. A language currently being spoken by only a few people in the area of the towns of Dulce Nombre de Culmí in the department of Olancho, and Santa María and Carbón in the department of Gracias a Dios, Honduras. Sapir considered Paya a possible southern outlier of Penutian. Lehmann considered it Chibchan, and Fernández de Miranda classified it as a language isolate.

Seri. A Hokan language currently being spoken in Tiburón island and nearby mainland coastal areas in the state of Sonora, Mexico.

Sumo. A language currently being spoken by a few hundred people in the Departments of Gracias a Dios, Honduras and Zelaya,

Nicaragua. The two dialects are reportedly mutually unintelligible.

Tonkawa. Now extinct. Formerly spoken in the same general area as Karankawa, though more inland.

Washo. A Hokan language currently being spoken in the area of California and Nevada around lake Tahoe.

Xinca. A language, nearly extinct, spoken in the area of Guazacapán in the Department of Santa Rosa, Guatemala. Sapir considered Xinca a possible southern outlier of Penutian; Fernández de Miranda classified it as a language isolate.

Yuman. A family of Hokan languages, many of which are currently being spoken in the general area of the Colorado river basin of Arizona and California.

Zapotec. An Otomanguean language currently being spoken in the state of Oaxaca, Mexico.

Footnotes

1
But see Appendix II regarding Aquacatec II.

2
The asymmetrical *p^h and *mb are reminiscent of the single voiced (bilabial) stop which is widespread in modern Mayan languages, and the question of an areal influence could be raised. Such a matter is well beyond the scope of this paper, however.

3
It seems likely that these may have been unstressed syllables.

4
Turner and Turner's phonemes /W/ and /N/ appear as digraphs (ju and jn) in the body of the text of the volume in question. However, this apparent interpretation of /W/ and /N/ as sequences is merely an orthographic device; on page 319 they clearly list /W/ and /N/ as unitary phonemes.

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