Two Studies in Middle American Comparative Linguistics

David Oltrogge
and Calvin Rensch

SUMMER INSTITUTE OF LINGUISTICS

UNIVERSITY OF TEXAS AT ARLINGTON

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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)

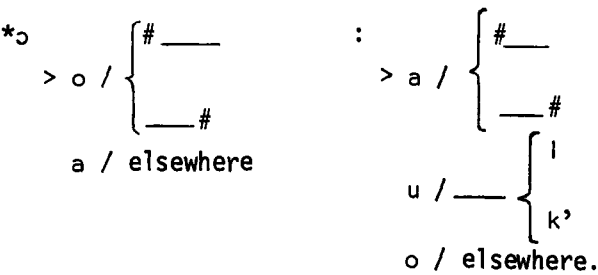
*koɨ' > -koɨ : -gu?(u) *abdomen* (55)

*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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Classification of the Otomanguean Languages and the Position of Tlapanec

Calvin R. Rensch

1. In colonial times the genetic relationships of a number of Middle American language groups were recognized. A single name was often applied to groups of languages, in spite of considerable variation in some cases. At this historical distance, however, it is difficult to state the extent to which the application of a single name to a family of languages was due to ignorance of linguistic diversity on the part of the colonial name-givers.

Although the interest in matters of linguistic phylogeny during the nineteenth century originally focused on the languages of Eurasia, it eventually extended to the languages of Middle America. However, until the past few decades statements of linguistic relationship in Middle America have been based primarily on considerations of typology and geography. For example, de Angulo[1] viewed Oaxaca as a typological area in which a "monosyllabic morphology", as illustrated by Chinantec, had been widely diffused. Likewise, it was surely for geographical reasons that Mason[2] associated Chontal (Tequistlatec), a Hokan language of southern Oaxaca, with Zapotec, a linguistic neighbor, and that Schmidt[3] grouped Tepehua, a Totonacan language,with Otomi, Mazahua, Matlatzinca, and Pame, also spoken in central Mexico.

1.1. One of the earliest broad groupings proposed for Middle American languages was that of Mixtec and Zapotec. Orozco y Berra[4] reflected such a proposal in his Mixteca-Zapoteca family over a century ago. His grouping, which also included Cuicatec, Chocho, and Amuzgo, formed the core of a Oaxacan grouping and was gradually expanded by others in more inclusive combinations.

Pimentel[5] retained and expanded Orozco y Berra's Mixteca-Zapoteca family, adding Mazatec, Popoloc, Chatino, and even, hesitantly, Chinantec. The inclusion of Chinantec in the larger Oaxacan grouping came to be a mark of Mexican classifications--as opposed to American systems, which did not include it--well into the twentieth century. Pimentel also associated Pame, Mazahua, and Otomi as an order separate from the Oaxacan grouping, thus initiating the recognition of the Otopamean grouping.

In the work of Brinton[6] Matlatzinca came to be asociated with Pame, Chichimeco Jonaz, Mazahua, and Otomi in a single stock. Thus, apart from Amuzgo and Chinantec, which from the beginning were called by single language names, the Otopamean grouping was the first of the major sub-groups within Otomanguean to be isolated; probably geography had an influence in the identification of this grouping, situated as it is on the northern frontier of the

Otomanguean mass. Brinton also dissociated Chinantec from the larger Oaxacan grouping; in this judgment he was followed by Mason[7], Thomas[8], and Thomas and Swanton[9].

Leon[10] continued the tradition of the large Oaxacan grouping, but he divided the Zapotec branch from the languages to the west. Thus, the Zapotecan sub-group came to be recognized as distinct from the Mixtecan languages, although at this time Chinantec was still grouped with the Zapotecan languages.

Belmar[11] like Leon, recognized a large grouping and was the first to add Otomi to that grouping.

Mechling[12] contributed significantly to the refinement of the sub-grouping of the large grouping outlined by others: He united Chatino and Zapotec into his Zapotec group and distinguished a Mazatec group from the Mixtec group. However, his association of Trique with Mazatec, Ixcatec, Chocho, and Popoloc and of Amuzgo with Mixtec and Cuicatec can now be seen to be less accurate.

The large grouping long recognized was divided by Lehmann[13] into Mixtec, Cuicatec, Zapotec, and Chinantec sub-groups and an anomalous Amuzgo-Chatino sub-group. Here for the first time Chiapanec and Mangue were associated with some members of the original grouping, viz., Trique, Mazatec, Ixcatec, Chocho, Popoloc, and the Otomian group.

Schmidt[14] was apparently the first to approximate the term Otomanguean by his use of the term Otomi-Mangue to identify members of the grouping. His Otomi-Mangue group, however, was smaller than the group now called Otomanguean in that it did not include the Mixtec and Zapotec languages, which he classified apart from the Otomi-Mangue group.

In his well known Encyclopedia Britannica article Sapir[15] united Otomian, Chinantec, and Chiapanec-Mangue with the large central Oaxacan grouping. He was the first to include all of these although he offered the suggestion somewhat uncertainly. Probably following Lehmann, Sapir included in his Otomian stock a curious grouping consisting of Mazatec, Chiapanec-Mangue, and Otomi.

Mason,[16] largely following Sapir, recognized a Macro-Otomanguean phylum including the Otomanguean stock, comprising Popolocan, Chorotegan (Chiapanec-Mangue), Otomian, and Triquean; the Mixtecan stock, comprising Cuicatec, Mixtec, and Amuzgo; the Zapotecan stock, comprising Zapotec and Chatino; and the Chinantecan stock.

1.2. In the latter half of the decade of the nineteen fifties classifications of the Otomanguean languages based on the calculations of glottochronology began to appear.

Manrique[17] proposed Otomi-Mazahua and Matlatzinca-Ocuilteco as sub-groups of Otopamean on this basis; Bartholomew's conclusions based on a comparative reconstruction of Otopamean confirm these associations.

Fernández de Miranda, Swadesh, and Weitlaner[18] classified language separations as recent, distant or remote according to the number of minimum centuries of separation calculated by reckonings of glottochronology. According to this classification Amuzgo was grouped with the Mixtecan languages in a distant relationship. The Chiapanec-Mangue group was excluded from Otomanguean because "the Manguean division appears to fit better elsewhere."[19] Nevertheless, the relationship of Chiapanec-Mangue to the other branches of Otomanguean has been demonstrated in Fernández de Miranda and Weitlaner 1961 and in Rensch 1966.[20] Otomi-pamean, Popolocan, Mixtecan, Chinantecan, and Chatino-Zapotecan were characterized as having remote relationships in a network which also included Huave. Recent studies concerning Huave based on the assumptions of the comparative method have corroborated the claim that Huave should be included in the Otomanguean grouping.[21] The suggestion of a dialect net of relationships extending to many other languages not generally recognized as Otomanguean also characterized Swadesh 1960 and Swadesh 1962. In the latter the Manguean group (Mangue and Subtiaba-Tlappanec) was linked with Oaxacan (Zapotec, Chatino, Mixtec, Cuicatec, Amuzgo, Mazatec, Chocho, Popoloc, and Ixcatec) through the link of Huave. The exclusion of Manguean, Chinantec, and Otopamean from the main Oaxacan grouping, however, does not accord well with the results of application of the comparative method. Such studies show Manguean, Chinantecan, and Otopamean to be coordinate branches of Otomanguean along with Mixtecan, Popolocan, Amuzgo, and Zapotecan.

2. A number of comparative studies of the several branches of Otomanguean have appeared in recent years. Most of the more comprehensive studies are here considered, and in some cases revisions of the reconstructed systems are offered.

2.1. The phonological system of Proto Mixtecan was originally reconstructed by Longacre[22] in detail and with an extensive array of cognate sets. The inventory postulated in Proto Mixtecan included stops *t, *k, *k^w; spirants *θ, *x, *x^w; pre-nasalized stops *^{n}d, *^{n}g, *$^n g^w$; nasals *m, *n, *ñ; semivowels *w, *y; extrasystematic *ɬ, *ʔ; vowels *i, *e, *ï, *a, *u, *o, *ɔ; tones *^{1} (high), *^{2}, *^{3}, *^{4}.

In subsequent statements regarding the Proto Mixtecan inventory Longacre has removed *ñ, *ɔ, and the anomalous cluster *tn from the roster of phonological elements and has expressed considerable doubt about *ɬ.

2.1.1. The nasal *ñ, originally proposed by Longacre, depended on evidence from Mixtec alone. The Mixtec ñ was shown in Mak and Longacre 1960 to have developed in some cases from a pre-Proto Mixtecan *ny cluster and in other cases from *y followed in the next syllable either by a nasal consonant preceding the vowel or by *m following the vowel.[23] Thus, the original reconstruction *ñ was replaced by *y either immediately preceded by a nasal or followed by a nasal in a more remote environment. Proto Mixtecan nasal plus *y > Proto Mixtec *ny and so, ñ in the Mixtec languages; however, Proto Otomanguean **ny > Proto Mixtecan *l (cf. 2.1.2.).

2.1.2. The lateral *l was originally characterized as "extrasystematic"[24] and was reconstructed only before *l and *u. By 1961 Longacre was becoming "increasingly suspicious of the phonemic status of *l."[25] The occurrence of *l as opposed to *y seemed to be related to the presence or absence of *ʔ. Therefore, Longacre 1964 treated *[l] as an allophone of *y.[26] However, in more recent statements regarding Proto Mixtecan Longacre has again indicated the status of *l as uncertain.[27] Since the evidence for Proto Mixtecan *l consists of a scant three sets, Longacre's hesitation is understandable. However, it seems better to retain *l as the Mixtecan development of Proto Otomanguean **ny, because (a) the Proto Otomanguean cluster **ny became *l in Popolocan, Chiapanec-Mangue, Zapotecan, and Chinantecan, and (b) **nn and **ny are the only Otomanguean nasal clusters not shown by Longacre to have special Mixtecan developments. Proto Otomanguean set 397 shows the *l reflex of **ny in Popolocan, Chiapanec-Mangue, and Chinantecan, while Zapotecan shows the reflex of the variant **y:

PPn *ka-llhl/ntʸihl[4] *pasture, grass*

PCM *nl-nu-lű/lu *flower*

PCn *lf (H) *flower*

IZ gieʔ *flower*[28]

Presumably, a similar development of *l from Otomanguean **ny took place in Mixtecan as well. Unfortunately, the only PMn set showing *l which figures in an Otomanguean etymon is PMn 19, where all other branches of POM with identified cognates show one of the POM consonantal alternants **s or **n. Nevertheless, it is here suggested that *l be retained in the roster of PMn consonants as the development of POM **ny, even though the evidence is admittedly rather indirect.

2.1.3. The vowel *ɔ, as originally reconstructed for PMn, was withdrawn in Longacre 1962[29] in favor of *am when apparent contrasts between *ɔ and *am proved illusory.

2.1.4. The PMn cluster *tn, unique among those originally posited by Longacre in not involving *ʔ, was in Longacre 1960 abandoned in favor of *t(V)m.[30] Mixtec dialect forms of the shape tnV were said to have undergone metathesis. Dialect forms of the shape NV were attributed to this same source. However, it is here suggested that the Mixtec dialect forms of the shape NV reflect PMn *hnV, rather than *tVm. In five of Longacre's 1957 sets (22, 110, 111, 161, 221) the reconstruction of *n is required by at least one of the branches of Mixtecan. In set 221 *n is the only consonant to which Mixtec bears witness, while Cuicatec and Trique witness to *y but not to *t. Furthermore, the cognate forms from other branches of Otomanguean witness to **n or **y but not to **t; and the Chinantecan form suggests an initial **h: Mixtec nu̱^{3}ʔu̱^{2}, Nu̱^{3}ʔu̱^{2}, Cuicatec dl̨^{1}l̨^{1}ʔyu̱^{1}, Trique ya̱ʔ^{34} *teeth*; A ña^{21}ʔ *palate*; PCh *ie·ʔya *teeth*; IZ laya *teeth*; PCn *ha̱ (< **hyan) *tooth*.

2.1.5. With the elimination of *ɔ the vowels *ɪ, *e, *ɨ, *a, *u, *o remained in Longacre's roster, with only *ɪ, *a, *ɨ, and *o occurring before post-syllabic *m.

It seems necessary, however, to recognize only four vowels for Proto Mixtecan: *ɪ, *e, *a, *u. As Longacre himself has well pointed out, *Vm sequences developed in the daughter languages sometimes with nasalized reflexes and sometimes with oral reflexes of a differing vowel quality. He also described the post-posed *m as having a "raising and backing influence".[31] Probably the conditioning factor for the nasalized reflexes was an adjacent laryngeal, although careful demonstration of such a hypothesis has never been given and perhaps cannot be. However, if such a hypothesis is accepted, the nasalized reflexes can be said to be derived from *Vm sequences in a laryngeal environment (*VHm) while the oral reflexes can be said to be derived from *Vm sequences not in a laryngeal environment. Then, if Longacre's *o is relabeled as *u; his *ɨ as *em; and his *u as *um, all oral reflexes can be accommodated in a four vowel system. It only remains to relabel his *ɪm, *ɨm, *am, and *om as *ɪHm, *eHm, *aHm, and *uHm, respectively.

The relationship between Longacre's systems of Proto Mixtecan nuclei, both original and revised, and that proposed here is displayed in Table 1.

Longacre 1957	*ɪ	*e	*a	*o	*ɪ	*ɨ	*ɔ	*u
Longacre (more recently)	*ɪ	*e	*a	*o	*ɪ	*ɨ	*am	*u
Revision	*ɪ	*e	*a	*u	*ɪm	*em	*am	*um

Longacre 1957	*ɨm	*ɨ̈m	*am	*om
Longacre (more recently)	*ɨm	*ɨ̈m	*am	*om
Revision	*ɨHm	*eHm	*aHm	*uHḿ

Table 1

Comparison of Longacre's Systems of Proto Mixtecan Nuclei with Present Revision

It will be noted that Longacre's *ɨ is relabeled as both *ɨ and *ɨm. Some sets which Longacre labeled as *ɨ contain Cuicatec forms some with vowel ɨ and some with vowel e. It is assumed here that Cuicatec ɨ reflects PMn *ɨ and Cuicatec e reflects *ɨm.

Similarly, Longacre's *am is here relabeled as both *am and *aHm. Those forms with oral reflexes are assumed to have developed from PMn *am while those with nasalized reflexes are assumed to have developed from PMn *aHm.

It should be pointed out that the revised system of nuclei here presented for Proto Mixtecan is the result of a thorough application of Longacre's own suggestion of a PMn post-posed *m which yielded both oral and nasalized reflexes in preceding vowels. He began such an application himself in his reanalysis of *ɔ as *am but did not continue applying it throughout the system.

2.1.6. Longacre reconstructed *ʔ in three positions in the ultima of Proto Mixtecan: initially, finally, and interrupting the vowel. However, the last distribution was reconstructed with some doubt since some examples of interrupted syllables in the daughter languages occur in sets which seem to reflect PMn syllables closed by *ʔ. Furthermore, some PMn ultimas developed as CVV in Mixtec and Cuicatec while others developed as CV. In addition, some Trique forms closed by glottal stop are cognate with Mixtec and Cuicatec forms with no closure. To account for these data PMn *ʔ is here reconstructed only in initial and final position; and an additional laryngeal *h is reconstructed in the same two positions. The reflexes of PMn initial *ʔ have been stated by Longacre, viz., Mixtec ʔ occurring before nasal or semivowel but lost before stop or spirant; Cuicatec ʔ occurring before nasal or semivowel but shifted to precede the consonant of the penult if ultima begins with a stop or a spirant; Trique ʔ occurring before nasal or semivowel but lost before stop or spirant or, sometimes, shifted to close the ultima.

The Mixtec and Cuicatec interrupted syllables, which Longacre interpreted as reflecting PMn interrupted syllables, are here reinterpreted as reflecting PMn *CVʔ, with the closing *ʔ protected by a rearticulated vowel.

The PMn initial *h postulated here is reconstructed from sets where Trique shows a closed syllable and Mixtec and Cuicatec show no laryngeal.[32] The PMn final *h is reconstructed from sets where T again shows a closed syllable but M and C show CVV syllables. It is suggested that the Mixtec and Cuicatec syllables of the shape CVV were at an earlier period CVhV, paralleling the CV?V forms. Thus, the developments of the two laryngeals in syllable-final position were parallel in Mixtec and Cuicatec.

The reflexes of both PMn laryngeals in both distributions are displayed in Table 2.

	*CVh	*CV?	*hCV	*?CV
Mixtec	CVV	CV?V	CV	?NV; TV
Cuicatec	CVV	CV?V	CV	?NV; ?(CV)TV
Trique[33]	CVh/CV?/CV[21]	CV.?V	CVh/CV?/CV[21]	?NV~NV?; TV~TV?

Table 2

Reflexes of Proto Mixtecan Laryngeals

(N = nasal or semivowel; T = stop or spirant; C = consonant; V = vowel; . = syllable division)

The revised phonological system of Proto Mixtecan is displayed in Table 3.

consonants:	*t	*k	*k^w	
	*θ	*x	*x^w	
	*n_d	*n_g	*n_{gw}	
	*n		*m	
		*y	*w	
	*l			
laryngeals:	*?	*h	(opening or closing the syllable)	
vowels:	*i	*u		
	*e	*a		
tones:	*$_1$	*$_2$	*$_3$	*$_4$ (and clusters *$_{23}$, *$_{24}$, *$_{34}$, *$_{32}$, *$_{42}$, *$_{43}$)

Table 3

Revised Phonological System of Proto Mixtecan

2.2. The phonological system of Proto Popolocan was reconstructed by Gudschinsky[34], by comparing Popoloc, Chocho, and Ixca-

tec, with her own reconstruction of Proto Mazatec. Her proposed inventory included stops *t, *tʸ, *k, *kʷ; affricates *c, *č; fricatives *s, *š, *h, *hʷ; nasals *m, *n, *ñ; semivowels *w, *y; and probably *l; oral vowels *i, *e, *a, *o, *u, and their nasalized counterparts; *ʔ in initial, final and interrupting distributions; tones *¹, *², *³, *⁴.

2.2.1. Because of wide distribution of *h, nearly as great as that of *ʔ, the element *h, like *ʔ, is here considered to be a laryngeal in PPn. In Gudschinsky's analysis *ʔ may precede the syllable onset, close the syllable, or interrupt the nucleus, whereas *h may only precede the syllable onset or follow it. However, Proto Popolocan sequences of the shape *CVhV, although considered dissyllabic by Gudschinsky, are here considered to be monosyllabic because of (a) the limitations on vowel sequences which occur and (b) the occurrence of nasalization before the *h. PPn *h is flanked only by vowels of identical quality or by the sequences au and ai, whereas other consonants may be flanked by any sequence of vowels. Similarly, nasalization, which is typically restricted to ultimate syllables in the daughter languages, may occur in the penult, especially in Ixcatec, Popoloc, and Chocho, when the consonant of the ultima is h or when h has been lost from the form. Therefore, a third distribution of *h is here recognized for PPn, viz., that of interrupting the syllable. Thus, the restated distribution of PPn laryngeals may be summarized as follows: PPn syllables may be interrupted by either laryngeal or closed by *ʔ. When the syllable is interrupted, no other laryngeal may occur. Whether or not the syllable is closed by *ʔ, a laryngeal may precede the consonantal onset or *h may follow the onset.

2.2.2. The vowel *o of Gudschinsky's inventory of vowels is poorly attested, and in every set of cognates the cluster au occurs in some form. Also in every cognate set witnessing to *o a laryngeal either interrupts the nucleus or precedes it. A similar sequence ai also occurs in interrupted syllables in the daughter languages.[35] Consequently, *ai is here added to the inventory of PMn syllabics and the parallel *au replaces Gudschinsky's *o. The inventory of PPn syllabics as here revised, then, is *i, *e, *a, *u and clusters (occurring only in interrupted syllables) *ai and *au.

The phonological system of PPn proposed here is displayed in Table 4.

2.3. The phonological system of Amuzgo, described by Bauernschmidt,[36] is a full one. It is displayed in Table 5.

consonants:	*t	*tʸ	*k	*kʷ
	*c	*č		
	*s	*š		
	*n	*ñ		*m
	*l	*y		*w
syllabics:	*i	*u	*ai	*au
	*e	*a		
laryngeals:	*ʔ	*h		
tones:	*¹	*²	*³	*⁴

Table 4

Revised Phonological System of Proto Popolocan

consonants:	p	t	c	tʸ	č	k	kʷ	kʸ
	b̥		s		š			
	mᵖ	nᵗ		nᵗʸ		ŋᵏ		
	m	n		nʸ				
	w	l		y				
		r						
		r̃						
	mb	ṅ						
vowels:	i			u				
	e			o	ę			ǫ
	ä		a	ɔ	ą̈		ą	ɔ̨
laryngeals:	ʔ	h						
tones:	¹	²	³	(single-syllable combinations ¹³, ²¹, ³²)				

Table 5

Phonological System of Amuzgo
(Bauernschmidt)

2.4. The phonological system of PCM was reconstructed by Fernández de Miranda and Weitlaner.[37] The reconstructed system leaves many questions unanswered, especially regarding the accentual system. However, the fact that they were able to deduce the major features of the system from the meager and in some cases inadequately transcribed data is a tribute to their craftsmanship. The inventory of elements proposed by Fernández de Miranda and

Weitlaner is displayed in Table 6.

consonants:	*p		*t		*k	*?		
	*m_b		*n_d		*n_g			
			*s			*h	*h^w	
	*m		*n	*ñ			*M	
	*w			*y				
			*r					
			*l					
vowels:	*ɪ	*ɨ	*u	(geminate clusters *ɪɪ, *ee, *aa, *uu;				
	*e		*a	diverse clusters *au, *aɪ)				
accentual:	accent of uncertain nature							

Table 6

Phonological System of Proto Chiapanec-Mangue
(Fernández de Miranda and Weitlaner)

The system of PCM proposed here modifies that of Fernández de Miranda and Weitlaner by (a) the addition of the stop *č and (b) the elimination of the vowel *ɨ.

2.4.1. In general, both in Proto Chiapanec and in Proto Chiapanec-Mangue the palatal phone *[č] occurs before front vowels and the velar phone *[k] before back vowels. However, in Proto Chiapanec sets 43, 44, 87, 158, and Res 19 *[č] occurs before back vowels and in sets 44, 91, and 264 *[k] occurs before front vowels.[38] Thus, *č and *k appear to have been in contrast in Proto Chiapanec times.

Quite correctly, Fernández de Miranda and Weitlaner indicate that *[k] and *[č] appear to be in complementary distribution in their PCM sets. However, since there does not appear to have been any structural change in this area between the Proto Chiapanec-Mangue and Proto Chiapanec horizons, it would seem likely that this lack of contrast results from the fact that no Mangue cognates have been found for the Chiapanec forms which demonstrate the contrast between *[k] and *[č]. Thus, it would seem quite reasonable to project the contrast, which was operative in Proto Chiapanec times, into Proto Chiapanec-Mangue, as well. This proposal is strengthened by the fact that there are different sources in Proto Otomanguean for *[k] and *[č]: *kV < **kV, *čV < **YkV, at least where V is a back vowel; before front vowels this same development may have taken place, or *č may be the regular development of POM **k.

2.4.2. Fernández de Miranda and Weitlaner based their reconstruction of *ï on the correspondence of Proto Chiapanec *u with Mangue i (or e). However, the majority of their examples occur after PCM *i, after which PCM *u never is reconstructed. It appears, therefore, that *[ï] is an allophone of *u, occurring after *i. Other examples of their reconstructed *ï occur in pre-posed syllables, where frequently one language shows variant forms one with i and another with u. If i and u were in alternation at one period, it would be expected that the alternants would be preserved somewhat randomly in the daughter languages. Consider PCM sets 179, 180, and 267, where variants with *i and *u are preserved in both Chiapanec and Mangue. Nevertheless, in PCM set 59 Fernández de Miranda and Weitlaner reconstructed *ï in the pre-posed syllable even though *i and *u alternate in that very syllable in Proto Chiapanec. Therefore, the reconstruction of *ï is here abandoned in favor of (a) *u after *i and (b) an alternation between *i and *u elsewhere.

2.5. The phonological system of Proto Otopamean was reconstructed by Bartholomew in her comprehensive study The Reconstruction of Proto Otopamean.[39] Her POP system is displayed in Table 7.

consonants:	*p	*t	*k
		*c	
		*s	
	*m	*n	
vowels:	*i	*o	(with a variety of vowel clusters)
	*e	*a	
laryngeals:	*ʔ	*h	(initially or finally in the syllable)
tones:	six tone contrasts		

Table 7

Phonological System of Proto Otopamean
(Bartholomew)

The stem-initial consonants of Proto Otopamean underwent a series of voicing, nasalization, spirantization, etc., mutations depending on preceding environment.[40] In addition to the stem--consisting of a consonant, a vowel or cluster of vowels, a tone pattern, and two, one, or no laryngeals--Bartholomew reconstructed stem formatives, which follow the stem. These forms, consisting of a consonant or consonant cluster, appear to have been distinct morphemes; but in most cases their semantic value is not clear.

2.6. Proto Zapotecan developed into Zapotec and Chatino branches, which have, for the most part, been studied independently.

2.6.1. The first comparative study of the Zapotecan languages was Swadesh's reconstruction of Proto Zapotec, based on four Zapotec dialects.[41] The system of Proto Zapotec posited by Swadesh is displayed in Table 8.

consonants:	*p	*t	*č	*k	(all but the last row may occur geminated; several diverse clusters were also reconstructed)
		*s	*š		
		*n			
		*l			
	*w	*r	*y		
laryngeal:	*?				
vowels:	*i		*u		
	*e	*a	*o		
tones:	high, low, rising, falling				

Table 8

Phonological System of Proto Zapotec
(Swadesh)

2.6.2. Proto Chatino was reconstructed by Upson and Longacre[42] based on evidence from three dialects of Chatino.[43] The set of elements they proposed for Proto Chatino is displayed in Table 9. However, the reconstructed element *h^w shown in Table 9 is in each case preceded by *u, whereas *h is in no case preceded by that vowel; and apart from *k^w no other labialized element was reconstructed. Accordingly, the element reconstructed by Upson and Longacre as *h^w is here regarded as a variant of *h following *u.

consonants:	*t	*t^y	*k	*k^y	*k^w	*?
	*c	*č				
	*s	*š	*h	*h^y	*h^w	
	*l	*l^y				
	*n	*n^y				
		*y			*w	

vowels:	*ɨ		*u	*į		*ų
	*e	*a	*o	*ę	*ą	*ǫ

vocalic length

Table 9

Phonological System of Proto Chatino
(Upson and Longacre)

2.6.3. The system of Proto Zapotecan assumed here is that proposed in Rensch 1966, reconstructed from Proto Chatino and Isthmus Zapotec. Further refinement of the reconstruction of Proto Zapotecan is to be expected as a better understanding of Proto Zapotec is achieved. A manuscript of the late María Teresa Fernández de Miranda comprehensively treating the structure of Proto Zapotec has been readied by Bartholomew for publication; when that study is available, it should contribute substantially to our understanding of the ancestor of the contemporary Zapotec languages.

The inventory of Proto Zapotecan used here is displayed in Table 10.

consonants:	*t	*tʸ	*k	*kʷ
	*d	*dʸ	*g	*gʷ
		*č		
		*ǰ		
	*s	*š		
	*z	*ž		
	*N			
	*n			
	*L			
	*l			
		*y		*w
vowels:	*i	*a	*u	
laryngeal:	*ʔ	(interrupting or closing the penult or ultima)		

Table 10
Phonological System of Proto Zapotecan

(All voiceless consonant symbols and *N and *L represent fortis consonants; all other consonant symbols except *y and *w represent lenis consonants.)

2.6.4. Swadesh proposed that the source of the fortis-lenis contrast common to the Zapotec dialects was geminated versus single obstruents in Proto Zapotec.[44] The geminate clusters were said to have developed on the analogy of diverse clusters; indeed, many were thought to have assimilated from diverse clusters, e.g., **kt > *tt. To support this hypothesis Swadesh cited the fact that a single type of obstruent occurs in Chatino. More recently Longacre has made a proposal similar to that of Swadesh, viz., that PZn fortis consonants developed from Proto Otomanguean clusters of nasal plus consonant.[45]

However, the Chatino evidence currently available suggests that a postposed, rather than preposed, element may have given rise to the contrast. In PCh monosyllables and forms of the shape *CV?V vocalic nasalization corresponds with lenis articulation of the obstruent in Zapotec; in other word types length of the penultimate vowel corresponds with fortis articulation of the obstruent in Zapotec. Consider the following sets:

PCh *kʷą	IZ gi'ba?	*sky*
PCh *kʷę·?ę	IZ bi	*air*
PCh ši	IZ nanaši	*sweet*
PCh *ta·?a	IZ sa?a	*fiesta*
PCh *ki·ce?	IZ gi?ičí	*thorn*
PCh *wica	IZ wiǰe	*day after tomorrow*

It is here proposed that the Proto Zapotecan lenis consonants were phonetically shorter than their fortis counterparts and were followed by phonetically nasalized vowels. It may be that by Proto Zapotec times the fortis consonants functioned as consonant clusters, although even that is not clear. However, it appears that the fortis-lenis contrast developed from **CV versus **CVn rather than from consonant clustering. The proposed development of lenis consonants assumes an intermediate stage in which the final **n was realized as vocalic nasalization and the current stage in which the initial consonant is weakened. Thus, it is the fortis rather than the lenis consonants which have undergone the more straightforward development.

Evidence of another sort makes it difficult to accept Longacre's suggestion: If one were to accept the development of the PZn fortis-lenis contrast from presence vs. absence in POM of a preposed nasal, one would be left without a source for PZn *č and *L since PZn *č < POM **nt and **ns and PZn *L < **ny. Consider the following developments of both the preposed and postposed nasal of POM:[46]

POM	PZn
**tV	*tV
**tVn	*dV
**ntV	*čV
**ntVn	*ǰV
**yV	*yV
**yVn	*yV
**nyV	*ĻV
**nyVn	*ɨV

2.7. The system of Proto Chinantecan assumed in this study is that originally reconstructed in Rensch 1963, and slightly modified in Rensch 1966.[47] The inventory of elements of Proto Chinantecan is displayed in Table 11:

consonants:	*p	*t		*k	*kʷ
	*b	*z		*g	*gʷ
		*s			
	*m	*n		*ŋ	
		*ɨ			
	*w	*r	*y		
syllabics:					
non-palatal	*i̱	*u			
	*ə	*a			
palatal	*ɨ	*ɨu			
	*e	*ɨa			
laryngeals:	*h	*ʔ			
tones:	high low (single-syllable combinations high-low, low-high, and high-low-high)				
other syllable features	vocalic length (*V·)				
	vocalic nasalization (*Ṿ)				
	controlled (*CV) and ballistic (*CV́) syllable types				

Table 11

Phonological System of Proto Chinantec

3. Several scholars have presented intermediate reconstructions based on evidence from two or three branches of Otomanguean.[48] However, these will not be discussed here. Rather, the structure of Proto Otomanguean will be described as reconstructed in Rensch 1966 on the basis of evidence from seven branches of Otomanguean: Mixtecan, Popolocan, Amuzgo, Chiapanec-Mangue, Otopamean, Zapotecan, and Chinantecan.

The basic structure of the stressed ultima of Proto Otomanguean,[49] as reconstructed, consisted of a consonant, a vowel, and a tone. This core could be preceded by the palatal element (**Y), the nasal (**n), a laryngeal (**H), or a combination of these. The core could be followed by the nasal, a laryngeal, or both. There apparently were no dependency restrictions in the occurrence of these preposed and postposed elements. The reconstructed elements of the system are displayed in Table 12.

consonants:	**t		**k	**kʷ
	**s			
	**n			
		**y		**w
vowels:	**ɨ		**u	
	**e		**a	
laryngeals:	**ʔ		**h	
tones:	**₁ (high), **₂, **₃, **₄			

Table 12

Phonological System of Proto Otomanguean

3.1. The POM consonants are reconstructed from sets of correspondences of identity in the several branches of Otomanguean with the following exceptions: POM **t is reflected as *h in the Chatino side of Proto Zapotecan; POM **k before **ɨ or **e is reflected as *č in Proto Chiapanec-Mangue; POM **kʷ is reflected as *p in Proto Chiapanec-Mangue, Proto Otopamean, and the Isthmus Zapotec side of Proto Zapotecan; POM **s is reflected as *θ in Proto Mixtecan and as *t in the Chatino side of Proto Zapotecan; POM **w is reflected as the first member of Proto Otopamean *oV clusters; POM **y is reflected as the first member of Amuzgo and POP *ɨV clusters.[50]

The following forms from POM 48 illustrate **t:

(48) PMn *θa-ta(h)[24] *tortilla*

PCM *tá? *cooked corn*

PCh *kyaha *tortilla*

IZ geta *tortilla*

The following forms from POM 116 and 115 illustrate **k:

(116) PPn *n-/s-kahi *head, face*

A šk̨ *head*

PCM *^{n}gu-/ku-či-ma *head*

PCh *?ike *head*

IZ ike *head*

PCn *kî *forehead*

(115) PMn *ka^{32} *crow*

PPn *ni-n-ke *buzzard*

PCM *na-ka-tuwî *buzzard*

POP *ka-? (IV) *crow*

The following forms from POM 202 and 177 illustrate **kʷ:

(202) A ma^{2}ci^{1}kʷá?^{2} *to hit*

POP *paih-? *to hit*

IZ rigapa *hit with the hand*

(177) PCM *nú-/nuu-/ni-pa/pa? *corn, roasting ear*

PCh *nsukʷa? *dry, shelled corn*

PCn *kʷɨ· (L) *corn*

The following forms from POM 250 and 277 illustrate **s:

(250) PCM *si-ki-lá? *paper*

POP *si *leaf*

PCh *ki·tʸi *paper*

(277) PMn *θi(h)^{32}/^{42} *tough*

PCM *^{m}ba-ya-si *strong, strength*

PCH *ti·hi *tough*

The following forms from POM 346 illustrate **n:

(346) PPn *t-hni? *blood*

PCM *ni-hú *blood*

PCh *tenę *blood*

IZ rini *blood*

The following forms from POM 320 illustrate **y:

(320) PMn *ya(m)?/?yam/θam?[34] *rope, cord, root*

PMaz *ntu[1]ya[1], *nta[1]ya[1] *yuca*

A nč?io?[1] *root*

PCM *yá? *sweet potato, yuca*

POP *?i-iHC/*?i-ioHC *root*

The following forms from POM 390 and 380 illustrate **w:

(390) PMn *?wa/wa?[2]/[3] *plum, peach*

PPn *s-tu-wa[3] *potato, short, round*

PCM *[m]bu-/na-/nu-wá *egg*

PCn *?wɨ·? (LH) *orange, peach, plum*

(380) PMn *nam-/[n]dam-/k[w]am-/xam-/kam-we(m)[34] *to come down*

POP *(n)hoa? *arrive*

PCn *wɨ· (L) *ascend*

3.2. The reflexes of POM clusters of consonant plus nasal or palatal or both[51] are displayed in Table 13.

	PMn	PPn	A	PCM	POP	PZn	PCn
**nt	*[n]d	*nt	nt	*[n]d	*=t	*č	*z
**nk	*[n]g	*nk	nk	*[n]g	*=k		*g
**nk[w]	*[n]g[w]		nk[w]	*[m]b	*=p		*g[w]
**ns	*[n]d	*c	c	*[n]d	*c	*č	*z
**nn		*m	n̥n	*m			*m
**ny	*l	*l		*i	*nl	*L	*l
**nw	*m	*m	m	*m	*m	*k[w]	*m
**Yt		*t[y]	t[y]			*t[y]	*tiV
**Yk		*č	k[y]	*čV			*kiV
**Yk[w]							*k[w]V
**Ys		*š	š			*š	*siV

	PMn	PPn	A	PCM	POP	PZn	PCn
**Yn		*ñ	n^{Y}	*ñ			*nɨV
**Yw							*wV
**Ynt		*nt^{Y}	nt^{Y}				*zɨV
**Ynk			nk^{Y}				*gɨV
**Ynk^{w}							*g^{w}V
**Yns		*č	č				*zɨV
**Ynw							*mV

Table 13

Proto Otomanguean Consonant Clusters

Special vowel reflexes occur after a labial consonant in Proto Chinantecan and after the development of **k in Proto Chiapanec-Mangue when the consonant in POM was preceded by the palatal. The symbol = indicates a weakening of the initial consonant in POP forms.

3.3. Longacre has proposed several sets of consonantal alternations for Proto Mixtecan.[52] Similarly, several sets of consonantal alternations are recognized for Proto Otomanguean: **t ~ **y ~ **n; **s ~ **y ~ **n; **k ~ **y ~ **n; **k^{w} ~ **k ~ **w (~**n).[53] The presence of these alternations is sometimes indicated by a set of forms in a single language which differ by the consonants in question. However, more frequently, forms in related languages appear to be cognate even though the consonants do not show an established correspondence but, rather, reflect one of the members of these four sets of consonants which are, therefore, assumed to have been in alternation.

The first of the alternation sets is illustrated by the following forms from POM 74:

(74) PMn *yam-/tam-hnam/tam/nam?/yam?[2] *tree, tree trunk, firewood, stick, wood* (reflecting **n, **t, **y)

PPn *na/nta/ya/la *tree, boards, stick, wood* (reflecting **n, **t, **y)

PCM *ya *tree, firewood* (reflecting **y)

POP *t?ą̈o-t *burning wood, firewood, pine* (reflecting **t)

PCh *yaka *tree*, IZ yaga *tree* (reflecting **y)

PCn *?mą̈ (L) *tree*, *?ya· *oak tree* (reflecting **n, **y).

3.4. The four Proto Otomanguean vowels are reconstructed from correspondences of identity with the following exceptions: POM **e is reflected as *i in PMn, PCM, and PZn, as *ä in Amuzgo, and as *ɨ in PCn; POM **u is reflected as *o in POP.

The following forms from POM 245 illustrate **i:

(245) PMn *θi-ʔmim^{32} *money, bright, egg yolk, copper-colored, yellow*

PPn *si^{2}-/sa-ne *yellow*

A ka^{3}nǰi^{21} *yellow*

PCM *na-^{n}di-ku-me *yellow*, *na-^{n}di-ii-me *white*

PCh *ka·ǰi *yellow*

IZ naguǰi *yellow*

The following forms from POM 268, 278, and 19 illustrate **e:

(268) A ka^{1}cä̈^{1} *moth, butterfly*

PCh *šɨ *butterfly*

PCn *sɨ̈ (L) *butterfly*

(278) PPn *ceʔe *stomach, intestines*

PCM *^{n}gu-si *stomach*

IZ laǰi'doʔ *heart, stomach*

PCn *zɨ̈ (LH) *heart*

(19) Trique ga^{3}ǰih^{2} *sneeze*

PPn *the^{3} *itch, cough*

POP *theʔ *a cold, cough*

The following forms from POM 67 illustrate **a:

(67) PMn *yam-/ya-Hta^{42} *river, valley, canyon, water, to dissolve,* etc.

PPN *ʔi-/na-nta^{3} *water, river*

A n^{t}a^{1} *water*, hn^{t}a^{1} *river*

PCM *na-^{n}da *stream, lake*

IZ guǰa *dampness*

PCn *ziá· (LH) *pool, lake*

The following forms from POM 327 illustrate **u:

(327) PMn *θu^{43} *breast, milk*

PPn *tʸu-cu^{3} *nipples*

A nᵗa^{1}cu^{1} *milk*

POP *coiHC-t?/-? (IV) *to nurse*

IZ rižupi *suck*

3.5. Each of the vowels was optionally followed by the nasal **n. There are typically two reflexes of **Vn in each language: an oral reflex differing in quality from the reflex of **V alone and a nasalized reflex. Apparently, the presence of a laryngeal in the environment was the factor which conditioned the nasalized reflexes.[54] Therefore, the source of the oral reflexes is labeled **Vn while the source of the nasalized reflexes is labeled **VHn.[55] The principal reflexes of the POM vowels in the several branches of Otomanguean are displayed in table 14.

	PMn	PPn	A	PCM	POP	PZn	PCn
**i	*i	*i	i	*i	*i	*i	*i
**in	*im	*e	e	*u	*o	*C̥i	*u
**iHn		*į	ę		*ǫ		*ų
**e	*i	*e	ä	*i	*e	*i	*ɨ
**en	*em	*a	a	*a	*a	*C̥i	*a
**eHn		*ę	ą		*ą		*ą
**a	*a	*a	a	*a	*a	*a	*a
**an	*am	*e	o	*u	*o	*C̥a	*u
**aHn		*ą	ǫ		*ą		*ą
**u	*u	*u	u	*u	*o	*u	*u
**un	*um		o			*C̥u	*a
**uHn		*ų	ǫ		*ǫ		*ų

Table 14

Reflexes of the POM vowels

The symbol *C̥ in PZn indicates a lenis consonant.

3.6. Either of the Otomanguean laryngeals, **? and **h, could precede the consonant of the syllable or follow the vowel or could occur in both positions with no apparent dependency restrictions. Following the vowel the laryngeal cluster **h? could occur.

The principal reflexes of the laryngeals in their various distributions are displayed in table 15.

	PMn	PPn	A	PCM	POP	PZn	PCn
**?CV	*?CV	*?CV	C?V		*C?V	*CV?CV	*?CV
**hCV	*hCV	*hCV	ChV		*ChV	*CV?VCV	*hCV
**CV?	*CV?	*CV?	CV?	*CV?	*CV?	*CV?	*CV?
**CVh	*CVh	*ChV	CV́	*CV́	*CVh	*CV?V	*CV́
**CVh?		*ChV?	CV́?	*CV́?			*CV́?

Table 15

Reflexes of the POM laryngeals

The following forms from POM 420 illustrate initial **?:

(420) PMn *kʷi-/xi-/ⁿda-/ya-/yam-/ta-ʔyam(H)[23] *to bark (of a dog), to yell*

A ka[1]cʔiǫʔ[1] *coyote*

POP *nʔio *coyote*

PCh *siːʔya *to shout*

PCn *ʔyaːʔ (LH) *jaguar*

The following forms from POM 361 illustrate initial **h:

(361) PPn *ǩa-/ǩu-hmi *person, man, male*

PCM *ᵐbu-/nu-hʷi/hʷe/we *husband, man, male*

PCn *hmį́ː (L) *father*

The following forms from POM 332 illustrate final **?:

(332) PPn *šuʔ[4] *stone, grindstone*

A chóʔ[2] *stone*

The following forms from POM 68 illustrate final **h:

(68) A ma[2]ci[1]hnǫ́[1] *to dance*

POP *nąih-mʔ (II) *dance*

IZ ru'yaʔa *he dances*

The following forms from POM 297 illustrate the final cluster **hʔ:

(297) A čáʔ[3] *like, similar*

PCn *iáʔ *thus*

Considerable alternation in Proto Otomanguean between presence and absence of a given laryngeal and between the two laryngeals can be deduced from the evidence. For example, the data from POM 420 cited above show, in addition to the initial **ʔ, evidence for a final **ʔ in A, PCn, and perhaps PMn, but no final laryngeal in POP and PCh.

3.7. Three tones have been reconstructed for POM: **$_1$ (high), **$_2$ (mid), and **$_3$ (low). The tone reconstruction is based, however, on evidence from only PMn, PPn, A, POP, and PCn since information about the tonal features of PCM and PZn is lacking. The principal reflexes of the POM tones are displayed in table 16.

	PMn	PPn	A	POP	PCn
**$_1$	*$_2$	*$_3$	1/3	*IV, *V	*H
**$_2$	*$_3$	*$_3$	1/3	*IV, *V	*H
**$_3$	*$_4$	*$_4$	2	*I-*III, *VI	*L

Table 16

Reflexes of the POM tones

The following forms from POM 67 and 38 illustrate **$_1$:

(67) PMn *yam-/yu-Hta$^{4\,2}$ *river, valley, canyon, dissolve*

PPn *ʔ-na-ntaʔ^{3} *water, river*

A n^{t}a^{1} *water*, hn^{t}a^{1} *river*

PCn *zíá· (LH) *pool, lake*

(38) PMn *ne(mh)/^{n}de(m)(H)$^{4\,2}$ *all of, complete, in every place, all finished*

A ka^{2}n^{t}á^{3}, ka^{3}n^{t}a$^{?\,3}$ *complete*

POP *te-k/*toi (V) *to finish something*

The following forms from POM 317 and 73 illustrate **$_2$:

(317) PMn *hθam^{3} *deer, horse*

PPn *ku-ceʔ^{3} *rabbit*

A ka^{1}só^{3} *horse*

PCn *siʉ́· (HLH) *a kind of deer*

(73) PMn *tam(h)$^{4\,3}$ *a span*

PPn *t^{y}ha^{3} *hand, arm*

POP *ʔai, *nʔi-ai (V) *hand*

The following forms from POM 296 and 417 illustrate **[3]:

(296) PMn *ka-hθa^{34} *son-in-law*
PPN *ǩa^{4}-cu^{4}-hmi *person, man, male*
A c?ą́^{2} *person*
PCn *za(·) (L) *person*

(417) PMn *yam?^{24} *night, dream*
PPn *kʷą^{3}?ña^{4} *dusk*
POP *?ɬah-n?/Ø(III) *to sleep*
PCn *?ɬá· (L) *afternoon*

4. Lehmann[56] was the first to point out the close relationship between Subtiaba, of Nicaragua, and Tlapanec, of Mexico. This point of view was accepted by Sapir, who stated that "Subtiaba and Tlappanec are really only dialects of a single language."[57] Sapir followed Lehmann also in his claim of a more distant relationship between Subtiaba and the Hokan languages:

> "This Mexican and Central American language is of very special interest to students of the languages and cultures of the United States because of the great likelihood that Dr. Lehmann is correct in his surmise that it is related to certain languages of California. He seems to believe in a special relationship with Washo, of eastern California and western Nevada, but I believe that this specific formulation of the theory is not quite acceptable... An examination of Dr. Lehmann's material has convinced me that he is essentially correct, but that Subtiaba and Tlappanec are to be regarded as a southern outlier of the Hokan-Coahuiltecan stock as a whole, not of a sub-division of this group to which Washo belongs in particular."[58]

Sapir believed that Subtiaba-Tlapanec had been influenced by contact with the Otomanguean languages but that any shared features were the result of diffusion rather than a common heritage.

> "The phonetic character of Subtiaba seems not dissimilar in some respects to that of Mixtec-Zapotec-Otomi (cf. such syllables as mba and nʸaų) and it would not be at all surprising if this Hokan language, the neighbor of languages of the Mixtec-Zapotec-Otomi group both in Mexico and in Nicaragua (Mixtec, Trique, Mazatec, Mangue-Chorotega) had been somewhat influenced by them in its sound system."[59]

Also in the matter of order of elements in compound nouns he found Subtiaba-Tlapanec atypical of Hokan languages but like some of their Mexican and Central American neighbors.[60]

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, the parent of Mixtecan, Popolocan, Amuzgo, Chiapanec-Mangue, Otopamean, Zapotecan, and Chinantecan. The inclusion of Tlapanec in the sets of correspondences does not require the reconstruction of additional elements for Proto Otomanguean; but, of course, the reconstructions of individual etyma are altered by inclusion of the Tlapanec data.

To claim that Tlapanec--and, therefore, 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. The task of selecting one or the other of these views--or yet another one--is an engaging object of research but is outside the scope of the present study. Indeed, 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.

4.1. The following are the reflexes in Tlapanec of the Proto Otomanguean consonants: **t>t; **k>k; **kʷ>p; **s>s; **n>n (and under obscure conditions ñ); **y>ɨ(V); **w>w.

The following data from POM 47, 67, 82, and 91 illustrate the development of POM **t in Tlapanec:[61]

(47) PPn *tʸha-wa(ʔ) *skin*

A thạ́ʔ[2] *skin*, thą́[2] *leather*

Tl šta *skin, leather, belt*

(67) PMn *yam-/ya-Hta[42] *river, valley, canyon, water*

PPn *ʔɨ-/na-ntaʔ *water, river, spring*

PCM *na-ⁿda *stream, lake*

POP *=teh *water*

IZ guǰa *dampness*

PCn *zɨá· (LH) *pool, lake*

Tl māta *canyon*

(82) PMn *ⁿdu?/yu^{24} *handleless palm-leaf basket*
Popoloc šĭ^{4}tu^{4} *palm leaf basket*
A cɔ (sg.), ntɔ (pl.) *handleless basket*
POP *th(o)i *basket*
IZ ruba *handleless basket*
Tl eštu? *basket*

(91) POP *tǫ?-mh/Ø (II) *to plant (corn)*
Tl šaštu *cornfield*

The following data from POM 103, 107, and 108 illustrate the development of POM **k in Tlapanec:

(103) PPn *ki-ča *hard, hard stone, metal*
A ki^{1} *hard*
IZ gie *stone*
PCn *ŋʃ (LH) *metal*, *ku· (H) *money*
Tl akī *strong, hard, heavy, difficult*

(107) PCh *ki·?ya *sin*
Tl ra?ki *evil*, a?kan *sin*

(108) PPn *n-ka-/ča-hų *tomorrow, sun*
PCh *la·kʸe *tomorrow*
IZ gi'ži? *tomorrow*
Tl aka? *sun, day*

The following data from POM 189 and 197 illustrate the development of POM **kʷ in Tlapanec:

(189) POP *=pi *fat*
IZ naro?ba? *big*
Tl āpa *big*

(197) POP *pa (I) *hot*
Tl mbiru?-pu *dry season*

The following data from POM 246, 261, 279, and 336 illustrate the development of POM **s in Tlapanec:

(246) PPn *šu?-ci? *grindstone*
PCh *ki·či *grinding stone*

IZ gɪʔɪče *grinding stone*

Tl ī̲sɪ *stone, rock*

(261) PMn *ka-/xa-/θa-/kʷa-θɪ(m)/yɪ[2] *to nurse, a drop, breast*

PPn *chɨ *milk*

POP *cɪoHC-tʔ/*coɪHC-nʔ (VI) *to suck*

PCh *tɪʔ *to nurse*, *šɪtʸɪʔ *milk*

IZ raǰɪ *to nurse*, nɪʔɪǰɪ *breast milk*

Tl mbī̲sɪ *a drop*

(279) PMn *ye(m)(h)/θem[23] *hail*

PPn *n-ča?ą *frost, cold*

A cą[1] *hail*

PCn *zf (LH) *hail, ice*

Tl eʔsɪ *hail*

(336) *θam/θu-/yam/yu-θu[23]/[32]/[34] *fur, feathers, hair*

PPn *čhų? *cotton, thread*

IZ hɪužu *fringe*

Tl sūn *hair*

The following data from POM 351 illustrate the development of POM **n in Tlapanec:

(351) PPn *na-/nɪ-ʔñu/ñu[4] *teeth*

A nʔǫ́[2] *teeth*

Tl ī̲ñuʔ *teeth*

The following data from POM 402 illustrate the development of POM **y in Tlapanec:

(402) A ɪhó[3] *here*

PCM *ya *today, now*

PO *nuya *now*

Tl (gī̲)hɪoʔ *here*

The following data from POM 373, 379, 380, and 391 illustrate the development of **w in Tlapanec:

(373) POP *ʔoe-ne/*ʔoaɪ-ne/*kʔoe-ne *infant*

IZ nawɪʔɪnɪʔ *small*

Tl tahwin *infant*

(379) PMn *nam-/ⁿdam-/kʷam-/xam-/kam-we(n)[34] *to come down, arrive from above*
A kúe[1] *descend*
POP 461 *(n)hoa? *arrive*
IZ ri'bi? *he goes home*
Tl kawā *below*

(380) PMn *ya-/θa-?we(m)(H)[23]/[32] *market place, pay, wages*
PPn *we?, *te? *buy*
Tl šwa *market place*

(391) PMn *wa *heart, stomach*
PPn *?wa[4] *stomach*
PCM *na-ᵐbu-wé? *heart, stomach*
North Pame na?oa *heart*
Tl awan *stomach*

4.2. The clusters of nasal plus consonant found in Proto Otomanguean are likewise reflected in Tlapanec with the exception of the cluster **nn.

The Tlapanec reflex of POM **nt varies from d to nd, as illustrated by the following data from POM 27, 33, 39, and 97:

(27) PMn *kʷa(m)-/xi-/ka-/ⁿda-ⁿde(m)[32] *to ripen*
PMaz *č(h)i[3]?nte[1] *unmatured*
POP *(n)=tą-? (V) *cooked, ripe*
Tl mirudī? *tender*

(33) PMn *tu-/ⁿdu-ⁿde(m)[32] *avocado*
A (tā́[3])ntā́?[3] *avocado*
Tl šndudī *avocado*

(39) PPn *ku-ntʸa(?)[4] *fox, wolf, badger, dog*
IZ be?eǰe? *mountain lion*
PCn *zi· (L) *dog*
Tl (e)ndī *jaguar*

(97) PMaz *ʔntu^{3} *rots*

PCh *cuʔ *to rot*

IZ riuʔǰuʔ *it rots*

Tl nāniguhndōʔ *to dry out*

The Tlapanec reflex of POM **nk is g, as illustrated by the following data from 120 and 129:

(120) A cʔǫ^{1} tä^{3} šʔa^{13} *coconut palm tree*

PCn *kia· (H) *palm-like leaves for thatching or weaving*

Tl āgu *woven mat*

No other branch of Otomanguean confirms the Tlapanec witness to a pre-posed **n in this set.

(129) PMn *^{n}dam-/θam-(ʔ)^{n}ga(m) *with, and then*

Tl gā *and*

The Tlapanec reflex of POM **nk^{w} varies from b to mb, as illustrated by the following data from POM 179, 176, and 212:

(179) PCM *na-naa-/ku-^{m}báʔ/lá *frog, toad*

Tl rigaba *toad*, gūbō *frog*

(176) PMn *kam-/^{n}dam-/xam-/tam-^{n}g^{w}em^{2} *day, the heavens, sun, name*

Tl mbiʔi *day, time, name, sunlight*

(212) PCn *g^{w}a·ʔ (H) *earth*

Tl kubaʔ *earth, mud*, mbāʔ *earth, land*

The Tlapanec reflex of POM **ns varies from d to nd, thus merging with the reflex of **nt. The following data from POM 245, 269, 308, 244, and 257 illustrate the Tlapanec development of **ns:

(245) A ka^{3}nčiʔ^{21} *white*

PCM *na-^{n}di-ku-me *yellow*, *na-^{n}di-ii-me *white*

PCh *ka·či *yellow*

IZ naguči *yellow*

Tl miʔšīdiʔ *white*

(269) PPn *cha^{3} *bitter*

PCn *zɬʔ/ziʔ *bitter*

Tl midi? *bitter, sour*

(308) PPn *čhą *child*
A yu^{3}ka^{1}čho^{1} *child*
Tl ādа *child*

(244) A cí^{2} *round*
Tl hndl *circle, wheel*

(257) Trique da^{3}ne^{3} *elbow* (< **ⁿde)
PPn *tʸu-n-ʔčį/yi *knee, elbow*
A cí? ka^{1}šhą?^{1} *elbow*, cí?^{3} štʸé^{2} *knee*
Tl inundi? *knee and thigh*

The Tlapanec reflex of POM **ny is r, as illustrated by the following data from POM 396, 400, and 417.

(396) PPn *ka-ɬhi/ntʸihi^{4} *pasture, grass*
PCM *ni-/nu-ɬú/ɬu *flower*
PCn *ɬí (H) *flower*
Tl ri?i *flower*

(400) IZ ɬe? *fence*
Tl kwara?a *walled, fenced*

(417) PCh *tela *night*, *kʷe·la *star*
IZ ge?ela? *night*
Pcn *?lá· (L) *afternoon*
Tl miru?un *night* (a rather than u is expected).

The Tlapanec reflex of POM **nw is m, as illustrated by the following data from POM 366, 388, and 395:

(366) POP *mhę *tortilla*
Tl gūma *tortilla*

(388) PCh *kakʷa *to weave*
IZ rida?apa *to weave*
PCn *?mą́ (LH) *net*
Tl ama? *net of maguey fiber*, guma *thread, fiber*

(395) PPn *ña-ma *sweet potato, root*

IZ lu'ba? *vine*

PCn *hmą́· *root*

Tl ahmą̄ *vine, root*

The clusters of palatal element plus consonant and the fuller clusters which include the nasal also are poorly attested in Tlapanec. Apparently, only the POM clusters which included an apical obstruent had special development. The Tlapanec reflex of *Yt is č and that of **Ynt is ǰ, as illustrated by the following data from 88, 50, and 52:

(88) reflecting **t: PCn *ta· (L) *cave, hole*

reflecting **Yt: PCh *ketu *hole*

IZ gl?lru? *hole*

Tl čū *hole*

(50) reflecting **t: POP *m?al-(h)-to *grandchild*

reflecting **nt: PPn *?nta^{3} *spouse of child, spouse of sibling*

reflecting **Ynt: A hn^{t}a^{2}ka^{3}nt^{y}hó^{2} *grandchild*

PCn *zia· (HLH) *grandchild, nephew, niece*

Tl ǰa?gu *girl*, ǰama *youth*

(52) reflecting **t: POP *pa-ta/*wa? *buzzard*

PCn *tu·? (L) *buzzard*

reflecting *Ynt: PPn *ku-nt^{y}a?a/nt^{y}aha *crow, buzzard*

Tl ǰa?an *buzzard*

The Tlapanec reflex of **Ys is š, as illustrated by the following data from POM 285 and 272:

(285) reflecting **s: PMn *^{n}dl-θe(m)^{34} *roasting ear*

POP *-sa (V) *ear of corn*

IZ ze?e *roasting ear*

reflecting **ns: A cą?^{2} *corncob*

reflecting **Yns: PMaz *nče^{41} *cooked corn*

reflecting **Ys: Tl eši *corn*

(272) reflecting **s: PCn *są· (H) *hay*

reflecting **ns: POP *=ca-pah-n?/*c?a-pah-n? *fodder*

reflecting **Ys: IZ gižį *hay*
Tl išį *tree, plant*

As indicated above, the POM clusters of nasal plus obstruent have developed in Tlapanec as voiced stops. A similar development took place in Chinantecan before **V and **Vn--i.e., the environments in which oral vowels developed in Chinantecan; however, before **VHn--i.e., the environment in which nasalized vowels developed in Chinantecan--the POM clusters of nasal plus obstruent developed as nasal consonants. That development does not seem to have taken place in Tlapanec, however, inasmuch as examples of voiced stops before nasalized vowels are not difficult to find. Nevertheless, under some conditions which are not now clear the POM clusters of nasal plus obstruent have developed as nasal consonants in Tlapanec also. When the initial consonant reconstructed for the POM etymon is **t or **s, a Tlapanec n could be interpreted as reflecting the **n alternant of **t. Similarly, when the initial consonant reconstructed is **kʷ, a Tlapanec m could be interpreted as reflecting **nw, showing the **w alternant of **kʷ.[62] However, there is no such explanation available for the origin of the Tlapanec ŋ, which is here considered to be derived from **nk under obscure conditions. Consider the following examples:

(131) reflecting **k: PMn *ta-/θa-/ka-ʔka^{3}/^{23} *nest*
reflecting **Yk: A ka^{2}ntkʸá^{2} *nest*
reflecting **nk: Popoloc ci?^{3}nkə?^{4} *nest*, PCM *naa-ŋgu *house, hut, nest*
Tl šaŋaʔ *nest*

(203) reflecting **k: A ka^{1}só^{3} *horse*
reflecting **Yk: PCM *muu-ču-kə́? *deer, rabbit*
reflecting **nk: Tl aŋaʔ *deer*

(233) reflecting **k: PPn *ši-ka^{4} *leaf*
A ckó^{2} *leaf*
PCh *laka? *leaf*
IZ bandaga *leaf*
reflecting **nk: Tl miŋa *edible herb*

4.3. Several sets of consonantal alternations have been described for Proto Otomanguean. These involve principally the obstruents, the semivowels, and the nasal (cf. 3.3.).

In the following sets the Tlapanec form reflects a variant with initial **n or **y while other branches of Otomanguean reflect variants with initial **t:

(38) reflecting **t: POP *te-k/*toi (V) *to finish something*
IZ gi'ra? *all*
reflecting **n: A ka^{3}n^{t}ä^{3}, ka^{3}n^{t}ä?^{3} *complete*
Tl gahnī *full, complete*

(74) reflecting **t: POP *t?ao-t *firewood, pine*
reflecting **y: PCM *ya *tree, firewood*
PCh *yaka *tree*
IZ yaga *tree*
PCn *?ya· *oak*
Tl štuhia *oak*

The following sets reflect alternations which involve POM **s. The Tlapanec forms reflect a variant with initial **n or **y while other branches of Otomanguean reflect a variant with initial **s

(263) reflecting **s: IZ naya?ase? *black*
reflecting **y: PPn *ti-ye *black*
PCn *iia·? (L) *black*
reflecting **n: Tl miskūni? *black*

(325) reflecting **s: PCM *^{n}du-/ma-ku *fingernail*
IZ bišuga *fingernail*
reflecting **n: Tl šŋañu *fingernail, claw*
reflecting **s~**y~**n: PMn *yu(m)/hnumh/?θumh *fingernail*

(250) reflecting **s: PPn *ši-ka *leaf*
PCM *si-ki-iá? *paper*
POP *si *leaf*
PCh *ki·t^{y}i *paper*
IZ gi?či? *paper*
reflecting **y: PCn *hyi (L) *paper*
Tl yī? *paper, book*

(301) reflecting **s: IZ čisa *squirrel*
reflecting **n: POP *mi-nạ *squirrel*
reflecting **y: PMn *yam^{2}/^{24} *squirrel*
Tl yā *squirrel*

The following sets reflect the Proto Otomanguean alternation set **kʷ~**k~**ʷ~**n:

(221) reflecting **kʷ: POP *pa-s *to sweep*
PCh *lukʷa *to sweep*
IZ rundu?uba? *he sweeps*
PCn *kʷʂ· (LH) *resin, wax*
reflecting **k: PMn *ya-/xa-/^{n}da-hka^{24} *pine wood, pine tree, ladder, sweep, candle*
PPn *ya-ni-/nči-ča *pine tree, broom*
A tä́?^{2}ská^{2} *resin,* ka *to sweep*
Tl šti?ka *pine tree*

(142) reflecting **kʷ: IZ beñe *mud*
PCM *na-^{m}bụ-lá? *clay, mud, earth, dirt*
reflecting **ʷ: POP *=poe-hao-m *mud*
Tl wi?i *sand*

(192) reflecting **kʷ: PCn *gʷá· (LH) *box*
reflecting **ʷ: POP *hoa-ta *box*
reflecting **n: Tl ehna *box*

4.4. The development of the POM vowels in Tlapanec is straightforward with the single merger of **i and **e in all environments: **i, **e > i; **a > a; **u > u. The following data from POM 3, 103, and 246 illustrate the Tlapanec development of POM **i:

(3) Trique ga^{4}či^{3} *round*
PPn *tʸhi *round*
Tl hndi *circle, wheel*

(103) PPn *ki-ča *hard, metal*
A ki^{1} *hard*

IZ gie *stone*

PCn *ŋʃ (H) *metal*

Tl akī *strong, hard*

(246) PPn *šu?-ci? *grindstone*

PCh *kɨ·čɨ *grinding stone*

Tl īsi *stone, rock,* sīnu *grindstone*

The following data from POM 20, 107, and 269 illustrate the Tlapanec development of POM **e:

(20) A (cɨ?[3]) štʸé[2] *knee*

Otomɨ *šɨnthe *leg*

PCn *tɨ· *foot, lower leg*

Tl inundɨ? *knee and thigh*

(107) PPn *š-he? *sin*

PCh *kɨ·?ya *sin*

Tl ra?kɨ *evil*

(269) PCM *ya-sɨ *bitter*

PCh *tɨɨʸa *bitter*

PCn *zɨ?/zɨ? *bitter*

Tl mīdɨ? *bitter, sour*

The following data from POM 47, 129, and 388 illustrate the Tlapanec development of POM **a:

(47) PPn *tʸha-wa(?) *skin*

A thą?[2] *skin,* thą́[2] *leather*

Tl šta *skin, leather, belt*

(129) PMn *ⁿdam-/θam-(?)ⁿga(m) *with, and then*

PPn *kahu *with, and*

Otomɨ-Pame *kha *also*

Tl gā *and*

(388) PMn *?kʷah/?wah/?kah/?ⁿdah/wa?/ka? *to spin,* *yu-/θu-(?)wa(H) *thread*

PPn *wa?a/waha *weave*

A ma^{2}wá^{2} *to weave*

PCh *kakʷa *to weave*

IZ ridaʔapa *to weave*

PCn *ʔmą̂ (LH) *net*

Tl amaʔ *net of maguey fiber*, gūma *thread, fiber*

The following data from POM 81, 82, and 351 illustrate the Tlapanec development of POM **u:

(81) PCM *ⁿgi-tuʔ *breast*

PCn *tiu·ʔ *breast, milk*

Tl aʔdu *milk, breast*

(82) PMn *ⁿduʔ/yu^{24} *handleless palm-leaf basket*

Popoloc ši^{4}tu^{4} *palm-leaf basket*

POP *th(o)i *basket*

IZ ruba *handleless basket*, ǰummi *basket*

Tl eštuʔ *basket*

(351) PPn *na-/ni-ʔñu/ñu^{4} *teeth*

A nʔǫ́^{2} *teeth*

Tl īñuʔ *teeth*

4.5. The backing and rounding effect of the POM post-posed nasal is clearly reflected in the Tlapanec reflexes of **Vn. POM **in and **en merged as a while POM **an became u. No clearly distinct reflex of **un has been identified; probably **un became u, thus merging with the development of **u, but it is possible that it was lowered to o, as in Amuzgo. The following data from POM 11, 242, and 260 illustrate the development of POM **in in Tlapanec:

(11) reflecting **ɨ: PPn *(n)tʸihɨʔ *pot, pitcher*

PCM *naa-tʃ *pot*

reflecting **in: PCh *tę·ʔę *clay jar*

IZ riʔi *water jug*

PCn *tu·ʔ *clay pot*

Tl rigīda *water jug*

(242) reflecting **ɨ: POP *m?oHC-c?ɨ-? *large basket*

reflecting **ɨn: PPn *sɻ *handleless palm-leaf basket*

Tl e?ša *palm-leaf basket*

(260) reflecting **ɨ: A čɨ^{3} *sweet*

PCh *šɨ *sweet*

IZ nanašɨ *sweet*

reflecting **ɨn: PMn *wam-/ⁿdam-/kam/kʷam-hθɨ(m)/ θɨ?^{24}/^{42} *sweet, honey, sugar*

PPn *še *sweet*

Tl sā? *honey, nectar*

The following data from POM 36, 109, and 167 illustrate the development of POM **en in Tlapanec:

(36) reflecting **e: PCn *zɨ (H) *head*

reflecting **en: PPn *ca-/š-thę^{2} *forehead*

POP *=tąɨ *forehead*

Tl kīda *forehead*

(109) reflecting **en: PMn *ⁿdV-/yV-kem^{34} *seeds*

A ɨkʸę^{1} *rice, seed*

Tl siga? *seed*

(167) reflecting **e: PMn *yu-/tu-/xa-/θa-(h)kem/kʷe^{2}/^{43} *mountain, hill*

reflecting **en: PCh *sɨɨakʷɨ *slope*

Tl kuba *mountain*

The following data from POM 51, 299, and 322 illustrate the development of POM **an in Tlapanec:

(51) reflecting **a: PMn *ya-/xa-/ta-hta^{24} *back, roof*

Ixcatec ndʸa^{3}sɨ^{3} *neck*

A ka^{2}ntʸá?^{2} *shoulders and neck*

POP *sɨHC-tha/*sɨoHC-tha *back*

reflecting **an: PCh *?ɨcǫ? *back*

Tl sūdu *back*

(299) reflecting **an: PCh *tą *lard*

IZ za *lard*

Tl ɨasu *lard, grease, oil*

(322) reflecting **an: PMn *yam(h)/θamh^{34} *thorn*

PCn *siɥ·? *sharp*

Tl mɬ̄su? *sharp*

The following data from POM 88, 96, and 97 illustrate the possible development of POM **un in Tlapanec:

(88) reflecting **un: PCh *ketu *hole*

IZ gi?iru? *hole*

PCn *ta· (L) *cave, hole*

perhaps reflecting **un: Tl čū *hole*

(96) reflecting **u: PPn *?nt^{y}e-?tu^{4} *mud*

PCM *nii-tú? *ashes*

PCh *ku·cu? *mud*

reflecting **un: PMn *yam-/^{n}dam-/θam-tum$^{34,32/42}$ *sand, powder*

A co?^{2} *mud*

Chinantec of Quiotepec toh?^{42} *river sand* (<*ta·?)

perhaps reflecting **un: Tl yō *powder*

(97) reflecting **u: Trique gu^{3}x̌u^{32} *to rot (wood)*

PMaz *?ntu^{3} *rots*

A kʷi^{2}tó?^{1} *to rot*

PCh * cu? *to rot*

reflecting **un: A kʷi^{2}tó?^{2} *to dry out*

IZ riu?ɟu? *it rots*

perhaps reflecting **un: Tl nānīguhndō? *to dry out*

The Tlapanec developments of the nasalized reflexes of the POM vowel plus nasal sequences, labeled **VHn, are as follows: **ɪHn, **ɵHn, and **aHn merged as ą, and **uHn became ɥ.[63] The following data from POM 11 and 141 illustrate the development of POM **ɪHn:

(11) reflecting **i: PPn *(n)t^{y}ihi? *pot, pitcher*

PCM *naa-tʃ *pot*

reflecting **ɪn: PCh *tę·ʔę *clay jar*
IZ rɪʔɪ *water jug*
PCn *tu·ʔ *clay pot*
Tl rigīda *water jug*
reflecting **ɪHn: Tl dān *pot*

(141) reflecting **ɪ: PCn *gʷɪʔ (L) *cold*
reflecting **ɪn: POP *coe (III) *cold*
reflecting **ɪHn: PPn *kɨ *cold*
Tl migūan *cold*

The following data from POM 107 and 167 illustrate the development of POM **eHn:

(107) reflecting **e: PPn *š-heʔ *sin*
PCh *kɪ·ʔya *sin*
Tl raʔkɪ *sin, evil, guilt*
reflecting **eHn: Tl aʔkan *sin, lack*

(167) reflecting **en: PMn *yu-/tu-/xa-/θa-(h)kem/kʷe[2]/[43] *mountain, hill, slope, ascent*
PCM *na-kuwaa *mountain*
PCh *sɪlakʷɪ *slope*
Tl kuba *mountain*
reflecting **eHn: POP *hąɪ-cʔ *high, sky, mountain*
PCn *kʷą·ʔ (LH) *hill*
Tl aʔhwan *slope, ascent, path*

The following data from POM 52 and 232 illustrate the development of POM **aHn:

(52) reflecting **a: PPn *ku-ntʸaʔa/ntʸaha *crow, buzzard*
POP *pa-ta/*waʔ *buzzard*
reflecting **an: PCn *tu·ʔ (L) *buzzard*
reflecting **aHn: Tl ǰaʔan *buzzard*

(232) reflecting **a: PCn *ká (H) *weevil*
reflecting **an: PMn *yu-/ya-/tu/ta-kam[3] *ant, louse, fly*

PCM *naa-hú? *ant*

reflecting **aHn: PPn *ku-ʔyu-/tʸu-/ču-khą *ant*

A ká[1]šhąʔ[1] *ant*

Tl akuān *ant*

The following data from POM 94 and 336 illustrate the development of POM **uHn:

(94) reflecting **u: PCM *na-ⁿdu-me *black, blue, crow, dark*

PCn *t(i)u· (H) *blind*

reflecting **un: IZ naču?undu? *dark*

reflecting **uHn: PMn *tu(m)(h)/hnumh[42] *black*

A ntǫ́[2] *black*

Tl miru?un *night, darkness*

(336) reflecting **u: PMn *θam/θu-/yam/yu-θu[23]/[32]/[34] *fur, feathers, hair, blanket*

reflecting **un: IZ hlužu *fringe*

reflecting **uHn: PPn *čhų? *cotton, thread*

Tl sūn *hair*

4.6. The laryngeals of Proto Otomanguean are generally preserved in Tlapanec.

POM initial **? is sometimes retained and sometimes not. Apparently the initial **? has been eroded away when word-initial but preserved when protected by a preceding vowel. The following data illustrate the development of POM initial **?:

(10) PPn *š-yeʔe[4] *intestines, manure*

A ntʔi[1] *manure*

Tl teʔdī *dysentery*

(45) Mixtec of San Miguel viʔⁿǰa *nopal cactus*

Proto Otomí *šąntʔą *nopal cactus*

Tl riŋgaʔyu *nopal cactus*

(96) PMn *ⁿda-/ta-ʔyu[24] *mud, mud-hole*

PPn *ʔntʸe-ʔtu[4] *mud*

Tl yō *powder*

(170) PPn *ša-ʔwe^{4} *wasp*
POP *ʔǫe/*ʔoe/*ʔ|ˌ *worm, fly*
Tl aʔma *bee*

(212) PMn *yam-/θam-ʔma(m)ʔ^{2} *land, soil*
PCn *ʔwə *land*
Tl mbāʔ *earth, land*

(368) PMn *ka-/xa-/kʷa-/^{n}da-/na-ʔmi(m)^{2} *to burn, to be warm, to smart*
PPn *cu-/šu-ʔwi *fire, light, sun*
A wʔi^{2} *angry*
Chinantec of Lalana ʔwi^{23} zɨh^{2} *to be angry*
Tl mbiʔi *day, time, name, sunlight*

POM initial **h is clearly retained before voiced consonants. It appears that š is the reflex of pre-posed **h before voiceless consonants. However, both h and š occur before nasals, so it is possible that š has a separate source in Proto Otomanguean. The following data illustrate the development of POM initial **h:

(167) PMn *yu-/tu-/xa-/θa-(h)kem/kʷe^{2}/^{43} *mountain, hill, slope*
POP *hąi-cʔ *high, sky, mountain*
Tl aʔhwan *slope, ascent, path*

(176) PPn *ʔnka-tʸ-hmi^{3} *sky*
PCn *hwɨ· *sky, heaven*
Tl rihmā *sky, above*

(232) A ká^{1}šhąʔ^{1} *ant*
PCM *naa-húʔ *ant*
PCn *ha·ʔ (H) *fly, maggot, worm*
Tl ahŋū *fly*

(47) A thąʔ^{2} *skin*, thą́^{2} *leather*
Tl šta *skin, leather, belt*

(82) POP th(o)i *basket*
Tl ešṭuʔ *large basket, chest, thorax*

The final **ʔ of Proto Otomanguean is unchanged in Tlapanec, as illustrated by the following data:

(90) A (sa²)tǫ́ʔ² *road-runner*
IZ touʔ *turkey*
Tl runduʔ *turkey*

(136) A nčí³ hóʔ² *no, not*
IZ koʔ *no*
Tl raʔkāʔ *no*

(212) PMn *yam-/θam-ʔma(m)ʔ² *land, soil*
PCn *gʷa·ʔ (H) *earth*
Tl mbāʔ *earth, land*

The final **h of Proto Otomanguean has developed as CVʔV in Tlapanec as in the Zapotecan languages.[64]

(52) PPn *ku-ntʸaʔa/ntʸaha *crow, buzzard*
Tl ǰaʔan *buzzard*

(94) PMn *tu(m)(h)/hnumh⁴² *black, soot*
A ntǫ́² *black*
Tl miruʔun *night*

(396) PPn *ka-lihi/ntʸihi⁴ *pasture, grass*
PCM *ni-/nu-lú/lu *flower*
PCn *lí (H) *flower*
Tl riʔi *flower*

4.7. A study of the isoglosses criss-crossing the Otomanguean map has been presented elsewhere.[65] However, a tentative statement regarding the position of Tlapanec within the Otomanguean grouping seems appropriate at this point.

Some of the sound changes which Tlapanec shares with other branches of Otomanguean are the following:

(1) Tlapanec shares with Mixtecan, Chiapanec-Mangue, Zapotecan, and Chinantecan the feature of having merged **nt and **ns. It is more like PMn and PCM than PZn and PCn in that the result is a prenasalized stop rather than an affricate.

(2) POM **i and **e have merged completely in Tlapanec. This is true also in PCM and PZn when the vowels are not followed by **n

and is nearly so in PMn . In PZn **i and **e have merged in nearly all environments, putting Tl a little closer to PZn in this respect than to PMn.

(3) The final **h of Proto Otomanguean has developed as an interrupting glottal stop in both Tlapanec and Proto Zapotecan.

(4) The POM cluster **ny has developed as a liquid, usually *l, in Tl, PMn, PPn, PCM, PZn, and PCn. However, in Tlapanec the cluster has developed as r, the same development as in PCM.[66] In this respect Tl is especially similar to PCM.

(5) Tlapanec shares with PCM, POP, and IZ the phonetic change from **k^w to *p.

If one regards the first two isoglosses as the more significant ones that they involve structural innovations whereas the latter three are merely phonetic shifts, the result is that Tlapanec is grouped with each of the four southern groups--viz., PMn, PCM, PZn, and PCn--by at least one of the two structural innovations. Tl is especially like PMn, PCM, and PZn in sharing both of these innovations.

PCM and PZn--specifically IZ--are the only groupings to share both shifts (4) and (5) with Tlapanec, making the association of these three branches even closer. Shift (3) links only PZn with Tl. Thus, the present conclusion is that Tlapanec is most like Proto Zapotecan, especially Zapotec, from the standpoint of both structural innovations and phonetic shifts. Proto Chiapanec-Mangue[67] and Proto Mixtecan seem to be removed from Tlapanec by successive degrees of separation but still are significantly more like Tlapanec than are the other groups within Otomanguean.

Footnotes

1 de Angulo 1925.

2 Mason 1900.

3 Schmidt 1926.

4 Orozco y Berra 1864. For a more detailed listing of the various classifications of Otomanguean languages, cf. Rensch 1966.

5 Pimentel 1865.

6 Brinton 1891.

7 Mason 1900.

8 Thomas 1902.

9 Thomas and Swanton 1911.

10 Leon 1902.

11 Belmar 1905.

12 Mechling 1912.

13 Lehmann 1920.

14 Schmidt 1926.

15 Sapir 1929.

16
Mason 1940.

17
Manrique 1958.

18
Fernández de Miranda, Swadesh, and Weitlaner 1958.

19
Fernández de Miranda, Swadesh, and Weitlaner 1958, p. 57.

20
Fernández de Miranda and Weitlaner 1961, sec. 5 and 6; Rensch 1966, chap. 6.

21
Longacre reports (Longacre 1968, sec. 6.7.) that he is now "inclined to believe that Swadesh may be correct". He mentions having worked out a reconstructed phonology and sets of cognates. However, the results of his study have not yet been published. Rensch 1973 compares Huave forms with those of languages recognized as Otomanguean and concludes that Huave constitutes an independent branch of the Otomanguean grouping.

22
Longacre 1957.

23
Mak and Longacre 1969, p. 40.

24
Longacre 1957, p. 9.

25
Longacre 1961, p. 27.

26
Longacre 1964.

27
Longacre 1966, p. 47; Longacre 1966, p. 536.

28
Otomanguean sets are drawn from Rensch 1966. The following abbreviations are used for language names: POM Proto Otomanguean PMn Proto Mixtecan, M Mixtec, C Cuicatec, T Trique; PPn Proto Popolocan, I Ixcatec, P Popoloc, C Chocho, PMaz Proto Mazatec; A Amuzgo; PCM Proto Chiapanec-Mangue, PC Proto Chiapanec, M Mangue; POP Proto

Otopamean, PO Proto Otomi, Maz Mazahua, Mtz Matlatzinca, Oc Ocuilteco, NP North Pame, SP South Pame, Ch Chichimeco Jonaz; PZn Proto Zapotecan, PCh Proto Chatino, IZ Isthmus Zapotec; PCn Proto Chinantecan.

29
Longacre 1962, pp. 231, 232.

30
Longacre 1960, p. 36.

31
Longacre 1962, p. 231.

32
Note the exception mentioned in sec. 2.1.4, where *hn is retained in some Mixtec languages as N.

33
For the inter-relationship of the three forms reflecting *CVh and *hCV cf. Longacre 1957, sec. 5.1.

34
Gudschinsky 1959.

35
A larger inventory of vowel clusters is reconstructed for PMaz in Kirk 1966, sec. 5.2, but some of these vowel sequences involve morpheme sequences, as well. Further information regarding the grammar of the Popolocan languages is required before it can be decided whether such a variety of vowel sequences introduced by morpheme sequences was characteristic of PPn itself.

36
Bauernschmidt 1965.

37
Fernández de Miranda and Weitlaner 1961.

38
Fernández de Miranda and Weitlaner 1961, p. 12.

39
Bartholomew 1965.

40
Bartholomew 1965, chap. 3.

41
Swadesh 1947. Suárez (1973) has recently proposed some revisions of Fernández de Miranda's reconstruction of Proto Zapotec (in press), but the present discussion of Zapotecan does not take account of either of those studies.

42
Upson and Longacre 1965.

43
Fernández de Miranda was undoubtedly correct in assigning Papabuco to the Zapotec rather than the Chatino branch of PZn (Longacre 1968, p. 339). As pointed out by Longacre, Papabuco lines up with Zapotec b as opposed to Chatino k^w and with Zapotec s as opposed to Chatino t. Further evidence is provided by Papabuco and Zapotec č and r matching Chatino t and by Papabuco and Zapotec t matching Chatino h.

44
Swadesh 1947, pp. 220, 221.

45
Longacre 1964, p. 1023.

46
For illustration of these developments the reader may consult Rensch 1966, chap. 8.

47
This analysis is preferred over that presented in Weitlaner and Smith 1962. The reconstructed consonant systems are similar. However, Weitlaner and Smith reconstruct 7 vowels and 25 diphthongs, which show a very unsystematic distributional pattern. The diphthongs are replaced in the present analysis largely by the semivowels and vocalic length.

48
Bartholomew 1965; Gudschinsky 1959; Fernández de Miranda and Weitlaner 1961; Longacre 1962; Longacre 1964; Longacre 1966a; Longacre 1966b; Longacre 1967; Longacre and Millon 1961.

49
Rensch 1966, chap. 2.

50
Complete exemplification of the correspondence sets on which the Proto Otomanguean reconstruction is based has not been attempted here. For a fuller demonstration of the correspondences and a fuller description of the Otomanguean system in general the

reader is referred to Rensch 1966, chap. 2.

51
For examples of the POM consonant clusters the reader may consult Rensch 1966, chap. 2.

Some readers may prefer to regard these elements as single consonants, such as **d, **g, **g^w, **c, **m, **l, **t^y, etc. However, they are here regarded as consonant clusters because (a) some reflexes, such as A ŋn or POP *nl, are awkward to explain as developments of single consonants, and (b) these elements apparently alternated with single consonants, as Vn sequences alternated with single vowels.

52
Longacre 1957, pp. 54-61; Longacre 1962, p. 237.

53
Rensch 1966, sec. 2.1.3.

54
Cf. 2.1.5.

55
For examples of the POM vowels with the final nasal the reader may consult Rensch 1966, sec. 2.2.2.

56
Lehmann 1920.

57
Sapir 1925, p. 403.

58
ibid, pp. 403, 404.

59
ibid, p. 426.

60
ibid, p. 493.

61
The Tlapanec data were generously supplied by H.V. Lemley of The Tlapaneco Mission, Inc. from his extensive files of Tlapanec materials. All Tlapanec data are from the Tlacoapa dialect. The number preceding each set corresponds to the Proto Otomanguean set found in Rensch 1966 from which the non-Tlapanec materials of the set were drawn. Since the tones of Tlapanec have not here been re-

lated to those of POM, no tones are recorded on the Tlapanec materials. It is the final syllable of nearly all the Tlapanec forms that is the relevant syllable for comparison in these sets, which contribute to the reconstruction of the Otomanguean stressed ultima.

62
Cf. 3.3.

63
Nasalized vowels are symbolized in Tlapanec data as "Vn".

64
The corpus of Tlapanec data contains a few examples of CVhV forms. It is possible that both CV?V and CVhV reflect two POM laryngeals in the same syllable, as in Popolocan, viz., **?CVh > *CV?V; **hCVh > *CVhV. However, such a proposal leaves no clear reflex of POM final **h in Tlapanec.

65
Rensch 1973.

66
There is a possibility, however, that in PCM *l is the development of **ny while *r is the development of the fuller cluster **Yny.

67
It is of interest that Swadesh 1962 proposes on the basis of glottochronology a Manguean group of languages, which includes Mangue-Chinanteca (perhaps Chorotega) and Subtiaba-Tlapanec.

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