

PROTO-QUECHUMARAN

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Similarities between Aymara and contiguous Quechua dialects have been considered by linguists simply as evidence of borrowing. This study, based on the application of standard comparative procedure to 520 Quechua sets and 255 Quechua-Aymara sets, gives evidence rather for genetic relationship between the two languages. A section on isoglosses clarifies the relationship between the northern and southern areas of the Quechua-speaking territory and proposes an older and important dialectal stage in central Peru.

O. INTRODUCTION. The nature of Proto-Quechua and the possibility of relating Quechua and Aymara are interrelated problems. Thus, a crucial consideration in reconstructing Proto-Quechua is the status of the glottalized stops (found in the dialects of Cuzco and Bolivia) and the aspirated stops (found in Cuzco, Bolivia, and some Ecuadorian dialects). Are these stops reflexes of similar phonemes or clusters in Proto-Quechua, or are they features acquired from the influence of Aymara substratum and contact over many centuries? It is a striking fact that, aside from the presence of aspirated stops in certain Ecuadorian dialects, glottalized and aspirated stops are found only in Quechua dialects clearly known to have past or present contact with Aymara. Nevertheless, the fact remains that glottalized and aspirated stops occur in many sets embracing cognates from all over the Quechua-speaking area. The lexical items represented in these sets do not appear to be loans, and the sound correspondences abstracted from the sets contrast with those involving unglottalized and unaspirated stops. There is no evidence that the glottalized and aspirated stops are former allophones which split off and became phonemic by way of the catalytic influence of substratum. If glottalization and aspiration are borrowed features, then they have apparently been extended in wholesale fashion to many native Quechua roots.

It is precisely at this point that the question of Quechua-Aymara genetic relationship becomes relevant. If Quechua and Aymara are related, then it is not strange that some Quechua dialects retain the aspiration and glottalization characteristic of Proto-Quechumaran and of Aymara. Nor is it so very strange that the Quechua dialects in contact with Aymara should prove to be the dialects which retain these features of the parent structure. Furthermore, it follows that these isoglosses—retention of aspiration and retention of both aspiration and glottalization—emerge as important criteria in classifying Quechua dialects. If, on the other hand, Quechua and Aymara are assumed not to be related, there is more motivation for attempting to explain any and all Aymara-like features of any Quechua dialect as due to Aymara substratum.

Recent scholarship (Ferrario 1956:137-40, Parker 1963:248, Torero 1964:463-4)¹ has assumed that the glottalized and aspirated stops of Cuzco and Bolivia reflect Aymara substratum rather than inheritance from Proto-Quechua.

¹ Torero, however, suggests that the substratum was not Aymara but 'idiomas emparentados cercanamente con el Aymara'.

Much is made of the fact that only one laryngealized stop (i.e. glottalized or aspirated) occurs per word in Quechua and that such stops occur only in roots, while in Aymara they occur several times anywhere in the stem-affix string. This, it is claimed, indicates that the Quechua laryngealized stops are a restricted and hence imported feature. This is, however, a non sequitur. An inherited feature may become restricted and eventually lost; restricted distribution is no evidence of importation.

In recent works, Ecuadorian dialects are considered as evidence of less importance to Proto-Quechua than other dialects. Thus, Ferrario (135-7) ruled out these 'neo-Quechua' dialects (such as those of Ecuador and Argentina) as of no importance. The real Quechua, his 'Runa-simi', consists of the more central dialects. Nevertheless, as Ferrario himself pointed out, there is a large area in southern Peru where Runa-simi is now spoken but where Aymara was spoken in the sixteenth century. Ecuadorian Quechua need not, therefore, embody a more recent extension of that language than dialects now spoken in the south of Peru. At any rate, Ecuadorian Quechua is Quechua and entitled to be taken seriously as a dialect witness. As long as we cannot be certain of the dialect provenience of Ecuadorian Quechua,² we must not exclude the possibility that we have here independent dialect evidence of value. Possibly Quechua was introduced into Ecuador not solely by speakers of the Cuzco dialect—where both glottalized and aspirated stops occur—but also by speakers of a related dialect where the glottalized consonants had disappeared but the aspirated ones had not. On the other hand, if the Quechua that was introduced into Ecuador was simply that of Cuzco, then present-day Ecuador dialects are not an independent witness to the aspirated series, but a derivative witness.

The thesis of this paper is twofold: (1) Proto-Quechua had aspiration and glottalization. These features were associated, however, not only with the stops and affricates (as in certain present-day dialects) but with the bilabial spirant as well. It seems therefore plausible to believe that aspirated and glottalized consonants were clusters (although closeknit and patterning in some respects like unit phonemes). (2) Quechua and Aymara are related genetically. In Proto-Quechumaran the features of aspiration and glottalization are associated not only with the stops and affricates (as in certain present-day Quechua dialects and in Aymara) and with the bilabial spirant (as in Proto-Quechua), but also with the back velar spirant. The hypothesis that aspirated and glottalized consonants were clusters thus becomes even more plausible on this horizon than on the Proto-Quechua horizon. In that one or both of these features occurred with almost half of the Proto-Quechumaran consonants, they appear to be fairly general in distribution.

² The kingdom of Quito was conquered by Huayna-Capac, the father of Atahualpa, the last Inca. Atahualpa was born in Quito and preferred to live there rather than at Cuzco. It might be assumed that at least some speakers of the Cuzco dialect, namely courtiers, emigrated to Quito in the generation before the Spanish conquest. On the other hand, there were undoubtedly soldiers and artisans who emigrated to the north as well, and whose dialect provenience is not clear. Quechua has continued to spread in Ecuador, at the expense of other indigenous languages, down to the present day.

This paper presents a reconstruction of Proto-Quechua based on eight dialects of Argentina, Bolivia, Peru, and Ecuador (with some data from Colombian Quechua). The reconstructed Proto-Quechua forms are then compared with Aymara. The reconstructed Proto-Quechumaran vocabulary includes many everyday words, including such body parts as knee, foot, saliva, tooth/tusk, neck, nerve, testicles, fingernail, and flesh; and such kinship terms as son, brother-in-law/son-in-law, sister-in-law/daughter-in-law, uncle, young man, older sister, wife, baby, small child, father, and male relative. These reconstructions are submitted as evidence for the genetic relationship of Quechua and Aymara.

1. PRESENT-DAY QUECHUA PHONEMIC SYSTEMS. The reconstruction of the phonemes of Proto-Ecuadorian-Quechua, based on the dialects of six mountain and two jungle provinces, has been described in detail by Orr 1957b. Of these, only three representative ones are cited in the present paper, namely R (Riobamba), Q (Quito), and T (Tena). Added to these are data from S (Santiago del Estero, Argentina), B (Cochabamba, Bolivia), C (Cuzco, Peru), A (Ayacucho, Peru), H (Huarás, Peru), and P (Putumayo, Colombia). Locations are shown on Map 1.

The phonemes of the present day dialects are listed in Table 1. Simple voiceless stops /p t k/ are found in all dialects; postvelar stop /q/ is found in S, B, C, A, and H; /tʃ/ is found in T. Aspirated stops /p^h t^h k^h/ occur in B, C, and R; /q^h/ occurs in B and C. Glottalized stops /p' t' k' q'/ are found only in B and C. Voiced stops /b d g/, which occur in the northern dialects in Quechua words, occur only in Spanish loans in the southern dialects. All dialects have a voiceless alveopalatal affricate /č/; R and T also have a voiced alveopalatal affricate /j/. H, R, Q, and T have a voiceless alveolar affricate /c/; R, Q, and T also have a voiced alveolar affricate /z/.

In the Quechua dialect of Bolivia, where aspiration and glottalization occur, only one aspirated or glottalized stop or affricate occurs within a word unit. This laryngeal feature is usually word-initial. When it occurs medially, the word-initial consonant is never a stop or affricate. When two stops occur in a word-medial cluster, the second stop carries the laryngeal feature. Furthermore, laryngealized stops and affricates occur only in stems, never in affixes. These restrictions also characterize Cuzco forms in our cognate sets. Other Cuzco forms, not represented in our sets, have two laryngealized stops within the same word unit, e.g. q^hap^hči 'delicate, fine'; č^hap^hra 'leafy tree'.³

All dialects have voiceless alveolar and glottal spirants /s h/; A also has a postvelar spirant /x/. B, H, R, Q, and T have a voiceless alveopalatal spirant /š/. S, R, and Q have a voiced alveopalatal spirant /ž/ which corresponds to /ʃ/ in other dialects. Q has a voiceless bilabial fricative /φ/.

All dialects have nasals at bilabial, alveolar, and alveopalatal points of articulation /m n ñ/; alveolar flap /r/; and an alveolar lateral /l/. B, C, A, H, and T also have an alveopalatal lateral /lʃ/. All dialects have labial and palatal semi-vowels /w y/.

³ The possibility should be investigated that at least some of these forms are Aymara loans.

p	t			k	q	ʔ			
	c	č	č̣						
φ	s	š	ṣ̌	h	x		i		u
m	n	ñ						a	
	l	lʔ							
	r								
w		y							

TABLE 2. PHONEMES OF PROTO-QUECHUA

In each of the dialects, primary stress falls on the penultimate syllable of most words. There are a few words, however, with stress on the final syllable, e.g. *arí* 'yes'. In T, stress falls on the ultimate syllable in certain grammatical forms, e.g. *yakúy* 'in the water', *mikungák* 'in order to eat'.

In the body of this paper, illustrations will be given from four representative dialects only, although forms from all the dialects are listed in the cognate sets.⁵ Bolivia and Cuzco are grouped together as one unit (B); Santiago, Ayacucho, and Huarás are grouped together (A); Riobamba and Quito are grouped together (R); Tena and Putumayo are grouped together (T). The sound correspondences of this paper are given as correspondences between these blocks except when there is internal divergence, in which case the specific dialects are cited. When the reflexes of a given protophoneme are identical within a block, illustrative data are given only for the particular dialect whose letter symbolizes the whole block. Capital letters symbolize ambiguous reconstructions. Thus *C* indicates that a consonant of undetermined identity is reconstructed; *V* a vowel, *Č* an affricate. *K* symbolizes inconsistent witness to front or back velar stops, or to a velar stop or a close-knit cluster involving a velar.

2. PROTO-QUECHUA. Proto-Quechua had 22 consonant and three vowel phonemes (see Table 2). The consonants included five stops, */p t k q ʔ/ (glottal stop was restricted to occurrence in cluster with another consonant); three affricates */c č č̣/; six spirants, */φ s š ṣ̌ h x/; three liquids, */r l lʔ/; three nasals */m n ñ/; and two semivowels */w y/. The stops, affricates, and bilabial spirant occurred in close immediate constituent relationship with the laryngeals */h ʔ/. These closeknit clusters are the source of the aspirated and glottalized stops and affricates of present-day dialects. Laryngealization is, however, no longer associated with the bilabial spirant. All consonants and closeknit clusters of consonants occurred word-initial. With but a few exceptions, all consonants and closeknit clusters also occurred medially between vowels. The word-final consonants were only */k q s m n r y/. The vowels, */i u a/, occurred both word-initial and final. A variety of further clusters occurred word-medially. They were composed of a single consonant or closeknit cluster preceded or followed by another consonant (see §2.7).

⁵ Our complete list of Proto-Quechua and Proto-Quechumaran cognates, as well as Tables 3-6 and 8-9 of this paper, have been deposited as Document no. 9832 with the ADI Auxiliary Publications Project, Photoduplication Service, Library of Congress, Washington, D.C. 20540. A copy may be secured by citing the Document number and by remitting \$10.00 for photo-prints, or \$3.50 for 35 mm. microfilm. Advance payment is required. Make checks or money orders payable to: Chief, Photoduplication Service, Library of Congress.

The detailed development of Proto-Quechua phonemes and closeknit clusters is shown in Table 3 (B), Table 4 (A), Table 5 (R), and Table 6 (T) (see fn. 5). These details are discussed and illustrated in this section.

2.1. STOPS. The stops and closeknit clusters of stop and laryngeal occur at four points of articulation: bilabial, alveolar, velar, and postvelar. In A and T the closeknit clusters have merged with the single stops. In R and T the postvelar stop has merged with the front velar stop. All the voiceless stops in R and T (regardless of their provenience from single stops or closeknit clusters) have voiced reflexes following nasals; *p and *k have voiced reflexes following *y. Each stop and closeknit cluster, except *th, occurs word-initial before each of the three vowels; *th occurs only before *a and *u. Only the velar stops occur in word-final position.

*p has reflex p in all environments in B and A. In R and T it has reflex b in a cluster following *m, and reflex p in all other environments. 263 *pay 'he, she': B, A, R, T pay. 64 *čumpi 'belt': B, A čumpi; R, T čumbi. See also sets 17, 18, 19, 27, 53, 63, 68, 71, 73, 77, 84, 90, 97, 118, 131, 141, 158, 165, 245, 251-84, 309, 335, 337, 369, 391, 413, 426, 437, 450, 456, 509, 517, 520, 521, 526. The provenience of aspiration in R is obscure in the following. 277 *punkit- 'to swell': B, A punki-; R p^hrunqi-; T punqi-. 280 *puqu- 'to ripen, to ferment': B puqu-; A puzu-; R p^huku-; T puku-.

*ph has reflex p^h in B, and reflex p in A, R, and T. In C, however, when word-initial in a syllable checked by an affricate, and word-initial preceding *a in a syllable checked by a sibilant, it has reflex p. In the one set where *ph occurs word medially preceding and following *a, it also has reflex p in C. In all other environments it has C reflex p^h. 285 *phaska- 'to burst, to open, to untie': B p^haska-; C, A, R paska-; T paskari-. 208 *mapha 'wax, dirty': B map^ha; C, A, R, T mapa. 289 *phusqu 'foam': B p^husuqu; A pusuzu; R, T pusku. See also sets 286-8, 290, 363, 370, 443. The provenience of q in S is obscure in 232 *muspha- 'to be delirious, to dream': S musqu; B musp^ha-; A, R muspa-; T nuspa-.

*p' has reflex p' in B, and reflex p in A, R, and T. (In R and T, having merged with *p, it has reflex b in a cluster with *m.) In C, when word-initial in a syllable checked by a sibilant, it has reflex p; in all other environments it has reflex p'. 293 *p'inqa- 'to shame, to embarrass': B p'inqa-; A pinxa-; R pingana-; T pinga-. 294 *p'išqu 'bird': B p'isqu; C, A pišqu; R, T pišku. See also sets 96, 98, 101, 103, 113, 125, 183, 291-2, 295-6, 382, 397, 468. Loss of glottalization in B is obscure in 222 *mil'p'u- 'to swallow': C mil'p'u-; B, A mil'pu-; R mižpu-; T nil'pu-.

*t has reflex t in B and A. In R and T it has reflex d in cluster with *n, and reflex t in all other environments. 423 *tuku- 'to become, to finish': B, A, R, T tuku-. 98 *hamp'atu 'toad': B hamp'atu; A hampatu; R hambatu; T ambatu. See also sets 24-5, 27-9, 58, 104, 105, 120, 136, 153-5, 159, 168, 186, 234, 248, 254, 258, 261-2, 267, 282, 290, 304, 331, 341, 346-7, 349, 352, 362, 392, 401, 409-22, 424-30, 460, 475, 483-4, 507-8. In three sets containing a cluster of *t plus one of the aspirated velar stops, there is metathesis in the Ecuadorian dialects (sometimes with alternate unmetathesized forms in the same set). In certain Peruvian dialects, and in two of the sets in B, the alveolar stop may have an alveolar spirant as an alternate reflex. Thus 234 *mutkhi- 'to smell': B musk^hi-; C musk^hi-/mutk^hi-; A mutki-/muski-; R mut^hki-; Q muhti-; T mukti- (Limoncocha mušti-). (The most common forms are listed first.) See also set 460. In the third set, there was perhaps first metathesis in B, then a further development from velar stop to velar spirant. 248 *ñutqhu 'brains': S ñutqu; B ñuhtu; C ñutq^hu/ñusq^hu; A ñutxu; R ñutku; T ñuktu.⁶ In set 120 the Ecuadorian reflexes appear to be irregular in that

⁶ With more data it might be proved that the first member of these clusters was aspirated rather than the second (note R mut^hki-). If so, this aspirated alveolar stop has then become a sibilant in the southern dialects. On the other hand, very few instances of aspirated stops as first member of clusters occur in our data. In fact, the only such cluster which is unambiguously indicated is *qh.

they are not voiced after the nasal. It is very possible, however, that these Ecuadorian forms are a dialect loan from Cuzco (or court) Quechua. 120 *inti 'sun': B, A, R *inti*, T *indi*.

**h* has reflex *tʰ* in B and R, and reflex *t* in A and T (with R, T development to *d* following nasal). 431 **thalvi*- 'to pour, to empty': B *thalvi*-; A *talvi*-; R *taži*-; T *tali*. 184 **vanthu* 'shadow, shade': B *vanthu*; A *vanu*; R *žandu*; T *vandu*. See also sets 432 and 529. Word-initial preceding **u*, **h*, in one set, has T reflex *tʰ* and R reflex *č*. 433 **thuqa*- 'to spit': B *thuqa*-; A *tuza*-; R *čuka*- (Cuenca *čuka*-); T *čuka*-.

**t* has reflex *tʰ* in B, and has merged with **t* in A and T. In R, **t* has merged with **h* when word-initial before **i* in sets 437 and 440, and with **t* elsewhere. 437 **t'impu*- 'to boil': B *t'impu*-; A *tipu*; R *t'ambu*-; T *timbu*-. 440 **t'iyu* 'sand, playa': B *t'iyu*; R *t'iyu*; T *tiyu*. 217 **mayt'u* 'bundle': B *mayt'u*; A, R, T *maytu*. See also 108, 114, 199, 200, 217, 246, 249, 375, 402-3, 435-6, 438-9, 441-2, 500, 515.

**k* has reflex *k* in all environments in A and H. In B and S, **k* has reflex *h* when word-final and as first member of a consonant cluster, and reflex *k* in all other environments. When word-final it has reflex *h* in R, and reflex *g* in Q. In R and T, it has the expected reflex *g* in cluster with **n*; the same development occurs preceding liquids and **y*. It has reflex *k* elsewhere in R and T.⁷ 139 **kay* 'this': B, A, R, T *kay*. 6 **aklva*- 'to choose': S *ažza*-; B *ahlva*-; A *aklva*-; R *agža*-; T *aglva*-. 60 **čakra* 'cultivated field': B *čahra*; A *čakra*; R, T *čagra*. 275 **pukyu* 'spring, well': B *puhyu*; A *pukyu*; R, T *pugyu*. 441 **t'uksi*- 'to prick, to stab, to pierce': S, R *tuksi*-; B *t'uksi*-; A, Q, T *tuksi*-. 146 **kunka* 'neck, throat': B, A *kunka*; R, T *kunga*. 251 **pacak* 'one hundred': S, B *pačah*; A, H *pačak*; R *pacah*; Q *pagaz*; T *pacak*; P *paca*. See also sets 3, 15, 46, 50, 52, 58-9, 61-2, 65, 78, 81-3, 86, 93, 123-4, 127-38, 140-5, 148-55, 177-8, 180, 189, 202, 206, 253, 266, 269, 273-4, 277-8, 285, 287, 295, 300, 302, 350, 353, 355, 366, 379-80, 408-10, 420-1, 423-4, 436, 438, 464-5, 471, 487, 493, 513, 525. In a three-syllable word, under obscure conditions, **k* has reflex *g* in R and T. 417 **taruka* 'deer': B, A *taruka*; R, T *taruga*. See also 147. Loss of initial consonant in T in the following set is also obscure, but data from nearby Limoncocha indicate that the stop was first voiced to *g* and then lost. 126 **ka*- 'to be': B, A, R *ka*-; T *a*- (LC *ga*-). The provenience of aspiration in one R alternate is obscure in 156 **kuyu*- 'to rock, to shake': B, A, T *kuyu*-; R *kuyu*-/*kʰuyu*-.

**kh* has reflex *kʰ* in B. In A and T it has merged with **k*. In C, **kh* has reflex *k* in a cluster following **r*, word-initially preceding **a*, and initially in a word containing two back vowels. In other environments it has C reflex *kʰ*. In R, when word-initial before the high vowels, **kh* has reflex *kʰ*; initially before **a* and word-medially, it has merged with **k*. 161 **khuru* 'worm': B, R *kʰuru*; C, H, Q, T *kuru*. 157 **khani*- 'to bite': B *kʰani*-; C, A, R, T *kani*-. 478 **warkhu*- 'to hang': B *warkʰu*-; C, A, R, T *warku*-. 368 **sankhu* 'thick (of consistency)': B *sankʰu*; A *sanku*; R, T *sangu*. See also sets 4, 158-60, 181, 220, 234, 351, 356, 446, 481. Under obscure conditions **kh* has merged with **h* in Q in 162 **khuya*- 'to have pity, to love': B, R *kʰuya*-; A, T *kuya*-; Q *huya*-.

**k* has reflex *k* in B; in A, R and T it has merged with **k*. In Q, when following **y* in a cluster, **k* has reflex *h*; in all other environments it has merged with **k*. 165 **k'aspi* 'stick, wood': B *k'aspi*; A, R, T *kaspi*. 394 **sayk'u*- 'to tire': B *sayk'u*-; A, R *sayku*-; Q *sayhu*-. 224 **mink'a* 'group work, hired work': B *mink'a*; A *minka*; R, T *minga*. See also sets 94, 100, 102, 112, 163-4, 166-7, 170-4, 190, 213, 226, 229, 513. Consonantalization of the final stem vowel probably conditioned R voicing in 110 **hik'i*- 'to hiccough': B *hik'u*-; C *hik'i*-; A *hik'ku*- (*hikikya*- 'to sob'); R *higya*-; Q *hikiya*-. **k* has Q reflex *h* in 168 **k'ila* 'wild, untamed': B *k'ila*; R, T *kita*; Q *hita*. Loss of glottalization in B is obscure in 16 **ank'u* 'vein, tendon; root': C *ank'u*; B, A *anku*; R, T *angu*. There is obscure development of **k* to R *kʰ* (but compare above **t* going to R *tʰ*) in 169 **k'uču* 'corner, angle, border, point': B *k'uču*; R *kʰuču*; Q *huču*; A, T *kuču*. In another case there is variation within B itself as to choice of stop: B shows *q'/qʰ*, C shows *k/kʰ* in 179 **luKu* 'old': B *luq'u* 'old objects', *luq'u* 'old clothes'; C *ruku*/*ruk'u*; R, T *ruku*. In C, in a cluster following **s* and preceding **a*, **k* has reflex *kʰ*; in a second set following **č* it has reflexes *k'/kʰ*. 211 **mask'a*- 'to search for': B *mask'a*-; C

⁷ In Cuenca, south of Riobamba, the aspiration has remained. In some subdialects of R, Ross (1959:49) records reflex aspirated *tʰ* in this set.

* With some speakers of T, in word final and preceding *ʋ* or *l*, reflex *h* occurs rather than *k*.

mask^ha-; A, R, T *maska-*. 192 **lvučk'a* 'slippery': B *lvusk'a*; C *lvusk'a/lvusk^ha*; A *lvučka*; R *žučka/žuška*; T *lvuška*.

**q* has reflex *q* in C and H, and reflex *x* in A in all environments.⁹ It has reflex *h* in B and S when word-final and as first member of a consonant cluster, and reflex *g* elsewhere. In R and T, **q* has merged with **k*. Having merged with **k*, it has the expected reflex *g* in R and T in clusters with nasals, and also in clusters preceding liquids. In addition it has reflex *g* when word-final in Q and reflex *h* in R when word-final and when following **y* in a cluster. Following **r* and **s* in a cluster, **q* has reflex *h* in Q. 306 **qam* 'you': S *qam*; B *qan*; A *zam*; R, T *kan*. 283 **pusaq* 'eight': S, B, R *pusah*; C *pusaq*; A *pusaz*; Q *pusag*; T *pusak*. 186 **lvagta* 'town, village': S, B *lvahla*; C *lvagta*; A *lvaxta*; R *žakta*; T *vakta*. 381 **singa* 'nose': S, B *singa*; A *sinxa*; R, T *singa*. 474 **waqlvi-* 'to damage, to ruin': S *wahži-*; B *wahlvi-*; C *waqlvi-*; A *waxlvi-*; R *wagži-*; Q, T *wagli-*. 216 **mayqin/mayqan* 'which': B *mayqin*; A *mayzin*; R *mayhin*; T *maykan*. 522 **yarqa(či)* 'to hunger': B *yarqa-*; A *yarza-*; R *yarika-*; Q *yarha-*; T *yarkači-*. 289 **phusqu* 'foam': B *phusuqu*; A *pusuxu*; Q *pucuhu*; R, T *pusku*. See also sets 5, 9, 29, 32, 38, 40, 45, 54, 79, 92, 99, 107, 185, 187, 196, 209, 216, 231, 233, 243, 247, 256, 261, 270, 286, 292-4, 298, 303, 305, 308-14, 316, 318-9, 321-7, 329, 359, 371-2, 381, 383, 389, 392, 398, 400, 411, 419, 427, 433, 435, 449, 452-3, 457, 466, 473-5, 477, 486, 505, 528. **q* has reflex *g* in T, rather than the expected *k*, in 260 **paqari-* 'to dawn; to give birth': B *paqari-*; A *pazari-*; R *pakari-*; T *pagari-*. Under obscure conditions **q* has reflex *k* in S in two sets, and as an alternate reflex in a third set. 317 **qinča* 'wall': S *kinča*; B *qinča*; A *xinča*; R, T *kinča*. *q* varies with B *q^h* in 320 **quča* 'lake, deep place in river': S, R, T *kuča*; B *quča/q^huča*; A *xuča*. 328 **quwi* 'guinea pig': S *quy/kuy*; B *quwi*; A *xuwi/xuyi*; R, T *kuy*. There is variation between reflexes of the two velar spirants in A in 315 **qayna* 'yesterday, previous day': B *qayna*; A *hayna/xayna*; R, T *kayna*. Under obscure conditions, A has a front velar stop rather than the postvelar fricative in 47 **čaqma-* 'to prepare ground for planting': B *čahma-* 'to glean'; C *čaqma-*; A *čakma-*; R *cagma-*.

**qh* has reflex *h* in B in a cluster preceding **r*, and reflex *q^h* elsewhere. In C, it has merged with **q* following **n* and word-initial before the high vowels, and has C reflex *q^h* elsewhere. In A it has merged with **q*. It has R reflex *k^h* before **i* in an open syllable or which is followed by a consonant other than **č* or **š*; otherwise it has R reflex *k*. In T it has merged with **k* (with both R and T development to *g* following **n*, or preceding **r*). 330 **qhašqa* 'coarse, rough': B *q^hašqa/q^hasqa*; C *q^hasqa*; P *kaska*. 373 **saqhra* 'demon, evil': B *sahra*; C *saqhra*; T *sagra-* 'to kill by witchcraft'. 518 **yanqha* 'in vain, for no reason': B *yanq^ha*; C *yanqa*; A *yanxa*; R, T *yanqa*. 334 **qhilva* 'lazy': B *q^hilva*; C, H *qilva*; A *xilva*; R *k^hiža*; Q *kīža*; T *kilva*.¹⁰ See also sets 332, 333, 336, 476, **qh* has Q reflex *h* in 460 **utqha* 'fast': B *usq^hay*; C *usq^ha/utq^ha*; A *utxa*; R *utka*; Q *ucha*; T *ukta*. In one set there has been metathesis in B, after which **qh* lost its stop quality preceding another stop. 248 **ñutqhu* 'brains': B *ñuhtu*; C *ñutq^hu/ñusq^hu*; A *ñutxu*; R *ñutku*; T *ñuktu*. Loss of aspiration in C is obscure in 331 **qhati-* 'to follow, to drive animals': B *q^hati-*; C *qati-*; A *xati-*; R, T *kati-*.

**q'* has reflex *q'* in B. It has merged with **q* in A, and with **k* in R and T. 340 **q'ingu* 'twisted': B *q'ingu*; A *zinzu*; R, T *kingu*. Following **y*, the velar stop is fronted in S. 489 **wayq'u* 'ravine': B *wayq'u*; A *wayxu*; S, R, T *wayku*. See also sets 115, 122, 210, 337-9, 341-7, 349. There is loss of glottalization in C under obscure conditions in 348 **q'ušni* 'smoke': B *q'ušni*; C *qusni*; A *zusni/xusni*; R, T *kušni*. Variation between glottalized stop and loss of glottalization in C is seen in 116 *(*hu*)*q'ulvu* 'tadpole': C *huq'uylvu/huqulvu*; T *kulu*. In the two dialects that have laryngealized stops, there is inconsistency between aspirated and glottalized reflexes in 197 **lvuKa-* 'to crawl, to climb': B *lvuq'a-*; C *lvuq^ha-*; A *lvuza-*; R *žuka-*; T *lvuka-*.

2.2. AFFRICATES. Affricates and closeknit clusters of affricates and laryngeals occur at three points of articulation: alveolar, alveopalatal, and domal (but **čh*

⁹ Our sources indicate that A *x* is phonetically a postvelar fricative (with stop allophone following *n*) and that H *q* is an affricated postvelar stop.

¹⁰ An alternate reconstruction is possible: **x* with obscure reflex *k* in Q.

apparently did not occur; nor did *ç occur before front vowel). The alveolar affricate gives reflex *c* in Ecuador and *č* elsewhere. The domal affricate gives a consistent *č* reflex in all dialects cited in this paper.¹¹ This leaves the correspondence between H *c* and *č/š/s* in other dialects as reflexes of the alveopalatal affricate. In B the three affricates have coalesced preceding vowels (including their occurrence as final member of clusters). In T the alveopalatals and domals have likewise coalesced preceding vowels. In all dialects except B, the clusters of affricates and laryngeals have dropped the laryngeal.

**c* has reflex *č* in B and A, and reflex *c* in T. It has R reflex *z* after **n* in a cluster, and reflex *c* in all other environments. In Q it gives reflex *c* when word-initial and *z* when word-medial. 251 **pacak* 'one hundred': B *pačah*; A *pačak*; R *pacak*; Q *pazag*; T *pacak*. See also sets 1, 38, 44.

**ch* has reflex *č* in B, reflex *č* in A, and reflex *c* in R and T, in all environments. 40 **čanga-* 'to grind coarsely': B *čanga-*; H *čanka-*; R *canga-*. See also set 39.

**c'* has reflex *č'* in B, reflex *č* in A, and reflex *c* in R and T, initial and intervocalic. 42 **c'uya* 'nit': B *č'uya*; A *čiya*; R, T *ciya*. 44 **c'uncu* 'uncivilized, unkempt': C *č'uncu*; A *čunču*; R *cunzu*; T *cuncu*. See also sets 41, 43, 45, 218.

**č* has the consistent reflex *c* in H; in all other dialects it has reflex *č* when initial or intervocalic, as well as when second member of a cluster. As first member of a cluster preceding *q*, it has reflex *š* in S, B and Q; *s* in C; *c* in H; and *č* elsewhere. As first member in other clusters, it has *š* in T, and elsewhere the reflexes just listed. 46 **čaka* 'bridge': B, A, R, T *čaka*; H *caka*. 286 **pičiqqa* 'five': B *pičiqqa*; C *pišqa*; A *pičza*; H *pičqa*; R *pička*; Q *piška/pičha*; T *pička*. 4 **ačkha* 'much': B *ačkha*; C *askha*; A, R *ačka*; H *acka*; T, S *aška*. See also sets 3, 35, 81, 111, 133, 155, 205, 287, 297, 298, 443-4, 492. Set 133 is considered as a witness to **c* in spite of the lack of an H cognate; this set contains the causative morpheme **-či-* (H *-ci-*) (information from William Stein). An aberrant H reflex has probably developed from a previous loss of final vowel in 112 *(*h*)*uk'uča* 'rat': B *huk'uca*; A, R, T *ukuča*; H *ukuš*. Under obscure conditions **č* has R reflex *c* in 47 **čaqma* 'to prepare ground for planting': B *čahma-*; A *čakma-*; H *caqma-*; R *cagma-*.

**ch* has reflex *č* in B, reflex *s* in A (no H data), and reflex *š* in R and T. In C it has reflex *s* before a front vowel, *č* before a back vowel. 50 **čhiki-* 'to grate, to scratch; splinter': B *čhiki*; C, A *siki*; T *šikita-*. 51 **čhulva* 'dew': B *čulva*; A *sulva*; R *šulva*; T *šulva*.

**č'* has reflex *č'* in B, reflex *c* in H, and reflex *č* in all other dialects. 52 **č'aki-* 'to dry': B *č'aki-*; A, R, T *čaki-*; H *caki-*. See also sets 54, 55, 243. In sets 53 and 57 there is obscure development of **č'* to R *č* (but compare above **i* going to R *č*, and **k'* to R *k*). 53 **c'ampa* 'turf, clod, lumps': B *c'ampa*; H *campa*; R *č'ampa* 'knotty'. H has reflex *s* rather than the expected *c* in 56 **č'uta-* 'to pull, to push, to extend': B *č'uta-*; A *čuta-*; H *suta-*; R, T *čuta-*.

**č* has reflex *č* before vowels in all dialects cited in this paper. In a cluster preceding a front velar, **č* has reflex *s* in B; reflex *č* in A, H, and R; and reflex *š* in S, Q, and T. 66 **čura-* 'to put': B, A, R, T *čura-*. 166 **k'ički* 'narrow, tight': B *k'ički*; A, H, R *kički*; S, Q, T *kiški*. See also 62-3, 65-6, 127, 134, 201, 252, 308, 320, 512. R reflexes *č* and *š* alternate in 192 **vučk'a* 'slick, slippery': B *vučk'a*; A *vučka*; R *žučka/žuška*; T *vuška*.

**č'* has reflex *č'* in B, and reflex *č* in A and T. In C it has reflex *č* in clusters following **n*, and *č'* in all other environments. In R it has merged with **c* except for one set in which it gives reflex *č* (cf. **č'*). 68 **č'uspi* 'gnat, fly': B *č'uspi*; A, R, T *čuspi*. 379 **sinč'i* 'hard, strong': B *sinč'i*; C, A, R *sinči*; T *šinči*. 69 **č'usu* 'small fine (of grains)': C *č'usu*; H *čusu*; R *čuzu*.

¹¹ Torero reconstructs **č* and **č'*. He reports that what we reconstruct as *č* gives a retroflex in the Junín dialect of present-day Quechua. William Stein (oral communication) also reports the presence of this reflex in Junín.

*Ĉ is a reconstruction ambiguous between *č and č. In that the H reflex is crucial to the separation of these two reconstructed affricates, *Ĉ occurs in any reconstructed form for which an H cognate is missing. It has reflex č in the dialects here cited. 84 *Ĉupa 'tail': B, A, R, T čupa. See also 5, 13, 70-83, 130, 137, 160, 169, 173, 219, 272, 296, 312, 317, 333, 463-4, 502.

*Ĉh has reflex č in B (there are, however, fewer sets with B cognates than with C cognates). In A it has reflex č. Word-initial *Ĉh has R reflex č; in other environments it has R reflex č. In Q and T, following nasals, it has reflex j; in all other environments it has reflex č. 85 *Ĉhalvu 'broken, chipped': C čalvu; A čalvu; R čažu. 223 *minĈha 'day after tomorrow': B minča; A, R minča; T minja. See also 14, 86.

*Ĉ' has reflex č' in B, and č in other dialects. 89 *Ĉ'isi 'evening': B c'isi; A, R, T čisi. See also 88, 90-2, 109, 177, 193, 227, 243, 365, 388.

2.3. SPIRANTS. Spirants occur at bilabial, alveolar, alveopalatal, domal, velar, and postvelar points of articulation. The bilabial spirant occurs in closeknit clusters with laryngeals; it gives reflex φ in Q, and p (either single or in a closeknit cluster) elsewhere. The alveolar spirant (except for R š before alveolar stops) gives consistent reflex s. The alveopalatal spirant before vowels gives reflex š in Ecuador and reflex s elsewhere. The domal spirant gives reflex s in Ecuador and s/h/β elsewhere. The velar spirant gives β in T, and h elsewhere. The postvelar spirant has various reflexes. Except for two sets (*uhu, *axa) the domal, velar, and postvelar spirants occur only word-initial.

*φ has reflex p in B, A, and T. In R, before vowels it has reflex p^h; before *y it has reflex b. In Q, when word-initial or preceding *y it has reflex φ; following *r it has reflex p. 297 *φiča- 'to sweep, to clean': B, A, T piča-; R p^hiča-; Q φiča-. 416 *tarφu- 'to plant': B, A, Q, T tarpu-; R tarp^hu-. 451 *uφya- 'to drink': B, T upi-; A, P upya-; R uby-; Q uφya-.

*φh has reflex p^h in B; reflex p in A and T; and reflex φ in Q. In R it has reflex p^h when word-initial and reflex b preceding *y in a cluster. 299 *φhiña- 'to be angry': B p^hiña-; A piñaku-; R p^hiña-; Q φiña-; T piña-. 414 *taφhya- 'to bring bad luck': S tapya-; C tapya-/tapy-; R tabya-; T tapy- . See also 298, 300, 301.

*φ' has reflex p' in B; reflex p in A and T; reflex p^h in R; and reflex φ in Q. 302 *φaki- 'to break': B p'aki-; A, T paki-; R p^haki-; Q φaki-. See also 303, 304.

*s has reflex s in B, A, and T in all environments. In R, it has reflex š preceding alveolars, and s in all other environments. 480 *wasi 'house': B, A, R, T wasi. 500 *wist'u 'crooked, twisted': B wist'u; A wistu; R wištu; T istu. 23 *asna- 'to stink': B, A, T asna-; R asna-. See also 22, 25, 37, 62, 68-9, 103, 121-2, 136, 138, 143, 149, 150, 165, 211, 232, 283, 285, 288, 289, 308, 313, 327, 337, 359, 365-78, 380-8, 390-1, 439, 441, 458, 481, 493. The provenience of A t is obscure in 188 *ɬawsa 'saliva': B, T ɬawsa; R, S ɬawsa; A lawta.¹² *s has merged with *š for obscure reasons in various dialects in the following sets. 379 *sinč'i 'hard, strong': B sinč'i; C, A, R sinči; T šinji. 26 *as(a) 'few': B, A as; R asa; Q ašala; T ansa (the provenience of n in T is obscure). 24 *asta- 'to transport': B, A, T asta-; H, R ašta-. 389 *sumag 'good, fine, beautiful': B, R sumah; A sumaz; H šumag; T sumak. 103 *(h)asp'i- 'to scratch': B hasp'i-; A, R, T aspi-; H ašpi. 393 *suqta 'six': S šuhta; B, R suhta; C suqta; A suxta; T suhta.

*š has reflex š in H, R and T; in B and A it has merged with *s. Between two high front vowels, and preceding a stop, S has reflex š; in all other environments it has reflex s. 89 *Ĉ'isi 'evening': B č'isi; A čisi; S, R, T čisi. 401 *šuti 'name': S, B, A suti; H, R, T šuti. 125 *išp'a- 'to urinate': B isp'a-; A ispa-; H, R, T išpa-. See also sets 92, 123-4, 151-2, 167, 172, 187, 196, 199, 212, 226, 233, 271, 284, 294, 335, 348, 393-400, 402-5, 429, 459, 482, 501. *s

¹² Possibly here the cluster *wc should be reconstructed. Either consonant clusters did not involve *c, or it is precisely in residues of the sort here cited that we should look for reflexes of such clusters.

has merged with *š in T in 435 *t'akša- 'to wash clothes': B t'ahsa-; A taxsa-; R tahša-; T taksa-. There is variation between š and s in B in 330 *qashaqa 'coarse, rough': B q'ashaqa/q'ashaqa/qasqa; C q'ashaqa; P kaska 'sand'.

*š occurs only word-initial. It has reflex h in C and A, reflex š in R and T, and reflex s in P. Preceding *a and *i, it has S reflex ø and B reflex h; preceding *u it has S reflex s and B reflex ø. In H it has reflex š before *a; preceding *i and *u it has reflex h. 406 *šamu- 'to come': S amu-; B, A hamu-; H, R, T šamu-; P samu-. 408 *šuk 'one, other': S, P suh; B uh; C huh; A, H huk; R šuh; T šuk. There are variant C reflexes h/s in 407 *šina 'like this, like that; thus': S ina; C hina/sina; B, A, H hina; R, T šina.

*h occurs intervocalic in only one set; otherwise it occurs in word-initial position only. It has reflex ø in S and T, and reflex h in B, A, and R. 105 *hatun 'big': S, T atun; B, A, R hatun. 445 *uhu- 'to cough': B č'uhu-; C, A, R, T uhu-. See also sets 93, 95, 97-102, 104, 106-11, 113-4. Three sets are reconstructed with *(h) because of the presence of h in B and C, versus an obscure reflex ø in either A or R. 103 *(h)asp'i- 'to scratch': B hasp'i-; A, R, T asp'i-. See also 96, 112. A further set is reconstructed with *h/ø because of the presence of h in B and R, and reflex ø in C and A.¹² 115 *huq'u/*uq'u- 'to be damp, wet': B huq'u-; C uq'u-; A uzu-; R hukuya-; T uku-. There is obscure loss of initial *h in A in 94 *hak'u 'finely ground; meal, flour': C hak'u; A, T aku; Q (Otavalo) ĩutu haku.¹⁴

*x in word-initial position has reflex q' in B, x in A, k' in R, h in Q, and k in T. 508 *zatu- 'to sell': B q'atu-; A zatu 'selling place'; R k'atu-; Q hatu-; T katu-. See also sets 502-3, 505-6, 509, 511. Word-medial, in the only set attesting to intervocalic *x, reflex q' occurs in B, x in A, sw in R, and s in T. 33 *axa 'chicha': B aq'a; A axa; H, R aswa; T asa. The provenience of glottalization in C is obscure in 510 *ziwa 'weed, grass': B q'iwayl'u 'thistle': C q'iwayl'u; A ziwa; R k'iwa; Q hiwa; T kiwa. Loss of aspiration in C is likewise obscure in 507 *zata- 'to cover': B q'ata-; C qata-; A zata-; R k'ata-.

2.4. NASALS. Three nasals are reconstructed for Proto-Quechua at bilabial, alveolar, and alveopalatal points of articulation. Each occurs word-initial in all dialects except H, and word-medial in all dialects, with the restrictions that *n does not precede *u, nor does *ñ occur in consonant clusters.

*m has reflex m when intervocalic or word-initial in all dialects, except in two sets in which, under obscure conditions, it has merged with *n in T. 225 *mira- 'to multiply': B, A, R, T mira-. 222 *mil'p'u- 'to swallow': C mil'p'u-; A mil'pu-; R mižpu-; T nil'pu-. 232 *musp'a- 'to be delirious, to dream': B musp'a-; A, R muspa-; T nuspa-. Preceding bilabial stops in a cluster, *m has reflex n in C, and reflex m in all other dialects. 64 *čumpi 'belt': C čunpi; B, A čumpi; R, T čumbi. Preceding *s or *r in a cluster, *m has T reflex n, and m in all other dialects. 143 *kimsa 'three': B, T kinsa; C, A, R, P kimsa. 469 *wamra 'child, son': C warma; A warma/wamra; R wamra; T wanra 'unmarried person'. Preceding *kh and *k' it has A reflex m, and n in all other dialects. 182 *wank'a- 'to work': B wank'a-; A wanka-; T wanga- 'to chop with machete'. Preceding *t' in a cluster, *m has reflex m in H and Q, and n in all other dialects. 515 *yamt'a 'firewood': B vamt'a; A, R yanta; H, Q yanta; T yanda.¹⁵ See also sets 10-2, 21, 47, 53, 77, 95, 97-8, 113, 119, 121, 132-3, 152, 164, 167, 171, 181, 183, 201-21, 223-4, 226-31, 233-5, 257, 267, 291, 307, 357, 360, 367, 372, 389, 396-7, 406, 437, 447, 467-9, 479, 495. In one of the few monosyllabic words, final *m has merged with *n in B, R, and T in 306 *gam 'you': S gam; B qan; A xam; R, T kan; P kam. Under obscure conditions *m has merged with *n in B, A, and T in 122 *isq'un 'nine': B isq'un; A iszun; R iskun; T iskun.

¹² These three sets form a further isogloss indicative of a north-south dialect division (cf. §3).

¹⁴ Here, as in many other places, the probable explanation of obscure reflexes is dialect borrowing. We assume that A was at one time in contact with a dialect in which the regular reflex of initial h was zero, as in T dialect of the present day.

¹⁵ In the 16th century, Santo Tomás recorded m preceding t in 'firewood': wamta/yamta.

**n* has reflex *n* in all environments in every dialect. 238 **nina* 'fire': B, A, R, T *nina*. See also sets 13-6, 23, 38, 40, 44-5, 61, 65, 67, 78-9, 99, 100, 105, 114, 120, 134, 140, 145-6, 157, 163, 184, 204-6, 223-4, 230, 236, 258-9, 267, 269, 277-8, 293, 296, 303, 308, 315, 317, 323-5, 340-1, 346, 348, 352, 358, 361-2, 368, 376, 379, 380-1, 390, 400, 407, 411-2, 418, 421, 434, 438, 448-9, 465, 467, 470-1, 477, 487, 502, 504, 511, 516-9. Preceding **i* in a monosyllabic stem, C has variant reflexes *n/ñ*. 237 **ni*- 'to say': B, A, R, T *ni*-; C *ni-/ñi*-. This same development occurs as an alternate form in A in 348 **qušni* 'smoke': B *qušni*; A *zusi/zusni*; R, T *kušni*. The place morpheme (-*pi*) has fused with the stem, causing morphophonemic shift of the final nasal from alveolar to bilabial position, in 240 **ñan* 'path, trail': B, A, R *ñan*; T *ñambi*.

**ñ* has H reflex *n* in our data; in all other dialects it has reflex *ñ* preceding **u* and **a*, except for one set, in which it has A and C reflex *ɥ*. 247 **ñuqa* 'I': B *ñuqa*; A *ñuxa*; H *nuqa*; R, T *ñuka*. 244 **ñawi* 'eye': B, A, R, T *ñawi*; H *nawi*. 242 **ñañu* 'thin': B, R, T *ñañu*; C *ɥañu/ñañu*; A *ɥañu*. Preceding **i* it has reflex *ñ* in B and A, and reflex *n* in T. Preceding **i* in R, in the environment of aspiration, it has reflex *ñ*; elsewhere it has reflex *n*. 345 **quñi*- 'warm, hot; to heat': B *quñi*-; A *xuñi*; R, T *kunu*-. 432 **ɥuñi*- 'to collapse, to demolish': B, R *ɥuñi*-; C *ɥuni*; A *tuñi*-. See also sets 239-41, 243, 245-6, 248-50, 279, 299, 472, 496-7.

2.5. LIQUIDS. Three liquids are posited for Proto-Quechua: **r*, **l*, and **ɥ*.

r* has reflex *r* in all environments in every dialect. 357 **rima*- 'to tell': B, A, R, T *rima*-. See also sets 1, 20, 21, 41, 49, 60, 66, 73, 80, 83, 91, 102, 104, 135, 144, 147, 148, 161, 176, 210, 225, 260, 270, 281-2, 295, 305, 307, 309, 310-2, 318, 325-6, 329, 346-7, 350-6, 359, 360-3, 373-4, 384-5, 415-7, 420, 428, 442, 454-7, 461, 469, 476-9, 490, 498, 506, 523, 527-8. In one set, there is obscure loss of initial consonant in Q and loss of initial syllable in T. In this same set **r* has an apparent reflex *w* in B and variation between *r* and *w* in C and A; the variation between **r* and **w* should probably be posited in the Proto-Quechua form. 364 **ruwa*-/rura*- 'to do, to make': B *ruwa*-; C, A *rura*-/**ruwa*-; R *rura*-; Q *ura*-; T *ra*-. Because the most northern and southern dialects have an initial nasal reflex in the following set, a varying form is reconstructed (in one of the Ecuadorian dialects **n*, which may have had allophone *ŋ* preceding **r* as in present-day Ecuadorian dialects, has become a velar stop.) 358 **rinri*/**ninri* 'ear': B *ninri*; C, A, R *rinri*; T *rinri* (Limoncocha *nigri*).

**l* occurs in only ten sets. Reflexes *l* and *r*, as well as an occasional reflex *ɥ*, occur in varying situations from dialect to dialect. We assume here that such sets of correspondences reflect **l* in contrast to sets of correspondences involving only *r* which are considered to reflect **r*. Further study might conceivably result in the assigning of certain sets of correspondences involving both *r* and *l* to **r* rather than to **l*. Preceding **t*, we find reflex *l* in all dialects. 254 **palla*- 'to add cargo to a load': B, A, R, T *palla*-. Preceding **č*, *ɥ* occurs in C and *l* elsewhere. 130 **kalča*- 'to harvest and store fodder': B, A, R *kalča*-; C *kalɥča*-. Preceding **p*, **l* has reflex *r* in B and A, reflex *l* in Q, and reflex *ɥ* in T. 141 **kilpa*- 'to cover': B, A *kirpa*-; Q *kilpa*-; T *kiɥpa*-. (See also set 267 which contains special problems.) Preceding a high back vowel, **l* has reflex *l* in B, reflex *ɥ* in H, and reflex *r* in all other dialects. 179 **luKu* 'old': B *luq'u/luq'u*; C *ruku/ruk'u*; H *ɥuku*; R, T *ruku*. Between two low vowels, it has reflex *ɥ* in B, and *l* in A, Q, and T. 276 **pulu* 'water gourd': B *pulu*; C, A, R, T *puru*. 39 **čala* 'thin, small, not mature': B *čalɥa*; A *čala*; Q, T *cala*. Word-initial before **a*, it has reflex *l* in T and reflex *r* in all other dialects. 176 **lawra*- 'to smart, to sting': C, A, R *rawra*-; T *lawra*-. Word-initial before **i*, **l* has reflex *r* in most of the dialects. B has reflex *l* and all other dialects have *r* in 178 **likra* 'shoulder, wing'; B *lihra*; C *rihra*; A *rikra*; R, T *rigra*. S has reflex *ž*, T has *l* (note under **ɥ* regular loss of palatalization before **i* in T), and all other dialects have *r* in 177 **likč'ari*- 'to awaken': S *žihča*-; B *rihč'ari*-; A *rikč'ari*-; R *rihč'ari*-; T *likč'ari*-.

**ɥ* preceding **a* or **u* in the majority of sets has reflex *ž* in R and S,¹⁶ and *ɥ* in all other dialects. 6 **akɥa*- 'to choose': S *až'a*-; B *ahlɥa*-; A *akɥa*-; R *agž'a*-; T *aglɥa*-. See also sets 7, 9, 12, 27, 31, 36, 39, 51, 55, 85, 96, 116-8, 131, 142, 163, 167, 170, 172, 180, 182-6, 189-200, 203,

¹⁶ In the sets used here, Bravo (1956) has transcribed *sh* preceding *g*, and *ll* (pronounced *ž*) in all other environments.

215, 221, 222, 255-6, 267-9, 274, 288, 305, 322, 324, 329, 334, 339, 378, 399, 425, 453, 466, 494, 503, 514. But **ɬ* has fallen together with **l* in the following positions: in Q preceding a consonant; in B preceding **q*; and in Q and T preceding **i*. 321 **qulʷqi* 'money, silver': B *qulqi*; A *xulʷxi*; R *kuʷki*; Q *kulki*; T *kulʷki*. 8 **alvi* 'good': B, A *alvi*; R *aʒi*; Q, T *ali*. See also 95, 316, 431, 474, 495. Sporadic mergers of **ɬ* and **l* occur in the various dialects under obscure conditions. 188 **ɬawsa* 'saliva': A *lawta*; B, T *ɬawsa*. 187 **ɬaʒaʒ* 'heavy': S *lasah*; C *ɬasaq*; B, A *ɬasa*; H *lasa*; R *ʒaʒah*; T *ɬaʒah*. 395 **ʒilv-* 'to pluck, to strip': A *siɬqa-*; R *silli-*. 181 **ɬamkha-* 'to touch, to feel': B *ɬankha-*; H *lamqa-*; R *ʒanka-*; T *ɬanga-*. 336 **qʰulʷu* 'maimed, butt-end, amputated': B *qʰulu*; C *qulʷuta*; A *xulʷuta*; T *kulʷu*. In the only set with consonant cluster **ɬw*, the palatalized lateral has fallen together with the simple lateral in R. 70 **ʒalʷwa* 'fish': B, A, T *ʒalʷwa*; R *ʒalwa*. Merger of **ɬ* with **l* in B and A is probably consequent on loss of final vowel in 67 **ʒ'unčulʷi* 'intestines': B *ʒ'unčulis* (*ʒ'unčul wira* 'fat from intestines'); C *ʒ'unčulʷ*; A *čunčul*; R *čunčuʒi*; T *čunčuli*.

2.6. SEMIVOWELS. The semivowels reconstructed for Proto-Quechua occur word-initial and medial, except that **w* never precedes **u*, nor does **y* precede **i*. Only **y* occurs word-final.

**w* has reflex *w* in B, A, and R. In T it has reflex zero when word-initial before **i*, and reflex *w* elsewhere. 465 **wakin* 'some': B, A, R, T *wakin*. 498 **wira* 'fat, oil, grease': B, A, R *wira*; T *ira*. See also 31-2, 63, 70, 88, 176, 188, 213, 244-5, 332, 343, 364, 376, 419, 463-4, 466-85, 487-94, 496, 499, 500, 510, 523. Apparent retention of T initial *w* before **i*, probably due to borrowing from another dialect, occurs in 497 **wiñay* 'forever': B, A, R, T *wiñay*. Intervocalic **w* is lost in S. This same phenomenon also occurs in some of the Ecuadorian dialects in a few sets. 404 **ʒuwa-* 'to steal': S *sua-*; B, A *suwa-*; R, T *ʒuwa-*. See also 25, 27, 30, 74, 106, 328, 404, 418. In H **aw* becomes *u* (but not **waw* since *u* does not occur following *w*). 63 **ʒawpi* 'middle, center': B, A, R, T *čawpi*; H *čwpi*. 486 **wawqi* 'man's brother': S, B, H *wawqi*; A *wawxi*; R *wawki*; T *uki* (loss of initial syllable in T is obscure). Before a nasal in the following syllable, **w* has reflex *m* (metathesis occurs in S). 495 **wilʷma* 'hair, wool': B, A *milʷma*; S *miʒwa*; R *miʒma*; T (Limoncocha) *wilʷma*. **w* has T reflex *b* in 462 **uywa* 'domestic animal': B, A, R *uywa*; T *uyba*.

**y* has reflex *y* in all environments in every dialect, in most of the sets. 526 **yupa-* 'to count, to add': B, A, R, T *yupa-*. See also 3, 34-7, 57, 75, 107-8, 139, 156, 162, 174, 214-5, 217, 235, 263-4, 275, 301, 314-5, 338, 391, 393-4, 405, 414, 448, 451, 461-2, 487-91, 494, 512-24, 527-9, 531. In T, in two sets, the first syllables containing **y* have been reduced to *i* under obscure conditions. In the set illustrated here, C has an alternate initial reflex *h*. 525 **yayku-* 'to enter': B, A, R *yayku-*; C *hayku-/yayku-*; T *iku-*. See also set 530. For obscure reasons, there is similar loss of vowel in the final syllable of various Ecuadorian dialects, causing the semivowel to become a vowel. In H the **ay* cluster is reduced to long vowel *e*.¹⁷ 492 **wiçay* 'incline, slope; upriver': B, A, Q *wiçay*; H *wiçe*; R *wiçi*; T *içay*. See also 48, 123, 216, 353, 424. In B and S, **y* is lost when preceded by **i* and followed by either **a* or **u*. C has this development in an alternate form in 422 **tiya-* 'to be': B, S *tia-*; C *tia-/tiya-*; A, R, T *tiya-*. See also sets 42, 344, 440. Loss of final vowel preceded by **y* causes semivowel to become a vowel in B, C, and T. 451 **uɸya-* 'to drink': A *uɸya-*; B, T *upi-*; R *uɸya-*. When the cluster **yɸ* follows **a* it is retained in all dialects; when it follows **u* it is reduced with loss of **y* in S and B. 329 **quylʷur* 'morning star': S *quʒur*; B *quɸur*; C *quylʷur*; A *xuylʷur*; T *kuylʷur*. In R the vowel and semivowel are metathesized in an alternate form (but syllabicity is retained in the first member of the sequence) in 173 **k'uyçi* 'rainbow': B *k'uyçi*; R *kuyçi/kiwçi*; T *kuyçi*.

2.7. CONSONANT CLUSTERS. Consonant clusters are found in approximately two-fifths of the Proto-Quechua reconstructed corpus. Three-fourths of these consonant clusters contain a stop or affricate, usually as the second member of

¹⁷ Information from Gary Parker indicates that **uy* and **iɸ* go to H *i*. Our present corpus of cognate sets does not contain instances of these sequences.

the cluster. The largest group of clusters consist of nasal plus stop, e.g. 278 **punku* 'door'. Also in large quantity are combinations of spirants, liquids, or semivowels plus stops, e.g. 165 **k'aspi* 'wood, stick'; 466 **wal'qa* 'beads, necklace, bracelet'; 108 **hayl'a-* 'to kick, step on'. Two other large groups of clusters are stop plus lateral, and nasal plus affricate, e.g. 6 **ak'va-* 'to choose'; 44 **c'uncu* 'uncivilized, unkempt'. The following restrictions hold: (a) As first member, affricates cluster only with stops; as second member they cluster with all except spirants and other affricates. (b) The stops, affricates, and semivowels cluster among themselves and with each other only at dissimilar points of articulation. (c) Of the series of bilabial and alveolar stops, only **t* precedes closeknit clusters of velar stop and **h* (in but three sets).

2.3. VOWELS. Three vowels are reconstructed for Proto-Quechua: **i*, **u*, **a*. The high vowels had lower allophones contiguous to back velars. In many present-day dialects these lowered allophones have become the phonemes *e* and *o* under influence of Spanish loans. These comparatively late developments are irrelevant to phonemic reconstruction. In some cases, therefore, where we give *i* and *u* reflexes for given Quechua dialects, there is split of the former to *i* and *e*, and the latter to *u* and *o*. **a* may possibly have had a fronted allophone following palatalized consonants, as in some of the present-day Ecuadorian dialects. No vowel clusters are reconstructed for Proto-Quechua. Two contiguous vowels—as recorded in the dictionaries of C, B, and S—are developments consequent on loss of intervocalic semivowel, e.g. *tia-* 'to exist' < **tiya-*; *aa-* 'to weave' < **awa-*.

**i* has reflex *i* in all dialects in the following sets: 1, 3, 8, 11-2, 18, 20, 22, 28, 42, 49, 50, 52, 54, 59, 62-3, 68, 78-80, 85-6, 89, 97, 101, 103-4, 106, 109-10, 113, 117-25, 128, 133, 140-4, 151, 154-5, 157-9, 164-8, 172-3, 177-8, 180, 189-91, 196, 198-9, 202-3, 205, 218-26, 228, 234, 237-8, 244, 246, 260, 265-71, 277, 281, 286, 293-4, 297, 299, 302, 304-5, 308-9, 316-8, 321, 326, 331, 333-5, 339-44, 348, 352, 354-60, 370-1, 375, 377-87, 390, 395-8, 401-2, 407, 410, 415, 431-2, 432, 436-41, 452, 456, 459, 461, 465, 474, 479, 480, 486, 492-501, 506, 509-10, 514. In three sets **i* has zero reflex word-finally in some of the southern dialects. 67 **č'unčulvi* 'intestines': S *čunjuži*; B *č'unčuli*; C *čunčulv*; A *čunčul/čunčuli*; R *čunjuži*; T *čunjuži*. See also 325, 467.

**a* has reflex *a* in all environments in all dialects in the following sets: 1, 4-24, 36-42, 45-7, 51-60, 62, 65-6, 70-5, 77-8, 81, 84-6, 88, 92-109, 111, 114, 117, 119, 125-39, 141-3, 145-6, 149-50, 152-3, 157, 162, 164-5, 167-8, 175-8, 180-9, 192, 194, 197, 200-214, 216-8, 223-5, 227, 230, 236, 238, 239-45, 247, 251-64, 270, 273-4, 283-7, 291-3, 296-9, 302-3, 305-6, 308-17, 320, 323, 327, 330-2, 334, 337-9, 344, 346-7, 350-2, 357, 361, 363-76, 381, 383-4, 386, 389, 393-4, 397, 404-7, 409-20, 422, 430-1, 433-5, 439, 443, 447-8, 450, 453-5, 458-85, 487-91, 493-8, 502-22, 524, 526-8, 530. Dialect C has inserted a *u* glide between **a* and **w* in a few sets. In two of the sets, alternate forms without the *u* are given in our source. 41 **c'awar* 'maguey plant and hemp': C *č'awar*; A *čawar*; R, T *cawar*. 74 **čawa* 'raw': C *č'auwa/č'awa*; B, A, R, T *čawa*. 88 **č'awa-* 'to milk, to squeeze out liquid': B *č'awa-*; C *č'auwa-*; A, T *čawa-*.¹⁸ For obscure reasons, final **a* is lost in C in set 147, in B, C, and A in set 26, in H in set 112, and in an alternate form in R in set 163. 147 **kuraka* 'chief, one with authority': B *kuraka*; C *kuraq* 'eldest'; T *kuraga*. 26 **as(a)* 'few': B, A *as*; R *asa*; T *ansa*. 112 *(*h*)*uk'uča* 'rat': B *huk'uča*; A *ukuča*; H *ukuš*; R, T *ukuča*. 163 **k'alvāna* 'clay pot for roasting grains': S *kažana*; B *k'alvāna*; A, T *kalvāna*; R *kažan/kaža*. Loss of reflex *a* contiguous to **y* in sets 48, 123, 353, 451, 492, and 525, and

¹⁸ For this dictionary entry, Lira (1944:168) gives *ch'auwa-*. Nevertheless, in the illustrations under this entry, he transcribes this verb stem without a *u* preceding *w*: *Ch'awasákkh-kun wakakunáta* 'Vamos a ordeñar las vacas'; *Túkuy ápi kákkta ch'awáychis* 'Exprimid todo lo que está mojado'.

contiguous to **v* in sets 25, 74, and 486, changes the semivowels to vowels in certain dialects (see §2.6). **a* following **ylv* has reflex *i* in C. 215 **maylva*- 'to wash (items other than clothes)': R *mayža*-; B, A, T *maylva*-; C *maylvi*-. In T, **a* goes to *i* following **ilv*. 221 **miłva*- 'to abominate': B, A *miłva*-; R *mižay*- 'bad'; T *mili* 'hateful'.

**u* has reflex *u* in all environments in all dialects in the following sets: 5, 9, 12, 14, 16, 19, 29, 36, 43-5, 49, 51, 55-7, 64-9, 76, 81-5, 90-4, 98, 105, 111-16, 121-2, 124, 135, 137, 144, 146-7, 149-56, 158, 160-2, 169-72, 174, 179, 183-4, 191-200, 217, 222, 227-35, 242, 247-8, 250, 267-9, 273-84, 287, 290, 294-6, 300-1, 317-28, 333, 336, 339-40, 346-9, 351, 353, 355-6, 360-3, 368, 378, 380, 382, 387-92, 394, 399, 400-6, 408, 413, 416-7, 423-30, 432-3, 437, 440-62, 468, 472, 478, 489, 491, 499, 500, 502-3, 505, 508, 511, 513, 519, 521, 525-9, 531. Under obscure conditions, A has alternate reflexes *a/u* in 145 **kunan* 'today, now': B, R *kunan*; A *kanan/kunan*; T *kuna*. **u* also has obscure reflex *a* in Q in 272 **puču* 'left over': B, A, R, T *puču*; Q *puča*. **u* has obscure reflex *i* in T in set 159, in C in sets 193 and 269, and in S in 289. 159 **k'itu*- 'to rub, to plane; to make level': B *k'it'u*-; T *k'iti*-. 193 **l'uč'u*- 'to skin, to undress': C *l'uč'i*-; A, T *l'uču*-; R *žuču*-. 269 **pinkulvu* 'flute': C *pinkuyilvu/pinkilvu*; A *pinkulvu*; R *pingužu*; T *pingulvu*. 289 **phusqu* 'foam': S *pusuqi*; B *p'usuqu*; A *pusuzu*; H *pučuqu*; R, T *pusku*; Q *pucuhu*. In this last set, reflex *u* occurs between the consonant cluster in some of the dialects. There was perhaps first open transition; but with later shift of stress, the first consonant of the cluster and the open transition vowel have come to constitute a syllable in these dialects. (See also 248 and 288.)

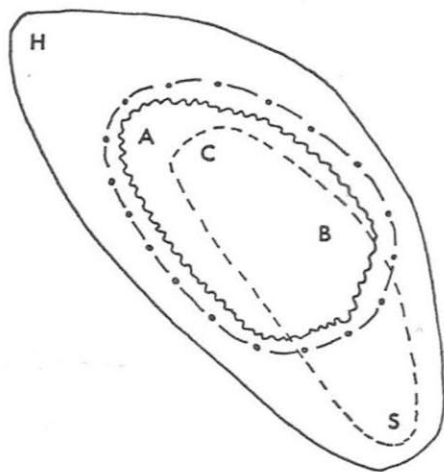
In addition to the inconsistencies and obscurities mentioned in the above paragraphs, there remains a small residue of sets where the vowels attested in certain dialect forms simply cannot be reconciled as reflexes of Proto-Quechua vowels. In these sets the irreconcilable vowel witnesses generally group northern against southern dialects. This evidence is summarized in the following section.

3. ISOGLOSSES. Data permit the drawing of eleven phonological isoglosses, as shown on Maps 2-4.

Certain unique shared innovations unite Ecuadorian Quechua (R, Q, T), with Quito as the probable historic center of this dialect group: (1) Voiced allophones of stops and affricates, which occur in Proto-Quechua only after nasals, have become phonemic. (2) Velar and postvelar stops have merged.

Further unique shared innovations indicate a southern group of dialects (S, B, C, A, and more marginally H), of which Cuzco is the probable historic center. Thus, (3) B, C, and A share a merger of **s* and **š* to *s*—although in B this does not hold for sibilants in clusters. Similarly, (4) B, C, and A share a merger of **š* and **h* to *h*—although, again, in B this is restricted to certain environments. In S, there is a similar development of **š* to zero (with **h* as a theoretical intermediate stage) before **a* and **i* (but **š* before **u* has a unique development to *s*). (5) In S, B, and C there is loss of intervocalic semivowel in some sets. (6) In S, B, C, A, and H (i.e. possibly all dialects except the Ecuadorian group), the alveolar and domal affricates have merged.

A further important bundle of isoglosses which indicate a southern dialect group has to do with the inconsistent *i/a* and *a/u* reflexes which are mentioned above in §2.8. Thus *i* is found in set 259 in A, H, R, Q, T and P, as opposed to *a* in S, B, and C. In another set, 428, *i* is found in B, A, H, R, Q, and T, as opposed to S and C. In set 81 the initial syllable *a* is found in H, R, Q, and T, as opposed to S, B, C, and A; and in still another set, 288, *a* is found in Ecuador as opposed to *u* in the other dialects further south. In set 421, with poor geographical spread, *a* is attested in the T dialect of Ecuador and *u* in B and C.

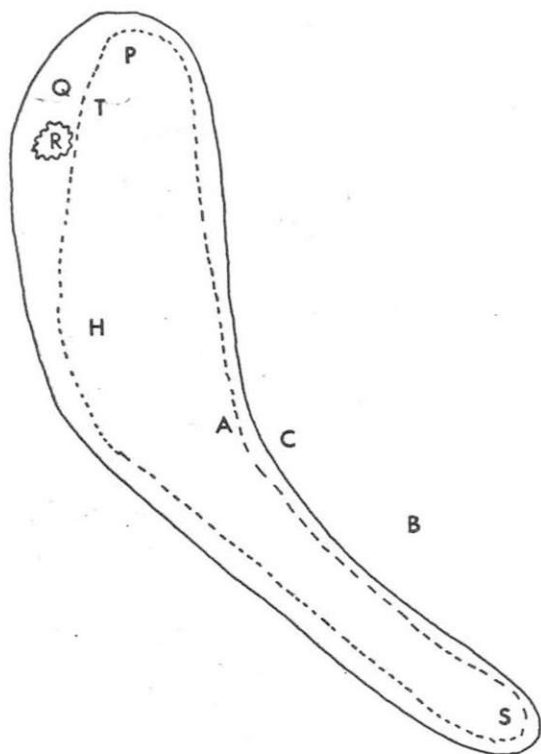


MAP 2. CUZCO AND QUITO AS CENTERS OF INNOVATION

1. Voiced allophones of stops and affricates have become phonemic.
2. o-o-o-o-o-o Merger of velar and postvelar stops.
3. -o-o-o- Merger of *s and *ʂ to s.
4. ~ Merger of *ʂ and *h to h.
5. ---- Loss of intervocalic semivowel.
6. — Merger of alveolar and domal affricates.

Other isoglosses of considerable importance point to an older dialectal stage before the prominence of Cuzco and Quito. (7) All dialects except B and C merge the PQ consonant with its corresponding closeknit cluster of consonant and glottal stop. The result is absence of glottalized stops and affricates in all dialects except C and B. (8) In R, however, the reflex of the *C' cluster merges in some sets with that of the *Ch cluster, as R aspirated stop. While this development occurs under obscure conditions, it nevertheless preserves a northern dialect witness to PQ *C' as opposed to *C (since the latter do not develop to aspirated stops). (9) In all dialects except B, C, R, and Q, the PQ *Ch has merged with the reflex of its corresponding *C. The result is that aspirated stops are found only in the dialects indicated.

The occurrence of the witness to both PQ *C' and *Ch only in the northern and southern extremes presents the typical picture of archaisms in marginal areas. This may, therefore, reflect a state of affairs (a) before Cuzco became culturally prominent; (b) when the dialect since extended to R and Q was an



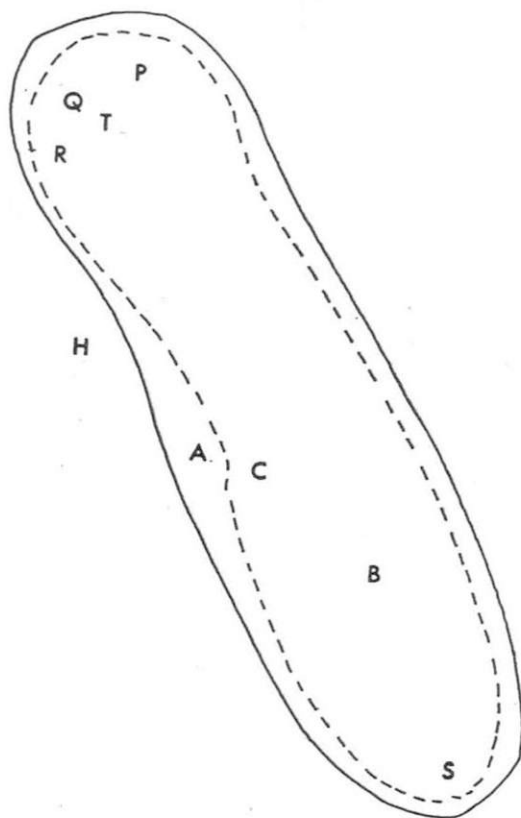
MAP 3. DIALECTAL DEVELOPMENT OF CLOSEKNIT CLUSTERS

1. — Merger of *C and *C' stops and affricates to *C.
2. ~~~~~ Obscure (sporadic) merger of *C' and *Ch in some sets.
3. - - - Merger of *C and *Ch stops and affricates to *C.

archaic northern fringe dialect spoken in Peru;¹⁹ and (c) when there was a culturally important dialect center somewhere in what is now the central mass of Peruvian Quechua dialects. Waves of innovation spread from this older central dialect center, resulting in the elimination of the closeknit clusters of consonant and laryngeal.

Two further isoglosses unite northern and southern dialects as against H, or H and A: (10) In all dialects except H, the alveopalatal and domal affricates not

¹⁹ Although it may seem somewhat bizarre to posit a dialect relic area in a region which is a more recent extension of Quechua, parallels exist elsewhere. For example, in Longacre 1957 and in some subsequent articles, little importance was attached to the dialect witness from the state of Guerrero. There is good historical evidence to substantiate the view that Guerrero-Mixtec is a recent extension of Mixtec during the comparatively recent time of Mixtec expansion. For this reason it was not expected that an archaic westward fringe would be found among Mixtec dialects. Nevertheless Leo Pankratz has presented Mixtec data from the town of Ayutla in Guerrero which has a startling archaic feature, viz. preservation of phonemic word-final glottal stop, which is found in no other Mixtec dialect to date. Here, as in the case of Ecuadorian Quechua, we assume that there has been a displacement of a relic area by the expansion of the area in which a language is spoken. At the same time, dialects now more central have completely lost the archaic feature in question.



MAP 4. DIALECTAL DEVELOPMENT OF AFFRICATES

1. — Merger of alveopalatal and domal affricates not in cluster.
2. ---- Merger of alveopalatal affricates with **s/*š* in clusters.

in clusters have merged. (11) In all dialects except H and A, the alveopalatal affricates have merged with *s/š* in clusters.

The latter two developments presumably originated in either the northern or southern centers of innovation, and then spread over the whole Quechua area except for the central region (A and H), which we suspect to have been important at the earlier period.

If this general scheme is correct, then the Cuzco area and a (now displaced) northern fringe were originally marginal to the Quechua area. At a later period Cuzco became culturally dominant and began to influence the speech of surrounding regions. Still later, Quito became a second such dialect center. As a result, dialects such as H—which once had been dominant—became relic areas. Central dialects have been subject to dialect influences from both the south and the north.

An alternative scheme could take isoglosses (10) and (11) as indicative that the Ecuadorian dialects and S (as well as B) were colonized from Cuzco. Isoglosses (7)–(9) would then show glottalization and aspiration as Cuzco features carried to Ecuador. Isoglosses (1)–(6) would continue to be interpreted as in our former

scheme. This alternative scheme—or something like it—is necessary if an attempt is made to explain glottalization and aspiration as features acquired by way of contact with Aymara.

Difficulties in the alternative scheme are the following: (1) If dialects containing glottalized and aspirated stops were carried to Ecuador only some 400 to 500 years ago, why have the former so thoroughly disappeared? (2) Why weren't glottalization and aspiration extended also to S? (3) Evidence for Ecuadorian dialect unity versus B-C dialect unity is stronger than for a common stage embracing both. (4) PQ *C' and *Ch clusters reconstruct according to the comparative method and prove relevant in many ways. It is, therefore, plausible to accept them as Proto-Quechua features and to find in isoglosses (7)–(9) the typical picture of archaisms in marginal areas.

Either scheme, however, leads us to posit a central block of dialects (e.g. the provinces of Junín, Huánuco, Ancash) which appears to have been the original center of gravity for the Quechua-speaking world. Ferrario (131, 136) posits that the valleys to the west of Cuzco were inhabited at an early period by a league of Quechua-speaking peoples which had a certain prominence while the people of Cuzco were just beginning to consolidate power in their local area.

Actually the area where B and C dialects are spoken is by no means in one-to-one correspondence with that part of the Quechua area where Aymara was formerly spoken. While B very clearly lies within this area, the areas of Peru where Aymara has been displaced by Quechua are not only in C, but also in A extending up toward H (through Junín—from which we have no data, but where no glottalized nor aspirated stops are found).

The above isoglosses, coupled with what can be gleaned of the pre-Columbian history of the Andean area, seem to indicate the following broad ethnohistorical scheme. (a) Since Quechua seems to be well entrenched both in Ecuador and in Santiago del Estero (Argentina), it may well be that the linguistic penetration of Quechua into these regions was actually under way before the main period of Inca domination.²⁰ Cultural and commercial influences may have led to some use of Quechua as a lingua franca even beyond the bounds of the Inca empire. (b) It appears that the Quechua which was spread to the north and the south before, during, and after the Inca domination was not necessarily the sort of Quechua spoken in Cuzco, but rather varieties of the sort now spoken in Ayacucho, Junín, and Ancash. Admittedly the Cuzco dialect has been extended to Bolivia. But otherwise extensions of Quechua do not appear to have been from dialects containing glottalized and aspirated stops. (c) The presence of aspirated stops in certain dialects of Ecuador has resulted from the northward displacement of an archaic fringe dialect which contained aspirated but not glottalized stops. (d) The southern and northern dialects emanating from centers of influence, first in Cuzco and later in Quito, represent a later dialect overlay and reshaping. Nevertheless, in this reshaping, whatever influence Cuzco had on the surrounding dialects did not result in the reintroduction of the glottalized and aspirated stops which had been lost quite some time before in the other dialects.

²⁰ Inca domination in Santiago del Estero is argued by de Gargaro (1953:5–21) and Bravo (33–7).

p	t	č	k	q		
p ^h	t ^h	č ^h	k ^h	q ^h		
p'	t'	č'	k'	q'	i i'	u u'
	s		h	x		a a'
m	n	ñ				
	l	l'				
	r					
w		y				

TABLE 7. PHONEMES OF AYMARA

4. THE QUECHUA-AYMARA PROBLEM. The striking similarity of the phonemic system of Aymara (Table 7) to that of Cuzco and Bolivian Quechua was noticed so long ago that it is now commonplace. The offhand explanation has been that these Quechua dialects borrowed certain phonological features from Aymara. But the phonological similarity is more deep-seated. Both languages permit no clusters in word-initial position, but have a variety of word-medial consonants. Both languages—subtracting the features of aspiration and glottalization—have almost identical consonant inventories. Both languages had, before the influence of Spanish loans, only three vowels. Both stress the penultimate syllable of words. In fact, the only noteworthy difference between the phonemic system of Aymara and that of Bolivia and Cuzco Quechua is the contrastive vowel length in the former.

The similarity of the two languages—not only in phonology but also in grammar—has for many years invited the hypothesis that the two languages are genetically related. This question has, in fact, been debated since 1888 when Steinthal (462-4) affirmed that the two languages 'were genetically related and mutual exchange of loans was secondary'.²¹ The grammatical parallelism of the two languages was emphasized by Uhle (1912:604), although he denied that there was any phonological relationship between the two languages. Jijón y Caamaño (1943:604) affirmed the relationship of Quechua and Aymara on the basis that the grammatical structure is fundamentally the same. In 1950, Mason (560) emphasized that not only the morphology but also the phonetics of the two 'show a relatively common pattern and many close similarities', but he went on to add that 'the lexical roots seem to have little in common, except a large number, perhaps as much as one-fourth of the whole, obviously related and probably borrowed by one or the other language.'

Nida (1953:7), while recognizing similarities, denied genetic relationship: 'Many [Aymara] roots occur in common with Quechua with which there has been much inter-borrowing through many centuries. Despite the many common words and some remarkable similarities in the structure of words, Quechua and Aymara are regarded by linguists as belonging to entirely different families.' Ross, a decade later (1963, addendum, note 2), commented on Nida's statement above as follows: 'I could not personally subscribe to this statement even in 1953, and further experience with Quechua [Ecuador] has only strengthened my conviction that the two languages are related.'

From these various conflicting opinions, it emerges (1) that Quechua and

²¹ Many of the following bibliographical references are from Sebeok (1953:159-60).

Aymara have a marked parallelism of phonological and grammatical structure; (2) that they share a number of resemblant forms; but (3) that genetic relationship has yet not been established by phonological correspondences set up according to the comparative method. As Hoiijer said (1946:27): 'Aymara is said by some who have worked on it to be related to Quechua. No evidence of this has been published however.' McQuown (1955:561) said, with entire justice, that 'arguments from morphology alone, unsupported by a substantial corpus of lexical material in which regular sound correspondences from language to language are demonstrated, can never be conclusive.' He rightly observed that evidence published to date need indicate nothing further than that one language has borrowed from the other.

It is the purpose of this paper—and particularly of the following two sections—to supply the crucial evidence hitherto lacking in establishing Quechua-Aymara relationship.

5. PROTO-QUECHUMARAN. Proto-Quechumaran is very similar to Proto-Quechua. It has, however, stops at six points of articulation rather than five, in that Proto-Quechumaran has a domal ****t**. Furthermore, while Proto-Quechua has three affricates and three sibilants, Proto-Quechumaran has but two of each. There is, however, a curious phonological imbalance in Proto-Quechumaran in the affricates and sibilants. The reflexes in present-day languages lead us to reconstruct ****č** and ****č̣**, that is, an alveopalatal and a domal; but ****s** and ****š**, that is, an alveolar and an alveopalatal. In spite of this, there seem to be only the two contrasting affricates and the two contrasting sibilants functioning with ****č** and ****s** in a complex alveolar-alveopalatal order, and with ****č̣** and ****š** in an alveopalatal-domal order. It was this phonological imbalance which probably led to the development of the Proto-Quechua phonemes ***c** and ***ṣ̌**. By this development Proto-Quechua came to have three symmetric orders of affricates and sibilants. The precise development of PQ ***c** and ***ṣ̌** remains obscure—but PQ ***c** is probably by split from ****č̣**, and PQ ***ṣ̌** by split from ****š**.

The detailed development of Proto-Quechumaran to Proto-Quechua and Aymara is found in Tables 8 and 9 (see fn. 5).²² These details are discussed and illustrated in this section.

5.1. Stops. Stops and closeknit clusters of stop and laryngeal at five points of articulation are reconstructed for Proto-Quechumaran. Many Aymara words contain more than one laryngealized stop in the same word; such phonemes may occur in affixes as well as in stems. In Quechua (see §1) the distribution of laryngealized phonemes is more restricted; in Quechuan forms found in our cognate sets, there is but one laryngealized stop or affricate per word. Thus where certain Aymara cognates in a Quechumaran set have two laryngealized phonemes, the second laryngealized phoneme will correspond to an unlaryngealized phoneme in

²² In a few sets the Proto-Quechumaran root has been partially reduplicated on the Aymara side. 463 ***(wa)wač̣a-** 'to bear offspring': PQ ***wač̣a-**; Ay. **wawač̣a-** (only of animals). See also 2, 80, 151, 191. In a few other sets there is evidence that either Proto-Quechua or Aymara has metathesized the two consonants of a ****CVCV** form. It is at present uncertain which form is historically basic. 334 ****q̣ḥiḷva** (or ****ḷṿiq̣ha**) 'lazy, lax': PQ ***q̣ḥiḷva** 'lazy'; Ay. **ḷṿiq̣ha** 'lax'. See also 73, 453.

Proto-Quechua. It therefore follows that all ****C'** and ****Ch** phonemes have not only the corresponding Proto-Quechua laryngealized reflexes but also reflex ***C**. On the Quechuan side, a dissimilation of laryngealized phonemes (to unlaryngealized) affects the second laryngealized phoneme of any Quechumaran form. Thus PQA ****l'ant'a** gives Ay. *l'ant'a* but PQ ***l'anta**. PQA ****t'** splits therefore into PQ ***t'** and ***t**. This split of laryngealized phonemes into Proto-Quechua laryngealized and unlaryngealized, by dissimilation of a second laryngealized phoneme, is here given by rule and is not pointed out specifically again in the following sections.

****p** has reflex *p* in both languages. 280 ****puqu-** 'to ripen': PQ ***puqu-**; Ay. *puqu-*. See also sets 17, 19, 27, 63, 68, 73, 90, 96, 118, 251-2, 254-6, 257-8, 260, 262, 264, 267-73, 277, 278, 280, 281.

****ph** has reflex ***ph** in Proto-Quechua, and reflex *pʰ* in Aymara. 288 ****phuslvV** 'blister': PQ ***phuslvV**; Ay. *pʰuslvV*. See also sets 72, 232, 286, 371.

****p'** has reflex *p'* in both languages. 291 ****p'amp'a-** 'to cover with dirt': PQ ***p'ampa-**; Ay. *p'amp'a-*. See also sets 98, 113, 183, 292-5, 383. In a few sets, the Aymara forms have lost glottalization under obscure conditions (unless indeed both of the following sets are spurious). 101 ****hap'i-** 'to grab, to hold': PQ ***hap'i-**; Ay. *apiri* 'carrier' (*api-* 1612).²² 397 ****simp'a-** 'to braid': PQ ***simp'a-**; Ay. *simpa* 'cobweb'. See also set 96.

****t** has reflex *t* in both languages. 411 ****tanqa-** 'to push, to shove, to root': PQ ***tanqa-**; Ay. *tanqa-*. See also sets 28, 54, 58, 98, 120, 136, 154, 254, 258, 262, 348, 393, 402, 413, 418, 422, 424, 427, 431, 485, 507.

****th** has reflex ***th** in Proto-Quechua and *tʰ* in Aymara. 432 ****thuñi-** 'to collapse, slackness': PQ ***thuñi-**; Ay. *tʰuñi-* 'slackness'. 159 ****khitu-** 'to make level': PQ ***khitu-**; Ay. *kʰitʰu-*. See also sets 168, 304, 349, 433, 508. Proto-Quechua shows obscure loss of the laryngeal features in 153 ****k'utha-** 'to grind, to crush': PQ ***kuta-**; Ay. *k'utha-*. In the only set in which ****th** occurs word-initial, it has PQ reflex ***th** and Ay. *t*. Though this may be the regular Aymara reflex in this position, it is more likely that the original reflex was *tʰ*, and that the aspiration has been lost under obscure conditions. 431 ****thalvV-** 'to pour': PQ ***thalvi-**; Ay. *talv-* (*talvi-* 1612).

****t'** has reflex *t'* in all environments in Aymara. In Proto-Quechua it has reflex ***t'** following a stop in a consonant cluster (and by dissimilation of laryngeals), and reflex ***t'** elsewhere. 475 ****waK't'a-** 'to hit, to touch': PQ ***waqta-**; Ay. *wak't'a-* 'to touch'. 439 ****t'isa-** 'to card or comb wool': PQ ***t'isa-**; Ay. *t'isa-*. 434 ****t'ant'a** 'bread': PQ ***t'anta**; Ay. *t'ant'a*. See also sets 246, 250, 435, 436, 438, 441, 501. Proto-Quechua has a simple stop reflex while Aymara has cognates with laryngeal features (though the cognate with aspiration may be spurious), in 425 ****t'ulvu** 'bone, to gnaw a bone': PQ ***tulvu**; Ay. *t'uru-* 'to gnaw a bone', *t'ulu* 'corn cob'.

****t̥** has reflex ***t̥** in Proto-Quechua, and *t* in Aymara. 320 ****quṭa** 'lake': PQ ***quṭa**; Ay. *quta*. See also sets 59, 63, 65, 380, 512. ****t̥** has obscure reflex ***c** in 251 ****paṭak** 'one hundred': PQ ***pacak**; Ay. *pataka*. (This is, however, the only CVCVC structure occurring in the sets which witness to ****t̥**.)

While the evidence for ****t̥** is secure, evidence for a series of domals is very scanty. Not one set exists in our present corpus for ****th**, and only two sets (both of which contain problems) exist for reconstruction of ****t'**, which has PQ reflex ***t̥'** before ****i**, but ***t̥'** before ****a**. It has Ay. reflex *t'* when word-initial, and *t* in a consonant cluster. 379 ****sint'i** 'strong, excess, very': PQ ***sint'i**; Ay. *sinti* 'very'. 52 ****t̥aqi-** 'to dry': PQ ***c'aki-**; Ay. *t̥aqi-*.

****k** has reflex ***k** in Proto-Quechua. In Aymara it has reflex *h* as first member of a consonant cluster, and *k* elsewhere. 146 ****kunka** 'neck': PQ ***kunka**; Ay. *kunka*. 295 ****p'ukru** 'deep place, pit, well': PQ ***p'ukru**; Ay. *p'uhru*. See also sets 46, 58-9, 62, 65, 82, 126, 132-3, 136, 140, 143-4, 148, 151, 154, 180, 203, 228, 251, 269, 273, 277-8, 302, 354, 422, 424, 465, 488.

²² Forms marked '(1612)' are from Bertonio's dictionary of that date.

Between ****w** and ****i** the velar stop is backed in Proto-Quechua. 486 ****wawqi** 'male relative': PQ ***wawqi** 'man's brother'; Ay. *awki* 'father'.

****kh** has reflex ***kh** in Proto-Quechua. In Aymara it has reflex **k** following ****r** or ****s** in a consonant cluster, and **k^h** elsewhere. 181 ****wamkha-** 'to touch, to feel': PQ ***wamkha**; Ay. *wamkha*. 478 ****warkhu-** 'to hang': PQ ***warkhu-**; Ay. *warku-*. See also sets 159-62, 482. There are two sets in which PQ ***k** appears rather than the expected ***kh**. Aspiration has been dropped from both velar stops in the Proto-Quechua form of set 150 ****khuskha** 'to level, to make even': PQ ***kuskka**; Ay. *kuskkača-*. Presumably the aspiration was dropped from the second stop according to regular dissimilation of laryngealization. The subsequent loss of aspiration in the first syllable is obscure. The Proto-Quechua form ***taruka** likewise has an unaspirated **k** in its last syllable; however, three syllable stems in Quechua are suspect of being derived forms consisting of two syllable stems plus a suffix. If the final **-ka** were once a suffix, this would explain the unaspirated reflex—since laryngealized stops do not occur in Quechua suffixes. 417 ****taruk^ha** 'deer': PQ ***taruka**; Ay. *taruk^ha* 1612).

****k'** has reflex **k'** in both languages. 171 ****k'umu-** 'to bend, to curve': PQ ***k'umu-**; Ay. *k'umu-*. See also 94, 100, 102, 110, 112, 167-72, 192, 224, 226. There is obscure loss of glottalization in Aymara in set 16, and in Proto-Quechua in set 153. 16 ****ank'u** 'vein, tendon, nerve': PQ ***ank'u**; Ay. *anku*. 153 ****k'uiha-** 'to grind, to crush': PQ ***kuta-**; Ay. *k'uiha-*.

****q** has reflex ***q** in Proto-Quechua. In Aymara it has reflex **q** preceding vowels (except in a cluster following ****y**), and reflex zero when word-final. As first member of a consonant cluster it has reflex **x**, as second member of a cluster following ****y** it has reflex **h**. 325 ****qunquri** 'knee': PQ ***qunquri**; Ay. *qunquri*. 389 ****sumaq** 'fine, beautiful': PQ *sumaq*; Ay. *suma*. 292 ****p'aqla** 'cleared, open area': PQ ***p'aqla**; Ay. *p'aqla*. 216 ****mayqa-** 'which, distinct': PQ ***mayqan**; Ay. *mayha*. See also sets 32, 185, 231, 256, 270, 280, 286, 293, 294, 303, 305, 307, 310, 313, 316-8, 320-2, 326, 341, 393, 399, 412, 436, 453-4, 505. The PQ reflex is fronted before a front vowel in 52 ****taqi-** 'to dry': PQ ***č'aki-**; Ay. *taqi*. The Aymara reflex is fronted in an ****nq** cluster following ****č** in the first syllable. 40 ****čhanqa** 'rough, coarse': PQ ***čhanqa**; Ay. *čhanka*. There is obscure fronting of the Aymara reflex in 312 ****qaraCa** 'skin infection': PQ ***qarača**; Ay. *karana*.

****qh**, when word-initial, has PQ reflex ***qh** and Ay. **q^h**. Preceding ****r** in a cluster it has PQ reflex ***qh** and Ay. **x**. 330 ****qhašqha** 'coarse, rough': PQ ***qhašqa**; Ay. *q^hasq^ha*. 373 ****saqhra** 'evil, demon': PQ ***saqhra**; Ay. *sazra*. See also sets 86-7, 335-6, 477. One set involves inconsistent PQ ***q** reflex with Ay. **q^h**. We note here that the aspirated stop attested in the Aymara form is in non-initial position, which is not the preferred position for a laryngeal cluster in Proto-Quechua. 260 ****paqhari-** 'to dawn, to pass the night': PQ ***paqari-**; Ay. *paq^hari-*.

****q'** has reflex **q'** in both languages, initially and intervocally. Following ****r** in a cluster it gives PQ ***q'** and Ay. **q**. 343 ****q'iwí-** 'to twist, to wind': PQ ***q'iwí-**; Ay. *q'iwí-*. 210 ****marq'a-** 'to carry': PQ ***marq'a-** 'to carry in one's arms'; Ay. *marga-* 'to carry on one's shoulders'. See also sets 115-6, 340-1, 343, 346, 350. There is obscure loss of glottalization in the following sets, one of which also has Ay. **k** reflex. (Both sets are recorded from the Aymara 1612 dictionary.) 347 ****q'uruta** 'testicles': PQ ***q'uruta** 'testicles'; Ay. *quruta*. 489 ****wayq'u** 'ravine': PQ ***wayq'u**; Ay. *wayku*.

5.2. AFFRICATES. Affricates and closeknit clusters of affricates and laryngeals occur at two points of articulation: alveolar and domal. Evidence exists for Proto-Quechumaran affricates and closeknit clusters. Evidence also exists for the separation of the affricates into alveolar and domal orders. Where, however, affricates do not occur word-medial in a cluster with another consonant, the separation of the two orders is dependent on the Huarás dialect witness on the Quechua side. The bulk of the Quechua dialects and Aymara have merged the two orders into one (see fn. 11). In the following paragraphs we give unambiguous examples of ****č**, ****čh**, ****č'**, ****č^h**, and ****č^h'**. In subsequent paragraphs we give examples of ambiguous Proto-Quechumaran sets of single affricates and closeknit

clusters. With more data it may be possible to portion these sets into those that attest the alveolar versus those that attest the domal affricates.

**č has reflex č in both languages. 46 **čaka 'bridge': PQ *čaka; Ay. čaka. See also sets 35, 111-12, 133, 297. Preceding **q in a cluster it gives PQ *č and Ay. s. 286 **phičqa 'five': PQ *pičqa; Ay. p^hisqa.

**čh is unambiguously attested in but one set, where it has PQ reflex *čh and Ay. č. 40 **čhanKa 'rough, coarse': PQ *čhanga 'coarsely ground'; Ay. čhanka 'rough (to the touch)'.

**č' has reflex č' in both languages preceding **i and **u. Preceding **a, it gives PQ *c' and Ay. č'. 54 **č'iqta- 'to split, to scatter': PQ *č'iqta-; Ay. č'iqitata-. 218 **mič'a 'stingy': PQ *mic'a; Ay. mič'a. See also sets 41, 55. **č' has merged with **č in Proto-Quechua under obscure conditions in 49 **č'uri 'son': PQ *čuri; Ay. č'uri 'last son'.

**č has PQ reflex *č and Ay. č, word-initially and intervocally. Preceding **k in a cluster, it gives PQ *č and Ay. s. 62 **časki 'messenger': PQ *časki; Ay. časki. 192 **lučkV 'slippery, to slide': PQ *lučk'a; Ay. lusk'u-. See also sets 66, 201, 252.

**č' is unambiguously attested in only two sets. It gives PQ reflex *č' and Ay. č'. 68 **č'uspi 'fly, gnat': PQ č'uspi; Ay. č'uspi. 69 **č'usu 'small, fine (of grains)': PQ *č'usu; Ay. č'usu.

**č (ambiguous reconstruction of **č/č) is attested in the following sets. 2 ** (ač) ač'i 'uncle, old person': T hači 'uncle'; Ay. ačači 'old person', hač'a tata 'uncle'. 13 **anča 'very': PQ *anča; Ay. anča. 70 **čalwa 'fish': PQ *čalwa; Ay. čalwa/čalwa. 72 **čaphaK 'muddy, crumbly': T čapak; Ay. čapa. 73 **čarapa (or **čapara) 'large': PQ *čarapa 'large turtle'; Ay. čapara. 272 **puču 'left over': PQ *puču; Ay. puču. 317 **qinča 'fence': PQ *qinča; Ay. qinča. 463 ** (wa) wača- 'to hatch, to bear': PQ *wača-; Ay. wawača- 'to give birth (animals)'. 464 **wakča 'orphan': PQ *wakča; Ay. wahča. 502 **začu(n) 'sister-in-law, daughter-in-law': PQ *začu(n); Ay. qaču.

**čh (ambiguous reconstruction **čh/čh) is attested in the following sets. 85 **čhalvu 'broken, waste': PQ *čhalvu; Ay. čhalvu. 87 **čhugri 'to cut, to wound': R, T čugri-; Ay. čuzri. 160 **khuču- 'to cut, to cleave, to chop': PQ *khuču-; Ay. k^huču-. Loss of aspiration in Proto-Quechua is obscure in 82 **čhukču 'chills, malaria': PQ *čukču; Ay. čuhču.

**č' (ambiguous reconstruction **č'/č') is attested in the following sets. 88 **č'awa- 'to wring out, to milk': PQ *č'awa-; Ay. č'awa-. 89 **č'iši 'dark sky': PQ *č'iši 'evening'; Ay. č'isi 'cloudy, bad weather'. 90 **č'upu 'boil': PQ *č'upu; Ay. č'upu (1612). 91 **č'uru 'snail': PQ *č'uru; Ay. č'ulu. 92 **č'ušaq 'empty': PQ *č'ušaq; Ay. č'uša. 169 **k'uču 'corner': PQ *k'uču; Ay. k'uču. 193 **luču 'to skin, to undress': PQ *luču-; Ay. luču-. 365 **sača 'forest, savage': PQ *sača 'forest'; Ay. sača 'savage' (1612). 388 **suču 'paralysis': PQ *suču; Ay. suču. Loss of glottalization in Proto-Quechua is obscure in 80 **č'iri 'cold': PQ *č'iri; Ay. č'iriri 'small hail'.

5.3. SPIRANTS. Five spirants and three closeknit clusters of spirant and laryngeal are reconstructed for Proto-Quechumaran, at bilabial, alveolar, alveopalatal, velar, and postvelar points of articulation: **φ, **φh, **φ', **s, **š, **h, **x, **xh.

**φ has PQ reflex *φ and Ay. p (only one set). 297 **phiča- 'to clean': PQ *phiča-; Ay. piča-.

**φh has PQ reflex *φh and Ay. p^h (only one set). 301 **φhucu 'cloud, vapor': PQ *φhuyu; Ay. p^hut^huti.

**φ' has PQ reflex *φ'. It has Ay. reflex p' preceding **a and p^h preceding **i. 302 **φ'aki- 'to break': PQ *φ'aki-; Ay. p'aki-. 304 **φ'ilhV- 'to cut': PQ *p'ili-; Ay. p^hi^hu-. There is obscure loss of glottalization in Aymara in 303 **φ'anqa 'leaf, flower': PQ *φ'anqa; Ay. pangara.

**s has reflex s in both languages. 369 **sapa 'each, alone': PQ *sapa; Ay. sapaki. See also sets 62, 68-9, 136, 143, 150, 188, 232, 288, 313, 365, 367, 370, 373, 376, 379, 380, 382, 384, 387-9, 391-2, 439, 481, 500.

****š** has reflex **š** in Proto-Quechua and **s** in Aymara. 212 ****maša-** 'brother-in-law, son-in-law': PQ ***maša-**; Ay. *masanu*. See also sets 89, 92, 123, 151, 172, 226, 271, 294, 330, 335, 393, 395, 397-9, 401, 405, 435, 501.

****h** has reflex **h** in both languages. 102 ****hark'a-** 'to hinder': PQ ***hark'a-**; Ay. *hark'a-*. See also sets 94, 98, 100, 106, 110-1, 113, 115-6, 445. In two sets, initial ****h** before ****a** is lost in Aymara under obscure conditions. 101 ****hap'i-** 'to carry': PQ ***hap'i-**; Ay. *apiri* 'carrier'. 95 ****halv-** 'to dig, to plow': PQ ***halvma-**; Ay. *alvha-*.

****x**, when word-initial, has reflex ***x** in Proto-Quechua and **q** in Aymara. 505 ****xaqu-** 'to rub': PQ ***xaqu-**; Ay. *qaqu-*. See also sets 502, 507. Word medial ****x** is reconstructed solely on the basis of one set which consists of Riobamba and Aymara forms; the R reflex is **k**, the Ay reflex is **x**. 250 ****ñuxu** 'filth, dung': R *ñuku*; Ay. *ñuxu*. Initial ****x** and ****h** have merged in Proto-Quechua in 96 ****xalp'a** 'earth, ground': PQ ***(h)alp'a**; Ay. *qalp'a* 'new field'.

****zh** has reflex ***x** in Proto-Quechua and **q'** in Aymara. 508 ****xath'u-** 'to sell': PQ ***xatu-**; Ay. *q'ath'u-*. See also set 509. Preceding ****r** in a cluster, ****qh** has reflex **x** in Aymara, and **g** in R and T, the only Quechua dialects witnessing to this cluster. 87 ****Ĉuqhri-** 'to cut, to wound': R, T *čugri-*; Ay. *čuxri-*. ****zh** has reflex **h** in Proto-Quechua (which is lost under obscure conditions in PQ dialects other than B and C) in 109 ****zhiĈ'a-** 'to throw away': PQ ***hiĈ'a-**; Ay. *q'hiĈ'a-*. In another set in which there is only an R reflex on the Proto-Quechua side, it has R reflex **k'** word-initial, and **k** word-medial. 504 ****zanxa** 'rough, hard': R *k'ankawa*; Ay. *q'anq'a*.

5.4. NASALS. Three nasals are reconstructed for Proto-Quechumaran: ****m**, ****n**, ****ñ**.

****m** has reflex **m** in all environments in both languages. 231 ****muqu** 'knot': PQ ***muqu**; Ay. *muqu*. See also sets 11, 98, 113, 132-3, 143, 167, 171, 181, 183, 201, 203, 207, 210, 212, 215-6, 218, 221, 224-6, 228, 230, 232, 235, 257, 291, 307, 367, 389, 397, 437, 467, 479.

****n** has reflex **n** in all environments in both languages. 238 ****nina** 'fire': PQ ***nina**; Ay. *nina*. See also sets 13, 16, 40, 65, 100, 120, 146, 224, 230, 258, 269, 277-8, 293, 303, 317, 325, 340, 376, 379, 380, 411-2, 421, 434, 467, 470, 488, 504, 516-8.

****ñ** word-initial, unless checked by a nasal, has reflex **ñ** in both languages. When checked by a nasal, it gives reflex ***y** in Proto-Quechua and **ñ** in Aymara. 249 ****ñut'u** 'fine (grain)': PQ ***ñut'u**; Ay. *ñut'u*. 518 ****ñanq'a** 'for nothing, bad': PQ ***yanqha**; Ay. *ñanq'a*. Intervocalically, reflex **ñ** appears in both languages. 497 ****wiñay** 'forever': PQ ***wiñay**; Ay. *wiñaya*. See also sets 242, 246, 248, 432. There are possible obscure reflexes **y** and **n** in Aymara, under conditions poorly understood, in 207 ****mañV-** 'to beg, to borrow': PQ ***mana-**; Ay. *mayi* 'to borrow' (*manu* 'debt', 1612).

5.5. LIQUIDS. Three liquids are reconstructed for Proto-Quechumaran: ****r**, ****l**, and ****l'**.

****r** word-initial has PQ reflex ***r** and Ay. *l*. Word-medially, it has reflex **r** in both languages. 364 ****rura-** 'to do, to make': PQ ***rura-**; Ay. *lura-*. 210 ****marq'a-** 'to carry': PQ ***marq'a-** 'to carry (in one's arms)'; Ay. *marga-* 'to carry on one's shoulders'. See also sets 49, 66, 73, 80, 87, 102, 148, 161, 176, 210, 225, 270, 281, 295, 307, 309-10, 312, 318, 325-6, 347, 353, 373, 384, 417, 454, 456-7, 476, 478-9, 490, 499. There is obscure reflex **l** in Aymara in 91 ****Ĉ'uru** 'snail': PQ ***Ĉ'uru**; Ay. *ĉ'ulu*.

****l** has reflex **l** in both languages. 292 ****p'aqla** 'cleared, open area': PQ ***p'aqla**; Ay. *p'azla*. See also sets 175-6, 254, 276.

****lv** has reflex **lv** in both languages, when preceding ****a** and ****u**. 170 ****k'ulvu** 'piece of wood': PQ ***k'ulvu** 'large firelog'; Ay. *k'ulvu*. See also sets 7, 27, 36, 55, 65, 85, 95-6, 116, 118, 167, 172, 180-1, 183, 185, 188, 191-5, 203, 215, 221, 255-6, 268-9, 288, 305, 316, 321-2, 334, 339, 378, 394, 399, 431, 453. In one of the three sets preceding ****i**, ****lv** has reflex **l** in Aymara. 8 ****walvi** 'good': PQ ***alvi**; Ay. *wali*. In set 228, in which there is only a T witness to the Proto-

Quechua form, ****l** has reflex *l* (there is no sequence *lvi* in T, see §2.5). 228 ****muklvi**: 'bulge, elbow': T *mukli*; Ay. *muhlvi*. A further, perhaps spurious, set gives PQ ***lv** and Ay *l*. 425 ****tulu** 'bone': PQ **tulu* 'bone'; Ay. *l'uru* 'to gnaw a bone', *l'ulu* 'corn cob'.

5.6. SEMIVOWELS. Two semivowels are reconstructed for Proto-Quechumaran: ****w**, ****y**.

****w** has reflex *w* in both languages. 88 ****ɛ'awa-** 'to wring out': PQ **ɛ'awa-*; Ay. *ɛ'awa-*. See also sets 27, 32, 41, 70, 106, 176, 188, 343, 376, 462-4, 470, 475-6, 478-9, 481, 484-91, 497, 499, 500-1. Under obscure conditions, initial ****w** has been lost in Proto-Quechua in set 8, and in Aymara in set 486. 8 ****walvi** 'good': PQ **alvi*; Ay. *wali*. 486 ****wawki** 'male relative': PQ **wawgi* 'man's brother'; Ay. *awki* 'father'. Initial ****w** has PQ reflex **w* and Ay. reflex *m*, under influence of ****m** in the following syllable, in 467 ****wamani** 'large hawk': PQ **waman(i)*; Ay. *mamani*. In set 479 ****w** gives PQ **w*; it gives Ay. *w* in our contemporary source and Ay. *m* in the 1612 dictionary. Apparently there have been divergent Aymara dialect developments which cannot be placed geographically.

****y** has reflex *y* in both languages. 521 ****yapu-** 'to plow': PQ **yapu-*; Ay. *yapu*. See also sets 34-6, 162, 215-6, 235, 353, 391, 393, 405, 462, 487-91, 497, 512, 517, 520, 524, 531. Before ****p** in a consonant cluster, ****y** has reflex **w* in Proto-Quechua. 63 ****çaypi** 'half, middle': PQ **çawpi*; Ay. *çaypi*. This same phenomenon happens under obscure conditions in 245 ****ñayCa** 'before': PQ **ñawpa*; Ay. *ñayra*. ****y** between ****i** and ****u** is lost in Aymara. 440 ****l'iyu** 'sand': PQ **l'iyu*; Ay. *l'iu* (1612).

5.7. CONSONANT CLUSTERS. Consonant clusters are found in 37 percent of the Proto-Quechumaran reconstructed corpus. As in Proto-Quechua, almost three-fourths of these consonant clusters contain a stop, usually as second member of the cluster. Also as in Proto-Quechua, the largest group of clusters consists of nasal plus stop, e.g. 258 ****panta-** 'to err'. Liquids plus stops also occur numerously, e.g. 478 ****warkhu-** 'to hang'. Of the spirants, only ****s** and ****š** cluster, e.g. 330 ****qhasqha** 'coarse, rough'. The clusters consisting of stop plus lateral, and semi-vowel plus stop, are few, e.g. 295 ****p'ukru** 'pit, hole, well'; 487 ****wayka-** 'to mutiny'. The Proto-Quechua restrictions for clustering (§2.7) hold also in Proto-Quechumaran, with these added rules: (a) As second member, affricates do not cluster with spirants. (b) Alveolar stops do not occur as first member of a cluster.

5.8. VOWELS. Three vowels are reconstructed for Proto-Quechumaran: ****a**, ****i**, and ****u**. All Aymara forms end in vowels; thus, a Proto-Quechumaran form ending in ****k**, ****r**, or ****y** has a final vowel added in the Aymaran form, of the same quality as the vowel immediately preceding the final consonant of the Proto-Quechumaran form. 41 ****ɛ'awar** 'fiber': PQ **c'awar* '(from the maguey)'; Ay. *ɛ'awara* '(from hair)'. See also 251, 391, 497.

****a** has reflex *a* in both languages in the following sets: 2, 7-8, 11, 13, 16-7, 19, 27-8, 34-6, 40-1, 46, 49, 52, 54-5, 58-9, 62-3, 65-6, 70, 73, 85, 88, 92, 94-5, 98, 100-2, 106, 109, 111-2, 118, 126, 132-3, 136, 143, 146, 150, 153, 162, 168, 175-6, 180-1, 183, 185, 188, 194, 201, 203, 207, 210, 212, 215-6, 218, 221, 224-5, 230, 232, 238, 242, 245, 251-2, 254-8, 260, 262, 264, 270, 273, 286, 291-3, 297, 302-3, 305, 309-10, 312-3, 316-7, 320, 330, 334, 347, 353, 364-5, 367, 369, 370, 373, 376, 384, 389, 391-3, 397, 405, 411-2, 417, 430-1, 433-5, 439, 454, 462-4, 467, 470, 475-6, 478-9, 484-91, 497, 502, 504-5, 507-9, 512, 516-8, 520-1, 524.

****i** has reflex *i* in both languages in the following sets: 2, 8, 11, 28, 49, 52, 54, 59, 62-3, 68, 80, 87, 89, 101, 106, 109-10, 113, 118, 120, 123, 133, 140, 143-4, 151, 154, 159, 167-8, 172, 180, 191, 203, 218, 221, 224-6, 228, 238, 246, 260, 267-71, 277, 281, 286, 293, 294, 297, 302, 309, 316-8,

321, 325-6, 334-5, 339-40, 342-3, 354, 370, 378-80, 382, 384, 387, 397-8, 401, 421, 432, 437, 439-40, 452, 456, 467, 479, 486, 497, 499, 500-1, 509.

***u* has reflex *u* in both languages in the following sets: 16, 19, 36, 49, 55, 65-6, 68-9, 82, 85, 87, 90-2, 94, 98, 111-3, 115-6, 144, 146, 148, 150-1, 153-4, 159-62, 168-72, 183, 191-5, 228, 230-2, 235, 242, 248, 250, 267-8, 272-3, 276-8, 280-1, 288, 295, 301, 318, 320-2, 325-6, 339-40, 345, 347, 349, 353, 364, 378-80, 382, 384, 387-8, 391-2, 399, 401, 405, 417, 423, 425-6, 430, 432-3, 437, 440, 445, 452-4, 456-7, 462, 478, 498, 491, 499, 500, 502, 505, 508, 521, 531.

There remains a residue of sets containing conflicting vowel witnesses. In such sets it is impossible to reconstruct a Proto-Quechumaran form. This vowel is usually the last vowel of the stem which was exposed to contamination from or fusion with suffixes. 470 ***wanV*- 'to learn by one's mistakes': PQ **wana*-; Ay. *wani*-. See also sets 7, 100, 118, 161, 192, 207, 255, 269, 294, 304, 307, 421, 435, 453, 470, 481, 512.

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