

**On certain Tibetan and Chinese phonological questions of the  
medieval period**

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1.

The Sino-Tibetan Treaty Inscription of 821-822 is carved on a pillar which stands before the famous Lhasa Gtsug-lag-khang, or Jo-khang, called Dazhaosi 大昭寺 in Chinese. The text records a treaty of peace concluded between the Tang government and the ruling authorities of Tibet. The stele was set up in 823, which was, according to the traditional Chinese calendar, the third year of the Changqing 长庆 period, and according to Tibetan reckoning the Female-Water-Hare year.<sup>1</sup> This pillar, which is now over 1100 years old, has inscriptions on all four of its faces. The rear face is entirely in Tibetan, while the other three sides have texts in both Chinese and Tibetan. The inscription enables us to study Tibetan government, religion, and history of the Royal Period (i.e. 600-860), Sino-Tibetan relations of that time, ancient Tibetan and Chinese linguistic problems, etc. For these reasons it has been highly valued by scholars of both China and other countries, and is one of the oldest and most important paleographical monuments in the history of Asia.

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<sup>1</sup> Our present font limitations require us to use modern abbreviated forms for the Chinese characters cited in this article. We hope to be able to handle the traditional forms of the characters in the near future. [Ed.]

The right face of the pillar records the names and titles of the Tibetan dignitaries who took part in the treaty negotiations. The Tibetan versions are above, with transcription into Chinese characters below. On the left face are the names and titles of the Chinese representatives; and here too we have both Tibetan and Chinese versions, with the former above, in Tibetan alphabetic transcription, and the latter underneath in the original Chinese characters. The present paper uses these Sino-Tibetan transcriptional forms to investigate certain ancient Tibetan and Chinese phonological questions. Since the transcriptions were recorded in the Chinese and Tibetan scripts rather than in an exact medium such as the IPA we use today, we cannot expect complete phonetic accuracy in the data; and it follows that the certitude of our conclusions and results must be accordingly affected. The data can only serve as material for further consideration or as ancillary evidence bearing on the questions we wish to consider. But there is nonetheless a point which ought to be emphasized here. This inscription records an official diplomatic document. And the fact that it was inscribed on a public monument attests to the seriousness with which it was viewed. We may consequently give considerable credence to its general reliability, and there is no reason whatever to suppose that the transcriptional portions are of a lesser order in this regard than the rest of the text.

## II.

We shall begin by using the Tibeto-Chinese transcriptional material on the right face of the pillar to throw light on phonological questions in ancient Tibetan. In an earlier paper, entitled, "Some Questions regarding the Old Tibetan Initials of the Royal Period" (MZYW 1986.6), this writer presented some preliminary views on linguistic points reflected in forms found in monolingual Old Tibetan documents. The present article uses Tibeto-Chinese transcriptional material to pursue these matters further. It can therefore be viewed as a companion and amplification of the earlier study.

The preposed, superscribed, subscribed and base or radical consonant graphs of Written Tibetan are used in combination to transcribe the initial consonant clusters of Old Tibetan. The ten final consonants and two post-final consonants combine with each other to form the syllable final configurations, and these in turn join with the vowels to yield the rimes of the language. But, due to linguistic evolution, by the ninth century these initials and finals had undergone certain changes. We shall now use the material in the Treaty text to investigate some of these.

### A. Initials

(1) Preposed consonants: The Tibetan preposed consonants are called ཨྲ་ལྷུག་ (sngon-'jug)<sup>2</sup> and include ཁ (g), ད (d), བ (b), མ (m), and འ (-).

TIBETAN FORM		CHINESE FORM AND DATA		
Tibetan Consonant	Tibetan Form	Chin. transcr. character	Fanqie <sup>3</sup>	Reconstruction
1. ཁ (g)	ཁྲླག་མཚན་ (65) <sup>4</sup> gtogs	𪛗 (68)	冬毒切, 入, 沃韵, 端	*[tok]
2. ད (d)	དཔལ་ (14) dpal	𪛗 (16)	北来切, 入, 来韵, 帮	*[puat]

<sup>2</sup> Romanizations of the Tibetan forms are given in round brackets, according to the following system: k, kh, g, ng; c, ch, j, ny; t, th, d, n; p, ph, b, m; ts, tsh, dz, w; zh, z, '., y; r, l, sh, s; h, zero. Vowels are as follows: a, i, u, e, o, i (inverse gi-gu).

<sup>3</sup> The *fanqie* portion of the table includes the *fanqie* spelling, the tone, the rime, and the initial, in the traditional phonological nomenclature of Middle Chinese phonology. In citing reconstructed Chinese forms and the traditional sound categories, I rely primarily on the *Qieyun* system, as reflected in the *Qieyun*, completed by Lu Fayuan in 601 and in the *Guangyun*, compiled in the Song period by Chen Pengnian et al.

<sup>4</sup> The number which appears beside the Chinese and Tibetan forms designates the number of the line in the inscription in which they appear. For the Tibeto-Chinese transcriptions, this refers to the right face of the stele. References to Sino-Tibetan transcriptions pertain to the left face.

3. བ (b) འོ་བ་རྒྱལ་ blon rgyal 藏 (56) 徂 浪切, 去, 宕韵, 从 \* [dzaŋ]  
བཟང་འདུས་ bzang 'dus  
ཀོང་ (52) kong
4. རང་ཁྱི་ zhang khri 热 (49) 如列切, 入, 薛韵, 日 \* [nziet]  
བཞེད་ (47) bzher
5. ཀླུ་བཟང་ klu bzang a 劫 b 楼 a 居怯切, 入, 叶韵, 见 \* [kiɔp]  
c 劫 d 藏 b 落侯切, 平, 侯韵, 来 \* [lu]  
(91-93) c 蒲没切, 入, 没韵, 并 \* [buət]  
d 徂 浪切, 去, 宕韵, 从 \* [dzaŋ]
6. བཙན་ btsan a 赞 b 匠 a 则 干切, 去, 翰韵, 精 \* [tsɔn]  
བཞེད་ (38) bzher c 热 b 普火切, 上, 果韵, 旁 \* [p'ua]  
(39-41) c 如列切, 入, 薛韵, 日 \* [nziet]
7. མ (m) མང་ན་ (75) mngan 岸 (77) 五 干切, 去, 翰韵, 疑 \* [ŋan]
8. མཐོང་ (48) mthong 通 (49) 他红切, 平, 东韵, 透 \* [t'uw]
9. འ ('-) འབྲོ་ (90) 'bro a 没 b 卢 a 莫勃切, 入, 没韵, 明 \* [muət]  
(91-93) b 落胡切, 平, 模韵, 来 \* [lo]

From the above examples we can observe the following points:

1. In examples (1), (2), (7), and (8) the Tibetan pre-initials བ (g), འ (d), and མ (m) are not represented in the Chinese transcriptions. There are two possible reasons for this: one is that by the ninth century these pre-initials had already been lost. Another is that, when these syllables were pronounced, the pre-initials བ (g), འ (d), and མ (m) were not clear, so that they were overlooked during the process of transcription. For this



reason, it is difficult, on the basis of the Tibeto-Chinese transcriptions alone, to decide whether the Tibetan sounds had already been lost or not. However, in my previous article (1986), I was able to determine on the basis of native Tibetan materials, that the pre-initials ཁ (g), ད (d), and མ (m) did indeed show indications of having already disappeared, coalesced with other consonants, or undergone simplification.

2. Likewise, in examples (3) and (4) the pre-initial འ (b) in the forms འཇུང (bzang) and འཇེར (bzher) are not rendered in the transcriptional forms,<sup>5</sup> while in examples (5) and (6) we find the characters 𑄧 and 𑄨, which do transcribe འ (b) in these very syllables. But here we may observe that in examples (3) and (4) the syllables འཇུང (bzang) and འཇེར (bzher) are not in close juncture with the preceding syllables, while in examples (5) and (6) they are closely bound to the preceding syllables. Thus, it would seem that, when occurring in absolute initial position, pre-initial འ (b) had probably been lost; but when it was preceded by another syllable (which syllable either had a non-stop final or ended in འ ('-)), the pre-initial survived. This situation is in fact identical to that observed today in the modern Lhasa dialect, except that in this language the preserved consonant འ (b) is now felt by native speakers to have become the final consonant of the preceding syllable. For example,

#### *Monosyllables*

<i>Wr. Tibetan Forms</i>	<i>Lhasa Forms (IPA)</i>	<i>English Gloss</i>
འཇུ (bcu)	[tɕu <sup>55</sup> ]	"ten"
འཇེ (bzhi)	[ɕi <sup>13</sup> ]	"four"
འརྟ (brda)	[tɕa <sup>13</sup> ]	"signal, sign"

<sup>5</sup> Neither is the *b*- of *bsan* (first word in example 6) rendered in the transcription. [Ed.]

བརྗོད (brjod)	[tɕʈ <sup>131</sup> ]	"to say"
བརྗོན (bkyon)	[cʈn <sup>55</sup> ]	"chastise (hon.)"

*Polysyllables*

བརྩ་བཞི (bcu bzhi)	[tɕup <sup>55</sup> ɕi <sup>55</sup> ]	"fourteen"
བཞི་བརྩ (bzhi bcu)	[ɕip <sup>12</sup> tɕu <sup>55</sup> ]	"forty"
ཁ་བརྩ་གློད (kha brda glod)	[k'ap <sup>55</sup> ta: <sup>55</sup> lɔ <sup>41</sup> ]	"to chat"
འགོ་བརྗོད ('go brjod)	[kop <sup>12</sup> tɕʈ <sup>41</sup> ]	"preface. foreword"
བཀའ་བརྗོན་གློད (bka' bkyon gnang)	[kap <sup>55</sup> cʈn <sup>55</sup> naŋ <sup>55</sup> ]	"to berate (hon.)"

3. Example (9) reflects some trace of the preservation of preinitial ʔ (-). In ancient times ʔ (-) was probably a voiced fricative \*[ɦ]. Therefore, ʔbro should be reconstructed as \*[ɦbro]. For the Chinese character 𪛗 to transcribe \*[ɦb-] is not really accurate, but there is a definite principle involved here. For in the transition from the unrounded [ɦ] to the voiced bilabial [b], something resembling the bilabial nasal [ɱ] is actually produced. As for the use of Chinese 𪛗 to render \*[-xɔ], this will be treated below in our discussion of the subscribed consonants.

(II) The superscribed consonants are called in Tibetan མགོ་དོག་མ (mgo 'dogs), and there are three of them: ར (r), ལ (l), and ས (s). The following are some examples from our text:

TIBETAN FORM		CHINESE FORM AND DATA		
Tibetan Consonant	Tibetan Form	Chin. transcr. character	Fanqie	Reconstruction
1. ར (r)	རྩེས (85) rtsis	a 资 b 悉 (87-88)	a 即夷切, 平, 脂韵, 精 b 惠七切, 入, 质韵, 心	*[tsɿ] *[sɿɛt]
2.	རྩེགས (85) mags	𪛗 (89)	五陌切, 入, 陌韵, 疑	*[ŋɔk]
3.	རྩེན (86) rgan	乾 (88)	古寒切, 平, 寒韵, 见	*[kan]
4. ར (s)	རྩེང (43) stang	a 悉 b 当 (44-45)	a 惠七切, 入, 质韵, 心 b 都郎切, 平, 唐韵, 端	*[sɿɛt] *[taŋ]
5.	རྩེམ (70) snam	a 悉 b 南 (72-73)	a 惠七切, 入, 质韵, 心 b 那含切, 平, 韵, 泥	*[sɿɛt] *[nɔm]

1. Superscribed ར (l) does not occur in the Tibeto-Chinese transcriptional portions of the inscription, and we consequently have no way of dealing with it here.

2. From examples (1), (2), and (3) we can see that superscribed ར (r) has not been transcribed. This may indicate that it had either been lost or was no longer clear. This again gibes with our earlier research on Old Tibetan documents, which has unearthed indications that this consonant had either been lost by this time or had merged with other superscribed consonants.

3. The case of superscribed ར (s) is quite different, however. It had been very clearly preserved and is transcribed in examples (4) and (5) by the character 悉. This provides incontrovertible proof of its existence during this period.

(III) The subscribed letters in Tibetan are called བྲུང་འདྲེན་གསུམ་ (smad 'dogs), and there are four of them: ཡ (y), ར (r), ལ (l), and ལྷ (w). The ལྷ (w) is called ལྷ་ཟུར་ (wa zur) in Tibetan. It is not pronounced at all in the modern Lhasa dialect and functions solely as a graphic device for distinguishing homophones. It does not appear in the Tibeto-Chinese transcriptions on the right face of the inscription; but, based on its use in the Sino-Tibetan transcriptions on the left face, we conclude that it really did have a function in Old Tibetan and was pronounced \*[w]. This question will be dealt with further below.

TIBETAN FORM		CHINESE FORM AND DATA		
Tibetan Consonant	Tibetan Form	Chin. transcr. character	Fanqie	Reconstruction
1. ར (r)	𑄎 (19) khri	綺 (20)	墟 彼切, 上, 纸韵, 溪	*[k'ie]
2.	𑄎 (42) khri	a 綺 b 立 (45-46)	a 墟 彼切, 上, 纸韵, 溪 b 力入切, 入, 缉韵, 来	*[k'ie] *[liəp]
3.	བྲུང་ (80) bran	a 勃 b 闌 (82-83)	a 蒲没切, 入, 没韵, 并 b 落干切, 平, 寒韵, 来	*[buət] *[lan]
4. ཡ (y)	𑄎 (65) phyi	纒 (67)	匹夷切, 平, 脂韵, 滂	*[p'i]
5.	ལྷ (38) rgyal	结 (40)	古屑切, 入, 屑韵, 见	*[ket]



2. In example (4) Tibetan ལྷ (phyi) is transcribed as 純 [p'ɿ], revealing that subscribed ལ (y), when added to the bilabials པ (p), ཕ (ph), ར (b), and མ (m), had not yet caused these consonants to become prepalatals [tɕ], [tɕ'], and [ɲ], as has occurred in the modern Lhasa dialect. The ལ་བྱ་གྲུ་ (ya btags) was perhaps still pronounced as a semivowel [j] but was not rendered in the transcription because the following vowel [ɿ] made this difficult to do. Examples (5) and (6) show that subscribed ལ (y) had not yet caused the velars ཀ (k), ཁ (kh), and ཅ (g) to palatalize as happened in the Lhasa dialect, i.e. ཀྱ (kya) → [ca<sup>55</sup>], ཁྱ (khyā) → [c'a], ཅྱ (gya) → [c'a]. Only if this change had not yet occurred could the initial of རྒྱལ (rgyal) have been transcribed using Chinese initial \*[k]. So subscribed ལ (y) was perhaps still pronounced as the semivowel [j] at this time.

3. From examples (7) and (8) we can clearly see that subscribed ལ (l) had been preserved, and formed with the base initial ཀ (k) a cluster \*[kl-]. This is why it is transcribed as 矩立 and 劫樓 in the Chinese version. In example (9) not only is subscribed ལ (l) preserved, it also usurps from ར (b) the position of base consonant. ར (b) then in effect becomes a pre-initial and is as a matter of course lost in this position. The result is that རྣ (blon) is represented in the Chinese transcription as 伦 \*[luən]. This development is identical to that which actually occurred in the Lhasa dialect, i.e. \*[blon] → \*[lon] → [lən].

### B. Finals

In the preceding section we have discussed the Tibetan initials. Let us now turn our attention to the finals. The finals include the vowels and the syllable final consonants. Tibetan has altogether five vowels, a, ɿ, u, e, and o, which are represented using four vowel signs: ˘ (i), ˘ (u), ˘ (e), and ˘ (o). Absence of a vowel sign on a particular syllable indicates that the syllable has the vowel [a]. In Old Tibetan documents, including the Treaty Inscription,

there was yet another vowel sign, the inverted ˆ (i). But whether this symbol represented a sixth vowel, and if so, what the phonetic value of this vowel was, are controversial and unsettled issues. There are ten syllable final consonants: ག (-g), ལ (-ng), ཌ (-d), ཎ (-n), ཐ (-b), བ (-m), འ (-'), ར (-r), ལ (-l), and ས (-s). In addition, there are two post-final consonants: ཌ (-d) and ས (-s). Post-final ཌ (-d) is called the ཌ་དྭག (da drag) in Tibetan; and in Old Tibetan it was added to the final consonants ཎ (-n), ར (-r), and ལ (-l). It is traditionally supposed to have strengthened the sound of the base form in some way. In 826-827, during the reign of the Tibetan king རལ་པ་ཅན་ Ral-pa-can, the second great Tibetan script reform was carried out; and at that time the *da-drag* was abolished, perhaps because it was felt to be no longer functional, either in the spelling system or as an element which distinguished meaning.

Now we shall examine the behavior of the finals in the Tibeto-Chinese transcriptions of the Treaty text, with special attention to the syllable final consonants.

TIBETAN FORM		CHINESE FORM AND DATA		
<i>Tibetan</i> Final	<i>Tibetan</i> Form	<i>Chin. transcr.</i> character	<i>Fanqie</i>	<i>Recon-</i> <i>struction</i>
1. ག (g)	ཙྱག (65) cog	属 (67)	之敬切, 入, 烛韵, 章	*[tɕiok]
2.	ལྷག (80) stag	a 悉 b 诺 (83-84)	a 惠七切, 入, 质韵, 心 b 奴各切, 入, 余韵, 泥	*[siɛt] *[nak]
3. ལ (ng)	ནལ (61) nang	囊 (63)	奴朗切, 上, 荡韵, 泥	*[naŋ]
4.	གླག (66) gong	公 (67)	古红切, 平, 东韵, 见	*[kuŋ]
5. ཌ (d)	ཁོད (43) khod	窟 (45)	苦骨切, 入, 没韵, 溪	*[k'uet]

- |           |                   |                    |                                    |                   |
|-----------|-------------------|--------------------|------------------------------------|-------------------|
| 6. ཅ (n)  | ཀེ ཅ (81) ken     | 乾 (84)             | 古寒切, 平, 寒韵, 见                      | *[kan]            |
| 7.        | བརྟན (70) brtan   | 旦 (72)             | 得按切, 去, 翰韵, 端                      | *[tan]            |
| 8.        | བློན (37) blon    | 论 (39)             | 卢昆切, 平, 魂韵, 来                      | *[luən]           |
| 9.        | པོན (75) pon      | 奔 (78)             | 博昆切, 平, 魂韵, 帮                      | *[puən]           |
| 10. བ (b) | ཁམ (75) khab      | 榘 (79)             | 苦盍切, 入, 盍韵, 溪                      | *[k'ap]           |
| 11.       | ཀྱམ (80) hab      | 合 (83)             | 侯阁切, 入, 合韵, 匣                      | *[ɣop]            |
| 12.       | ཅམ (71) tsab      | 匝 (73)             | 子答切, 入, 合韵, 精                      | *[tsɔp]           |
| 13. མ (m) | མཆིམས (61) mchims | 珠 (63)             | 丑林切, 平, 侵韵, 初                      | *[tʰiəm]          |
| 14.       | སུམ (19) sum      | 心 (21)             | 息林切, 平, 侵韵, 心                      | *[siəm]           |
| 15.       | སྐམ (70) snam     | a 悉 b 南<br>(72-73) | a 息七切, 入, 质韵, 心<br>b 那含切, 平, 覃韵, 泥 | *[siət]<br>*[nəm] |
| 16. ར (r) | བཀར (65) bka'     | 伽 (68)             | 求迦切, 平, 戈韵, 群                      | *[gia]            |
| 17. ར (r) | བཟེར (47) bzher   | 热 (49)             | 如列切, 入, 薛韵, 日                      | *[nziet]          |
| 18. ལ (l) | ཁོལ (86) khol     | 窟 (89)             | 苦骨切, 入, 没韵, 溪                      | *[k'uət]          |
| 19.       | རྒྱལ (95) rgyal   | 结 (96)             | 古屑切, 入, 屑韵, 见                      | *[ket]            |
| 20.       | འབར (75) 'bal     | 米 (79)             | 莫拔切, 入, 末韵, 明                      | *[muət]           |



21. ར་ས (s) ར་ས (85) rtsis      a 𑖦 b 悉 a 即夷切, 平, 脂韵, 精 \* [tsɿ]  
(87-88)      b 患七切, 入, 质韵, 心 \* [siět]
22.      འདས (53) 'dus      a 𑖦 b 悉 a 奴古切, 上, 姥韵, 泥 \* [no]  
(54-55)      b 患七切, 入, 质韵, 心 \* [siět]
23.      རྟེས (76) myes      名 (78)      武井切, 平, 清韵, 明 \* [miɛŋ]
- Tibetan*  
*Post-Final*
24. ར་ས (s) རྟེས (86) zigs      昔 (87)      思积切, 入, 昔韵, 心 \* [sɿɛk]
25.      རྟེས (95) legs      历 (96)      郎击切, 入, 锡韵, 来 \* [lek]
26.      ར་རྟེས (65) gtogs      𑖦 (68)      冬毒切, 入, 沃韵, 端 \* [tok]

### 1. Final [-p], [-t], and [-k]

Since Tibetan is written with an alphabet, we can determine from the presence of final consonant letters that the language had final stops. This is proven even more clearly by the Chinese transcriptional characters tabulated above. But in Old Tibetan these final consonants were voiced stops, [-b], [-d], and [-g]. In concert with social development, these three stops have undergone constant change. Though the situation preserved in the three main modern dialect groups is different, the general tendency has been first to devoicing and then towards ultimate loss. For example, the Lhasa dialect preserves only voiceless [-p], with the vowel of the syllable changing from [a] to [ə], the high level tone changing to a high falling tone, and the low tone becoming a low rising-falling one. The final consonants ར་ (-g) and ར་ (-d) have been totally lost, but not without certain residual effects. For they have

caused the high level tone to change to a high falling tone, and the low tone to become a low rising-falling one; and they have led the vowels [a], [o], and [u] to change to [ə], [ø], and [y] respectively.

In the modern Chinese dialects the three final stop finals [-p], [-t], and [-k] are preserved only in the Min, Cantonese, and Kejia dialects. Among the other vernaculars, Fuzhou dialect preserves final [-k], while in the Wu dialects the final stops have all become [-ʔ]. On the basis of rime books of various periods, *fanqie* spellings, and the modern dialects, specialists in Chinese historical phonology have reached the conclusion that Middle Chinese preserved the three final stops [-p], [-t], and [-k]. From the above table of transcriptional material in the Treaty Inscription bearing on the Tibetan final consonants, we obtain indirect evidence that Middle Chinese really did preserve the three final stops. But here we should like to raise a question: were these stops voiceless or voiced in early Chinese? Could it be that they followed the same path as the corresponding sounds in Tibetan, beginning as voiced stops [-b], [-d], and [-g] and then devoicing to [-p], [-t], and [-k]?

## 2. Final [-m], [-n], and [-ŋ]

That Old Tibetan preserved these three nasals does not require much discussion, since the the table of Tibeto-Chinese transcriptions shows it clearly and, even more importantly, all three are completely preserved in the three major modern Tibetan dialect groups. But what is exceedingly valuable to us is the fact that this same material can serve as indirect evidence that early Chinese preserved the three nasals. Among the modern Chinese dialects, Min, Cantonese, and Kejia all preserve them. Fuzhou has [-ŋ]. Wu has [-n] or [-ŋ], and Putonghua has [-n] and [-ŋ]. Most modern dialects have lost [-m]. But the transcriptional evidence cited here proves that Middle Chinese had not only [-n] and [-ŋ] but also [-m] as syllable finals

[see examples (13), (14), and (15)], and this corroborates the conclusions of specialists in Chinese historical phonology.

3. In examples (21) and (22) Tibetan final ལ (-s) is consistently transcribed by Chinese 悉, proving that Tibetan ལ (-s) was actually pronounced. But in examples (24), (25), and (26) post-final ལ (--s) is not rendered in the Chinese version, suggesting that this Tibetan sound may already have been lost in the ninth century. In the three main modern dialect families this sound has also disappeared, but it is interesting to note that in the Gyarung language (as for example in the Xiaojin 小全 dialect spoken in the Aba Tibetan and Qiang autonomous areas) an [--ʂ] sound is retained in this position. This perhaps illustrates from a different angle an even older stage of the Tibetan language.

4. In Old Tibetan documents of the Royal Period, the addition of final འ (-') is somewhat chaotic. Certain words which require this letter in order to make clear what the base consonant is do not have it, and this leads to errors in reading. For example, if the word དགའ་འ (dga') does not have its འ (-'), it is difficult to decide whether the base consonant is ད (d) or ག (g), for the two syllables དགའ་འ (dga') and དགའ་ (dag) are distinguished entirely by the presence of འ (-'). On the other hand, certain consonant plus vowel combinations, which do not require the addition of འ (-') are nonetheless supplied with this letter. For example, པ (pa) and ལ (la) are often written as པ་འ (pa') and ལ་འ (la') in the early documents. It is possible that this added འ (-') had no value in pronunciation and that, as a result, during the second script reform of 826-827 it was abolished in syllables composed of a single consonant followed by a vowel but was retained where it actually served to distinguish different syllables. From example (16) in the table we observe that final འ (-') is not reflected in the transcriptions, proving that it had no function in the sound system.

5. What is most perplexing is that final ㄣ (-r) in example (17) and final ㄌ (-l) in examples (18) and (20) are represented in the transcriptions by Chinese syllables ending in [-t]. They can perhaps be explained in the following way. Chinese historical phonologists generally recognize eight different rime endings, i.e. the vocalic ones [-i] and [-u], the nasals [-m], [-n], and [-ŋ], and the stops [-p], [-t], and [-k]. There were no "-r" or "-l" finals. So from the standpoint of traditional reconstructions the Chinese examples given in the table above all had final [-t]. But the phenomenon of dialectal diversity existed in ancient times as well as today. A famous linguist, the late Professor Luo Changpei, has mentioned in two works, *Introduction to Chinese Phonology* and *The Phonology of the Northwest Dialects of the Tang and Five Dynasties Periods*, that in certain dialects of Hubei and Jiangxi earlier [-t] has changed to [-l] and that the northwest dialects of the late Tang period had a syllable final [-r].

The Tang capital was Chang'an 长安 (today's Xi'an), and it is thus exceedingly likely that the framers of the Chinese portions of the Treaty Inscription based their Chinese transcriptions of Tibetan on the sound system of a northwest dialect. We can now use this precious material as indirect evidence to prove that the northwest dialects of medieval times did indeed have syllable final "-r" and "-l." Thus, in the pronunciation of the medieval northwest dialects, 熱 should be reconstructed as \*[nzier], 𪛗 as \*[k'uəl], 結 as \*[kel], and 來 as \*[maul].

6. Since the material cited above uses Chinese characters to transcribe Tibetan, it is not particularly accurate, especially for the vowels. For this reason we shall eschew any treatment of the vowels here.

### III.

Now let us turn to the Sino-Tibetan transcriptional material on the left side of the pillar. Our main object here will be to study problems in early

Chinese phonology, but there are of course items in the data which we can bring to bear on Tibetan matters. The material will now be tabulated according to the order of the initials of the transcribed Tibetan words, with concurrent consideration of the particular Chinese initials involved:

Table A

Modern <sup>6</sup>	CHINESE		Middle Chinese Reconstruction	TIBETAN	
	Chinese Character	Fanqie <sup>7</sup>		Tibetan Transcription	Romanization
1. guō	郭 (88)	古博切, 宕合一入 鐸见	*[kuak]	ཀྱག (85)	kwag
2. guāng	光 (46)	古黄切, 宕合一平唐见	*[kuang]	ཀྱང (42)	kwang
3. gāo	皋 (44)	古劳切, 效开一平豪见	*[kau]	ཀྱ (43)	ka'u
4. gōng	工 (88)	古红切, 通合一平东见	*[kuŋ]	ཀྱང (83)	kong
5. jiāng	絳 (55)	古巷切, 江开二去 絳见	*[koŋ]	ཀྱང (52)	k'ang
6. jiān	兼 (72)	古甜切, 咸开四平添见	*[kɛm]	ཀྱམ (67)	kyam
7. jīn	金 (86)	居吟切, 深开三平侵见	*[kiɛm]	ཀྱམ (84)	kīm
8. jūn	军 (87)	举云切, 臻合三平文见	*[kiuən]	ཀྱུ (84)	kun
9. jīng	京 (81)	举卿切, 梗开三平庚见	*[kiɛŋ]	ཀྱང (78)	keng

<sup>6</sup> The modern forms given here are for the common language of the Han nationality, Putong-hua, as spelled in the pinyin romanization system.

<sup>7</sup> The information given under this item in the table includes the fanqie formula, the *she* category, whether the syllable is *kaikou* 开口 or *hekou* 合口, the rime table division to which the final belongs, the tone, the rime class of the final, and the class name of the syllable initial.

10. qīng 卿 (71) 去京切, 梗开三平庚溪 \*['k'ioŋ] ཀྟེང (67) keng

1. In Middle Chinese all members of the *jian* 見 initial class were read [k]. Only later did they split, with those occurring before the high-front vowels [i] and [y] palatalizing to [tɕ], while those which occurred before other vowels were not assimilated and retained the velar [k]. The finals in examples (1) through (4) in the table all have non-high-front vowels and are still read with [k]. Finals of examples (6) through (9) have high-front vowels, and earlier [k] has consequently become modern [tɕ]. Now, was the entire *jian* initial read [k] in Middle Chinese, regardless of what final followed it? This point receives further substantiation from the table above, for all the *jian* initial syllables there are transcribed with Tibetan ཀྟ [k].

There are, however, exceptions to the rules we have discussed above for the bifurcation of the *jian* initial. The vowels of 絳 \*['kəŋ] in example (5) and 兼 \*['kɛm] in example (6) were not high-front. Why did they evolve to modern (jiàng) and (jiàn)? The reason is that during the process of their evolution they first developed a medial [i], and only subsequently experienced the palatalization of [k] to [tɕ], as is illustrated below:

絳 \*['kəŋ] → \*['kioŋ] → \*['kian] → \*['tɕian]

兼 \*['kɛm] → \*['kiem] → \*['kiam] → \*['tɕiam]

Another exception is example (10) 卿 \*['k'ioŋ], where the initial is the aspirate [kh], while the corresponding Tibetan initial is unaspirated [k]. This is the result of inaccurate transcription.

2. The fact that in example (6) 兼 \*['kɛm] is transcribed as ཀྟ རྩ (kyam) and that in example (7) 金 is rendered as ཀྟ རྩ (kīm) proves that Middle Chinese really did have a nasal final [ɿ].

3. That 郭 \**[kuak]* in the first example is transcribed as ཀྱག (kwag) proves that medieval Chinese and Tibetan both had final [-k].

4. On the other hand, the fact that in example (6) 兼 \**[kɛm]* is transcribed as ཀྱམ (kyam) can prove that in the Tibetan of that period the velars ཀ (k), ཁ (kh), and ཅ (g), when accompanied by subscribed ལ (y), had not yet palatalized to [ç] and [ç'].

Table B

Modern	CHINESE		Middle Chinese Reconstruction	TIBETAN	
	Chinese Character	Fanqie		Tibetan Transcription	Romanization
1. yuán	元 (31)	愚袁切, 山合三平元疑	*[ɲiuen]	འགྲུ (28)	'gwan
2. yín	銀 (59)	語巾切, 臻开三平真疑	*[ɲien]	འགྲི (57)	'gin
3. yì	议 (15)	宜寄切, 止开三去寘疑	*[ɲie]	འགྲི (11)	'gi
4. yù	御 (50)	牛倨切, 遇合三去御疑	*[ɲio]	འགྲུ (47)	'gu
5. niú	牛 (50)	語求切, 流合三平尤疑	*[ɲiu]	འགྲུ (48)	'g'u
6. wù	吾 (87)	五乎切, 遇合一平模疑	*[ɲo]	འགྲོ (84)	'go

1. Since the Middle Chinese *yi* 疑 initial was [ɲ], it would have been most appropriate for the Tibetans to use their corresponding letter ཀ [ɲ] in rendering the Chinese sound. But in fact what we find in the inscription is the base letter ཅ [g] preceded by འ [h], and there must be a reason for this. The *yi* initial was a voiced velar nasal. ཅ [g] represented an oral voiced velar

sound. The latter was the same as the former, with the exception that it lacked the quality of nasalization. So 𪛗 [ɳ] was added to compensate for this. (It is possible that by the ninth century pre-initial 𪛗 [-] and 𪛗 [m] had already developed into prenasalization.)

2. The early Chinese *yl* initial later underwent a split, in which it usually became a zero initial but in a small number of cases became [n]. In examples (1), (2), (3), (4), and (6) the modern forms all have the zero initial, while example (5) has [n]. However, in all cases in the table the Tibetan forms use [ŋ] to transcribe the Chinese originals. This proves that in the ninth century the Chinese *yl* initial had not yet undergone bifurcation.

3. Example (1) above and examples (1) and (2) of Table A prove that the Tibetan subscript 𪛗'ཟ (wa zur) was pronounced at that time. In our examples it was used to transcribe medial [-u-], and less accurately to render [-iu-]. Later its function was gradually lost and it served merely to graphically distinguish homophones, as is the case in the modern Lhasa dialect.

Table C

Modern	CHINESE		Middle Chinese Reconstruction	TIBETAN	
	Chinese Character	Fanqie		Tibetan Transcription	Roman- ization
1. chuó	绰 (82)	昌约切, 宕开三如药昌	*[tɕ'iak]	𪛗𪛗 (79)	cag
2. qǐng	请 (95)	七静切, 梗开三上静清	*[ts'ien]	𪛗𪛗 (90)	cing
3. zhào	赵 (72)	治小切, 效开三上小澄	*[dieu]	𪛗𪛗 (68)	ca'u
4. zhōng	中 (20)	陟弓切, 通合三平东知	*[tɕiun]	𪛗𪛗 (17)	cung



5. zhào 兆 (82) 治小切, 效开三上小澄 \*[\phi iɕu] ཅུ (78) ce'u
6. zhèng 正 (14) 之盛切, 梗开三去劲章 \*[\tʂiɕŋ] རྩ (11) jeng
7. cháo 朝 (49) 直遥切, 效开三平宵澄 \*[\phi iɕu] རྩ (47) je'u

1. Example (1) can prove that medieval Chinese and Tibetan both had syllable final [-k].

2. From examples (3), (5), and (6) we can see that the fashioners of the Tibetan transcriptions failed to take account of the Chinese voiced/voiceless distinction. And in examples (1) and (2) they did not distinguish aspirated from unaspirated initials.

3. In later times the ancient Chinese *zhī* 知 and *zhāng* 章 series of initials gradually coalesced with the greater part of the *zhuang* 庄 series, to form the modern initials *zh*, *ch*, and *sh*. From the preceding table we can see that the *zhī* and *zhāng* groups had not yet merged with the *zhuang* series, but were still read as [ʈ], [ʈʰ], [ʈʰ], and [ʈʰʰ], etc., because they are represented in Tibetan as [tʂ] and [dʂ].

Table D

Modern	CHINESE		Middle Chinese Reconstruction	TIBETAN	
	Chinese Character	Fanqie		Tibetan Transcription	Romanization
1. fū	夫 (14)	甫无切, 遇合三平虞部	*[pio]	ཕ (11)	pu
2. bīng	兵 (36)	甫明切, 梗开三平庚部	*[piwŋ]	ཕྱ (34)	peng

3. bō	播 (25)	朴过切, 果合一去过程	*[puo]	𣎵 (23)	pha
4. wǔ	武 (76)	文甫切, 通合三上虞明	*[mio]	𣎵 (74)	bu
5. péi	裴 (75)	萍回切, 蟹合一平灰并	*[buei]	𣎵 (74)	b'eī
6. pú	仆 (44)	蒲木切, 通合一如屋并	*[buk]	𣎵 (51)	bog
7. mén	门 (15)	莫奔切, 臻合一平魂明	*[muən]	𣎵 (11)	mun

1. Middle Chinese had a single labial initial series. It was only later that [p], [p'], and [b] split into [p] and [t], or [p'] and [t]. The case with Tibetan 𣎵 [p], 𣎵 [p'], and 𣎵 [b] was different, for they have never undergone such a split. See example (1).

2. Early Chinese initial [m] later split into [m] and zero. But what seems most curious is the character 武 in example (4). In the basis of the *fanqie* spelling it should be reconstructed as \*[mio], but the Tibetan transcription renders it as 𣎵 [bu]. In the modern Lhasa dialect, the letter 𣎵 (b) can serve as a final consonant, and it can combine with preposed 𣎵 (d) in initial position to form a cluster which is now read [w]; but besides these cases its only modern reading is [p'], which arose as the result of devoicing. Only the modern Amdo dialect and the Gyarung language generally realize plain initial 𣎵 (b) as [w]. Thus, it is possible that 𣎵 (bu) in example (4) was pronounced [wu], and this perhaps shows that by the ninth century Chinese [mio] had already split to form a zero initial syllable, i.e. \*[mio] → \*[vu] → \*[u]. But in other cases, such as example (6), plain initial 𣎵 (b) is still used to transcribe the Chinese bilabial sound [b]. This question deserves further study.

3. Example (6) can also prove that in the medieval period both Chinese and Tibetan had a final stop [-k].

Table E

Modern	CHINESE		Middle Chinese Reconstruction	TIBETAN	
	Chinese Character	Fanqie		Tibetan Transcription	Roman- ization
1. zōng	宗 (69)	作冬切, 通合一平东精	*[tsuŋ]	ཙེང (68)	tsong
2. jiāng	将 (86)	即良切, 宕开三平阳精	*[tsian]	ཙེང (84)	tsang
3. cōng	从 (89)	七恭切, 通合三平钟清	*[ts'ioŋ]	ཙེང (85)	tshung
4. qīng	青 (60)	仓经切, 梗开四平青清	*[ts'eq]	ཙེང (57)	tsheng
5. sēng	僧 (49)	苏增切, 曾开一平登心	*[səŋ]	སེང (48)	sing
6. xiāo	箫 (36)	苏彫切, 效开四平萧心	*[səu]	སེུ (35)	se'u

1. From examples (1) and (2) of the table we can see that in the ninth century the early Chinese initial [ts] was consistently transcribed by Tibetan ཙ [ts]. This shows that at that time the Chinese initial had not yet undergone a split. Modern Chinese reads 宗 as zōng, preserving the original pronunciation. But 将 is now read jiāng, because the initial has assimilated to the following high-front medial or vowel, yielding [tɕ].

2. In examples (3) and (4) Tibetan ཙ [ts'] is used to transcribe the traditional Chinese qing 清 initial in the words 从 and 青. This shows that the phonetic value of the early Chinese sound was [ts']. But in modern Chinese 从 is read cōng while 青 has become qīng. This likewise is the result of gradual assimilation to the following high-front vowel.

3. In its development to the present, early Chinese initial [ɕ] preserved its original value in some environments, while it became [ɕ] when followed by high-front vowels. The fact that in examples (5) and (6) of the table Tibetan རྩ [ɕ] is used to transcribe this initial indicates that it had not yet split in the ninth century.

Table F

Modern	CHINESE Chinese Character	Fanqie	Middle Chinese Reconstruction	TIBETAN Tibetan Transcription	Roman- ization
1. shàng	尚 (33)	时亮切, 宕开三去漾	*[ɕiaŋ]	མ (27)	zhang
2. shòu	绉 (65)	殖酉切, 流合三上有	*[ɕiu]	མ (63)	zhǐu
3. rú	儒 (70)	人朱切, 遇合三平虞日	*[nɕio]	མ (68)	zhu
4. rù	孺 (50)	而遇切, 遇合三去遇日	*[nɕio]	མ (48)	zhu
5. shì	侍 (14)	时吏切, 止开三去志	*[ɕiə]	མ (11)	shi
6. cháng	尝 (70)	市羊切, 宕开三平阳	*[ɕiaŋ]	མ (67)	shang
7. chéng	丞 (49)	署陵切, 曾开三平蒸	*[ɕiəŋ]	མ (47)	shǐng
8. shī	师 (97)	疏夷切, 止开三平脂生	*[ɕi]	མ (96)	shi
9. shū	书 (21)	伤鱼切, 遇合三平鱼书	*[ɕio]	མ (17)	shu

1. The Chinese forms in examples (1), (2), (5), (6), and (7) all have the traditional *chan* 禪 [ɕ] initial; but while the initials in examples (1) and

(2) are transcribed by Tibetan རྩ [z], those in (5), (6), and (7) are represented by Tibetan རྩ [ʃ]. This shows that the transcribers were unable to get a firm grasp on the voiced/voiceless distinction. It may also point to traces of a devoicing process in both Chinese and Tibetan. Early Chinese [ʃ] later underwent devoicing and also gave rise to two different modern initials. In level tone words it became modern *ch*, while elsewhere it yielded *sh*. So in examples (6) and (7), which are level tone words, the modern initial in each case is *ch*, while in the oblique tone words in (1), (2) and (5) we find modern *sh*. However, in all these examples the Tibetan forms use either རྩ [z] or རྩ [ʃ], so that even though the voiced/voiceless distinction is not accurately preserved, the material does show us that the later bifurcation by tone had not yet taken place.

2. The forms 箇 in example (3) and 箇 in example (4) both had the Middle Chinese initial [nz]. This initial later underwent a split, yielding zero before finals of the *zhishe* 止攝 class of the rime tables and [z] elsewhere.

3. The form 師 \*[ʒi] in example (8) is transcribed with initial རྩ [ʃ] in Tibetan. This is inaccurate but understandable, because Tibetan probably did not yet have this sort of retroflex initial. The form 书 in example (9) was anciently read \*[ʃiɔ] and had not yet developed the modern pronunciation [ʒu]. In this case, the transcription with Tibetan རྩ [ʃ] is completely accurate.

The early Chinese initials 端 *duan*, 透 *tou*, 定 *ding*, 来 *lai*, 羊 *yang*, etc. are all handled fairly accurately in the Tibetan forms and need not be treated individually here.

## IV.

In the preceding discussion we have used the Tibeto-Chinese and Sino-Tibetan transcriptional materials in the Sino-Tibetan Treaty Inscription to carry out a rough, preliminary analysis and study of some medieval Tibetan and Chinese phonological problems. Our findings can be summarized under the following points:

A. *Tibetan Questions*

1. In the ninth century there had already been some changes in the Old Tibetan initial consonant clusters. Preposed consonants in such clusters had for the most part been weakened or lost. Preposed ࠩ (b) was preserved only when found in the second syllable of a binomial compound. With the exception of ࠰ (s), which was clearly preserved, superscribed consonants had been weakened or lost.

2. The case with the subscribed consonants was different, for they were almost all preserved. With the exception of certain individual examples, the material shows that ࠨ (r) had not caused preceding base consonants to undergo retroflexion. Instead, r-clusters were preserved. ࠩ (y) was still separately pronounced as a semivowel [j] and had not yet caused preceding labial base consonants to become prepalatals or preceding guttural base consonants to become palatals. ࠰་ཟླ་རྩ་ (wa zur) was realized as a semivowel [w] and was frequently used to transcribe the early Chinese medial [-u-].

3. The material proves that post-final Tibetan ࠰ (s) in syllable final clusters was no longer pronounced, but that all other final consonants were still preserved without change.

## B. Chinese Questions

Specialists in Chinese historical phonology have discussed and reconstructed the sound system of early Chinese, using rime books and *fanqie* spellings of various periods together with comparative studies of the modern Chinese dialects, and they have also outlined the development of the earlier system into the current one. Yet they have seldom been able to obtain corroborative evidence from written materials in minority languages. It is therefore of singular importance that we are able to find and use evidence in the transcriptional material of the Treaty Inscription to elucidate questions in early Chinese phonology.

1. The material proves that the theories and reconstructions of Chinese historical phonologists are very accurate. And in particular they show that the thirty-six initials of the *Qieyun* sound system had not yet undergone splits in the ninth century.

2. The early Chinese final oral consonants [-p], [-t], and [-k] and the nasal consonant [-m] are no longer found in the majority of modern Chinese dialects. This being the case, we may justifiably ask if these sounds really existed in the Chinese language of the medieval period? The Tibetan transcriptional material proves incontestably that they did. However, the corresponding Tibetan final consonants [-b], [-d], and [-g] were voiced and only later underwent devoicing, while the final consonants of Middle Chinese are reconstructed by historical phonologists as the voiceless sounds [-p], [-t], and [-k]. For this reason, this writer suspects that these Chinese sounds may also originally have been voiced, just as their Tibetan counterparts were, and that they only later underwent devoicing.<sup>8</sup>

<sup>8</sup> Although the final stops in Written Tibetan final syllables are written with the graphs /-b -d -g/, there was no other contrasting series of stops in this position. It seems clear that the voiced symbols were chosen simply to render the unreleased, lenis quality typical of final stops in the monosyllabic languages of East and Southeast Asia, much as the Haas transcription of Siamese uses /-b -d -g/ instead of /-p -t -k/. [Ed.]

3. From the Tibetan material we obtain indirect evidence that medieval Chinese dialects of the northwest had the syllable final consonants "-r" and "-l."

In closing let it be emphasized that the material in the Treaty Inscription utilizes material written in two different languages, Chinese and Tibetan, to construct mutual transcriptions between the two, and for this reason it cannot be entirely accurate. To this must be added the personal limitations of this writer, which unfortunately make errors inevitable. The present study is therefore merely offered to scholarly colleagues for their consideration, with the hope that they will not be chary of their critical responses.