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The Proto–Tibetan clusters s*L– and* s*R–and the periodisation of Old Tibetan*

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Abstract

The main objective of this paper is to propose the first tentative periodisation of the Old Tibetan (OT) language based on a group of related sound changes. As it occurs, at the time of the script invention in the 630s, Early Old Tibetan (EOT) must have had four onset clusters /s/+liquid: *zr–*, *sr–*, *zl–*, and *sl–*. However, in Old Tibetan as well as in Classical Tibetan (CT) we only find *sr–*, *zl–*, and *sl–*, whereas neither of them is attested in modern spoken varieties of Tibetan. In order to find out what has happened to the EOT *zr–*, I have traced reflexes of CT *sr–*, *zl–*, and *sl–* in modern dialects. Since changes that have occurred with respect to *zl–* and *sl–* parallel each other, I postulate that the same analogy can be applied to *sr–* to determine in what direction the EOT onset *zr–* might have evolved. Having reconstructed the development of the onsets in the most conservative dialects of Western Archaic Tibetan (WAT) and Amdo Tibetan (AT), I juxtapose these findings with historical facts that can help us to explain modern distribution of Tibetan dialects. Historical events recorded in OT documents combined with our knowledge of other early sound changes in Old Tibetan constitute a time frame for dating the reconstructed changes and thereby allow us to establish the first tentative linguistic periodisation of Old Tibetan.

The Proto-Tibetan clusters sL- *and* sR- *and the periodisation of Old Tibetan*

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1 Introduction[1]

As is so often the case, (over-)familiarity with certain material may result in overlooking important information that, even though overtly contradicting our "knowledge," remains "translucent" to our cognitive senses. This is exactly what happened to me concerning the issue that became the point of departure for this paper; and it needed a question from a non-involved colleague to draw my attention to the "weirdness" of the phenomenon. And so, some time ago Guntram Hazod asked me about the unusual form of the OT toponym Zrid attested only in the *Old Tibetan Annals (OTA)*.[2] By way of example, I quote three passages that represent various contexts in which it occurs:

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[1] The Tibetan script is transliterated according to the principles put forward in Hahn 1996: 1 with some minor exceptions that are particularised below. Tibetan proper names and toponyms are hyphened in order to enhance their readability in the text flow. Only the first letter (even if not the root consonant) is capitalised. Following Hill's reconstruction of the Old Tibetan (OT) phonetic value of the so-called *ya chuṅ* letter as a voiced velar fricative [ɣ] (2009), I transliterate the letter as *γ*. Passages quoted from OT sources were transliterated by myself on the basis of scans made available on the IDP and Gallica. The OT orthography is strictly followed. The 'reversed *gi gu*' is transliterated as *i̯*. No distinction is made between a single and a double *tsheg* in the transliteration. The passages from Tibetan texts were translated by myself.
I use the label 'Old Tibetan' to refer generally to the language(s) of non-translatory Tibetan documents discovered in Central Asian oases (Dunhuang, Turfan, etc.) and of the inscriptions from Central Tibet.
When discussing sounds rather than letters the symbols of the International Phonetic Alphabet (IPA) will be used. Phonemes are enclosed in slashes // and sounds in brackets [ ]; *zr-* = transliteration; /sr-/ = phonemic transcription; [zr-] = phonetic transcription. Dialectal data in tables is always given in phonetic transcription. For readability sake brackets are omitted in tables.
I am deeply indebted to both anonimous reviewers for their valuable comments. To one of the reviewers I owe the crucial hint on OT *zre mo*. Because I have written this paper in the belief that *zrid* is the only preserved OT example with the onset *zr-*, the structure of the paper was accordingly devised. Since equal treatment of *zre mo* would necessitate a complete re-arrangement of the paper, I decided to add subsection 7.2 (devoted solely to this lexeme) and complement some other passages of the paper instead.
[2] *zrid* as a linguistic fact has also been overlooked by many other scholars who have previously dealt with the OTA. As an exception, Beckwith makes a brief remark: "The onset *zr-* occurs only in a place name." (2006: 5 3, fn. 9).

> *glaṅ gyị lo la / btsan po zrid kyi ldu nag na bźugs* (PT 1288: 45)
> In the ox year, the *btsan po* abode in Ldu-nag of Zrid.

> *khyị lo la bab ste / btsan po dbyard zrịd na bźugs* (ITJ 750: 60)
> It happened in the dog year: in the summer, the *btsan po* abode in Zrid.

> *dbyard blon chen pho btsan sñas ɣdun ma zrịd mdar* (79) *bsduste* / (ITJ 750)
> In the summer, great councillor Btsan-sña convened the council at Zrid-mda.[3]

Basically, Zrid occurs in three distinct contexts: 1. Zrid; 2. Ldu-nag of Zrid; and 3. Zrid-mda, between years 665/6 and 728/9. In seven out of eight cases the toponyms are mentioned either as *btsan po's* residences or as council sites. This leads us to the first conclusion that Zrid was located in Central Tibet, within Bod-yul[4], and was not a foreign name. And indeed, due to the meticulous studies of Guntram Hazod we now know that the OT Zrid is identical with the present day valley Sbra-kha-dam-pa (2014: 55, fn.28).[5] The compound toponym Zrid-mda can be translated as "Lower Zrid valley". A map in Fig. 2 on TTT (https://www.oeaw.ac.at/tibetantumulus tradition/sites-by-id/0187/; accessed 07.09.2017) attests to a locality called Ɣbri-smad near to the valley entrance. Further up the same valley a place called Ɣbri-chu-kha is found (see TTT). From this it appears that Ɣbri denotes a valley through which a river, Ɣbri-chu, flows and the mouth of which bears the name Ɣbri-smad, lit. "Lower Ɣbri" (cf. Zrid-mda "Lower Zrid valley"). Could the name Ɣbri be a distorted form of the erstwhile Zrid?

According to the orthography of CT, the consonant cluster *zr-* is not allowed in syllable onset. Since the above *zrid* is one of two syllables with *zr-* known in OT sources[6], we can presume that the cluster was not allowed in Old Tibetan either. This is also suggested by the fact that the lexeme is a toponym – a class of words that frequently preserve conservative elements. But what does *zrid* tell us about Tibetan historical phonology? Does it have any relevance at all? In this paper I will attempt answering these questions by examining linguistic material from Old Tibetan as well as from modern dialects. Other clusters fricative+liquid will be scrutinised as well.

2 Voiced and voiceless liquids

First of all, *zrid* positively verifies the reconstruction of Old Tibetan phonemes inventory as proposed by Hill (2010, esp. pp. 118ff.). The voiced *z-* confirms the distinction between voiceless and voiced liquids. As the following sets demonstrate, voicing of the root consonant regularly spread to the prefixes[7]:

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[3] For other examples see OTDO.
[4] For the localisation of Bod-yul, see Map 1 (p.24), as well as Maps 2 and 7.1 in Dotson 2009: 166 & 213. Bod-yul is a historical toponym attested already in the OTA. From ITJ 750: 246 it follows that Bod-yul included the Skyi region of Dbu-ru.
[5] Other modern names include: Spra-kha, Spra-kha-ɣdam, Sbra-kha-ɣdam (Hazod, pr. com. 04.09.2017). The coordinates for the valley's entrance are: +30°21'09",+91°03'35".
[6] The other one is *zre* discussed in section 7.2.
[7] Some of the pairs listed below were already mentioned in: Li 1933: 139, Simon 1972, Hahn 2003a: 145, and Hill 2011: 443.

l- /l-/ ~ zl- /sl-/

lug 'to melt'	*zlug* 'to pour into'
lum in *thu lum* 'a lump of metal'	*zlum* 'round, circular' [8]
lo 'report'	*zlo* 'to answer'
log 'to return'	*zlog* 'to cause to return'

lh- /l̥-/ ~ sl- /sl̥-/ [9]

lha ṅa 'knee-pan'	*sla ṅa* 'parching pan'
lhad 'an alloy'	*slad* 'to mix, adulterate'
lhan 'a patch'	*slan* 'to mend'
lhug 'loose'	*bslugs pa* 'destroyed'
lhes ma 'the act of twisting, plaiting'	*sle* 'to twist, plait, braid; to knit' [10]

r- /r-/ ~ zr- /sr-/

*ri(d) (?)	*zrid*

Since *zrid* is a hapax legomenon and in addition a toponym (i.e. by definition of unspecified meaning), it is almost impossible to relate it to any other lexeme. By way of speculation, one could connect it to the root √ri 'to cut'. From this root two groups of lexeme were derived:

1. 'to diminish': [I]*ris* 'part, section, division, region' (Cs: 235a; < * 'a portion by taking away of which sth. is diminished'); *'bri* 'to lessen, decrease, diminish' (J: 400b); *'phri* 'to lessen, diminish; take away from' (J: 360a); *'brid* [2]minus (in math.), [3]to cut, take away, deduct a small portion or amount' (Gs: 770c);

2. 'to write': [II]*ris* 'figure, form' (J: 530b); *'bri* 'to draw, design, describe' (J: 400b; see also section 8.1).

The root should in all probability be related to the PTB *ri:t REAP/SCRAPE/SHAVE/CUT/ SEVER (cf. STEDT #2615) – the reconstructed final dental might rather have been a TB derivational suffix *-t. zrid* would be a derivative by means of the prefix *s-* and the nominal suffix *-d*. [11]

hr- /r̥-/ ~ sr- /sr̥-/

hra thaṅ thaṅ 'good, well, solid' (Gs: 1176b)	*sra thaṅ* 'solid' (Cüppers 2004: 96)
hrab hrib = rab rib 'mist, dimness'	*srib(s)* 'darkness, gloom'
hrul 'to rot'	*srul* 'to be corrupted, decomposed'

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[8] Cf. also *ldum po* and *ldum ldum* 'round' (J: 291a).

[9] The hypothesis that the Tibetan digraphs *lh-* and *hr-* represent voiceless equivalents of *l-* and *r-* was put forward by Li (1933: 139–40) and Hahn (2003a: 144–5; 2003b: 86), and summarised in Hill 2010: 118ff.

[10] It seems probable that by the same rule the OT word *sluṅs* (meaning uncertain) should be related to the verb *ltuṅ*, v2 *lhuṅ* 'to fall'.

[11] It is possible that *zrid* was originally a common noun, the voiced equivalent of CT *srid*. On the alternation voiced ~ voiceless in prefixes before a liquid consonant, see section 7.2.

Now we can reconstruct the set of onsets for Old Tibetan as shown in Table 1:

Simple			Cluster	
Prefix	Phoneme	Script	Complex onset	Script
	/l/	**l**	/sl/	zl
/s-/	/l/	lh	/sl/	**sl**
	/r/	**r**	/sr/	zr
	/r/	hr	/sr/	**sr**

Table 1. OT *s*L- and *s*R-onsets

With *zrid* we have acquired the last piece of evidence that makes the set of prefixed liquids symmetric and complete.[12] The clusters as represented in the script demonstrate that the Tibetan script was invented after the prefix had assimilated in the feature [+voice] to the root consonant and that no further sound changes had taken place yet. The order of morphemes in the consonant sets is perfectly mirrored in the script: first comes the prefix *s-* and then the root consonant. Thus the morphology of the OT forms can be stated to have been transparent and to have mirrored the derivational processes that had brought about the said onsets. But the question arises: if at the time of the script invention Early Old Tibetan had the onset *zr-*, what has happened to it later? I aim to demonstrate the fate of the onset *zr-* with the help of data from modern spoken dialects.

3   Modern reflexes of *zl–, sl–,* and *sr–*

This section is devoted to the analysis of the modern dialectal reflexes of the Old Tibetan onsets *zl-, sl-,* and *sr-.* The complete set of the reflexes is provided in a tabular form in Appendix B.[13]

The OT forms *zl-, sl-, sr-* can by analysed morphologically as prefix *s-* and a liquid, and thus, being morphologically transparent, mirror exactly the processes that rendered them. In this particular case the Tibetan script reflects the morphology very well and allows us to equate the OT forms with the etymological forms of the onsets. The most interesting dialects (from the point of view of the present topic) seem to belong to the groups WAT and AT – they tend to preserve more linguistic material than the other dialects and so, it is assumed, more faithfully reflect the original complexity of the onsets. Their cluster onsets indicate most clearly the composed character of the original onsets *zl-* /sl-/, *sl-* /sl̥-/, and *sr-* /sr̥-/.

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[12] In reality the sets are not that symmetric if we consider their distribution in written language. There are only a few words with *zl-* and two with *zr-* (the toponym Zrid and *zre mo*) as against ample occurrences of *sl-* and *sr-*. On the other hand, the plain voiced onsets *l-* and *r-* are much more common than their voiceless counterparts *lh-* and *hr-*. What's more, in OT documents *hr-* has not been attested in native words so far. This is not very surprising given the rarity of such words in other Tibetan languages. One could argue that in CT words with onsets *sl-* and *sr-* are more common than their equivalents *zl-* and *zr-* because derivation by means of the prefix *s-* continued to be productive in later times also after the feature [+voice] had ceased to spread to the prefixes (see also section 7.2).

[13] All the dialectal data is quoted from the *Comparative Dictionary of Tibetan Dialects* (CDTD) and thus the main sub-grouping of Tibetan dialects as proposed in CDTD have tacitly been accepted. I have likewise adopted the abbreviations for dialect names (for a complete list of abbreviations see Appendix C). I have omitted loanwords and forms provided with a question mark in CDTD. The draft (2013) of CDTD was put at my disposal in the form of a pdf-file by the late Prof. Bielmeier.

The dialectal reflexes of /sr̥-/ structurally differ from those left by /sl-/ and /sl̥-/ and thus the two groups will be discussed separately. Taking the etymological forms preserved in OT as the point of departure, I propose reconstructing their further development in the following steps:

3.1   /sl–/ and /sl̥–/

The changes common to all dialects seem to have proceeded along the following lines: 1. *s*L- > L*s*- (metathesis; L = lateral) > 2. LD*s*- (epenthesis; D = excrescent dental).[14]

1. Metathesis. It seems that all dialects that have preserved the complex onset primarily underwent the metathesis *s*L- > L*s*-. The direct outcome of the process is attested only in Balti forms with [lz-]: CT *zla* [ldza] ~ [lza] 'month' (CDTD: 7425); [lza] for CT *zla* in *zla khrid pa* 'hunting companion' (CDTD: 7433); CT *zlog* [lzoq] 'compensation' (CDTD: 7452); CT *zlog* (V) [ldzoq] ~ [lzoq] 'to turn, to return, to give back' (CDTD.V: 1127).[15] The four lexemes belong to the old vocabulary stock and are already attested in these meanings in OT.

2. Epenthesis. An excrescent dental (D) was added between the consonants. Depending on the quality of the lateral, it is either the voiced [d] or the voiceless [t]: /ls-/ > /lDs-/ and /l̥s-/ > /l̥Ds-/. This change amply attested in the WAT and AT dialects is shown in Table 2:

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[14] Beyer was the first to propose the chain of changes analogous to the one put forth in this paper. However, he considered the CT onsets *sl-* and *zl-* as of distinct morphology: in *sl-*, *l* = the root consonant, *s* = prefix, whereas in *zl-*, *z* = root consonant, *l* = postinitial (1993: 77f.). His analysis is based solely on Lhasa Tibetan reflexes which is the reason why he has overlooked the parallel development of the onsets in other dialects. Gong has rejected Beyer's reconstruction "as /ldz-/ > /ld-/ would suggest at least the probability of orthographic <rdz-> turning into /rd-/, which is not seen in any Tibetan dialect or Tibetospheric languages." (2016: 142). Gong's argument is misguided because in /ldz-/ /l-/ is the etymological root consonant, whereas in *rdz-* it is z (*r* = prefix; *r + z > rdz (d* = excrescent consonant)). Moreover, as I will demonstrate in this paper, liquids *l* and *r* have undergone distinct changes in Tibetan and cannot be directly compared with each other. The following analysis as well as the conclusions arrived at utterly diverge from those put forward in Simon 1974: 445, Denwood 1996 (who relies to a considerable extent on Sprigg 1972, esp. pp. 564ff.), and Gong 2016.

[15] Shafer considered Balti forms as resulting from "inversion of spirants and affricates in combination with *l*." (1950a: 711). Sprigg rejected resorting to metathesis, in his words "a concept that encourages one to ignore the articulatory aspects of the problem" (1972: 565). However, his reconstruction accounts neither for the Balti onset [lz-] nor for the OT *zl-* and tacitly implies that Balti is not a descendant of OT. The dialectal data contradict Hahn's hypothesis that the excrescent *-d-* was added to *zl-* yielding **zdl-* from which *ld-* was subsequently derived (2003b: 90–1).

OT			*zl-*	sl-
WAT	Bal		ldz	ɬts
	Har/Hanu			ɬts
	Kar/Tsha/Chik/Sapi/Mul		ldz	ɬts
AT	ArTBL		rdz	rts
	TheHua		rdz	rts
			hdz	hts
	Gol/The/Mkha/Rka/Rnga		rdz	ʂts
	BayHua		hdz	hts

Table 2. Reflexes of the epenthesis in WAT and AT

All the above dialects underwent epenthesis in both sets. The blank space reflects a gap in the data.

Following the epenthesis, the AT dialects changed the initial lateral:

*[ldz-]   > [rdz-]   > [hdz-]
*[ɬts-]   > [rts-]   > [ʂts-]   > [hts-]

In the first step the laterals underwent rhotacism. Next, fricativisation occurred with respect to the initial [r], yielding a retroflex fricative [ʂ] that, in some dialects, could change to a glottal fricative [h]. The rhotacism L > [r] in the initial position preceding a dental is a characteristic of the AT dialects; no reflexes of this change can be observed in any other dialect.[16]

3. Reduction.[17] Following the epenthesis, the vast majority of dialects (also some from the WAT and AT groups) reduced the initial consonant cluster C+affricate in one or the other way. As reduction of phonetic material may be accompanied by some compensatory processes, it is not always possible to comprehensibly describe this process without invoking other elements of the syllable. By way of example, in many dialects from outside the WAT and AT groups, reduction in onset was related to the development of the phonemic tone (or more properly: pitch; cf. Bielmeier 1988).[18] Here I restrict myself to describing those changes that can be of relevance for the main topic of the paper: the tracing of the Proto-Tibetan onset *zr-* in modern dialects.

The diversity of changes resulting from the reduction mirrors the growing diversification of Tibetan dialects across centuries. The picture also becomes somehow blurred due to more intense borrowing processes some of which may be very recent and triggered by the common educational

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[16] In AT rhotacism has also affected other consonant clusters, e.g., *lt-* and *ld-* (see CDTD). Likewise in these cases no reflexes of the rhotacism can be observed in other dialects. The rhotacism is also reflected in loans in Stau (Horpa) that were apparently borrowed from AT dialects: "It appears that L and R have converged in the source language from which Stau borrowed." (Wang 1970: 650).

[17] I understand reduction in terms of quantity and not quality, i.e. as a process of decreasing the number of consonants in the absolute onset of a syllable.

[18] See also the general remark by Hill: "There is a typological tendency for the languages of central Tibet to have phonemic tone as well as relatively simplified syllable structure, whereas the dialects of the periphery lack tone and have complex syllable structure."(2010: 111).

(lay or monastic) system.[19] Some might have been influenced by dialects considered prestigious in a respective area. In the following discussion I will narrow down the analysis to the WAT and AT groups adding only data from other non-tonal dialects. I will discuss the groups separately since it has already been proven that the AT dialects share a common innovation: rhotacism in onset, and thus constitute a discrete branch.

Sapi	ldz	ɬts ~ ɬ ~ l
Kar/Tsha/Chik/Mul	ldz	ɬts ~ ɬ
Khal/Nur	ld	ɬts ~ ɬ ~ l
Leh	ld	ɬts ~ ɬ ~ l
Nub	ld	ɬ ~ l
Wan	ld	ɬ
Lam/Nim		ɬ

Table 3. Reflexes of the OT *s*L- in WAT

After the epenthesis, the development of the voiced and voiceless sets diverged in WAT. Whereas the affricate of the voiced cluster [ldz-] has lost its sibilant becoming [d-], the affricates of the voiceless set were completely lost leaving only the initial [ɬ-].[20] I assume that the initial [l-] in WAT is a borrowing from other dialects, most probably WIT.

Gol	ʂts	rdz ~ rd
TheHua	rts ~ hts ~ hl ~ ɬ	rdz ~ hdz ~ hd
ArTBL	rts ~ ɣl ~ ɬ	rdz ~ rd
The	ʂts ~ ɣl ~ ɬ	rdz ~ rd
Mkha	ʂts ~ ɣl ~ ɬ	rdz ~ əd
Rka	ʂts~ rl ~ ɬ	rdz ~ rd
Rnga	ʂts ~ ɬ	rdz ~ rd
Chab	ʂts ~ ɣl ~ ɬ	ɣz ~ əz ~ əd
BayHua	hts ~ hl ~ ɬ	hdz ~ hd
La	çts ~ ɬ	rz ~ ɣz ~ əz ~ əd
Shan	çts ~ ɬ	əd
Rma	ts ~ ɬ ~ l	d
Mdzo	ts ~ ɬ ~ ɬ	d
Ndzo	hl	dz ~ d

Table 4. Reflexes of the OT *s*L- in AT

The situation in AT is much more complicated impeding further subgrouping. It seems that each dialect has evolved independently and the changes are ongoing – the majority of dialects have

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[19] This can be observed in particular with regard to the verb *slob* 'to teach' (cf. CDTD.V: 1324).

[20] The only analogous change with respect to the voiced onset appeared in WDro and in Chocha-Ngacha; in both dialects OT *zl*- has yielded [l-] (CDTD; Tournadre/Rigzin 2015: 56: [lo̯a] for CT *zla ba* 'moon' incorrectly quoted as *sla (ba))*.

at least two variant pronunciations for each onset: one C+affricate and one reduced. With two ex-ceptions (see below), the voiced onset was reduced just like in WAT: the affricate has lost the sibilant becoming a stop:

AT	Gol/The/Rka/Rnga/ArTBL	rdz	> rd	
	TheHua	rdz	> hdz	> hd
	BayHua	hdz	> hd	

In some dialects the change proceeded further to the effect that the glottal [h] has been reduced to a schwa [ə-] or completely lost:

Mkha/Shan/La/Chan	əd
Ndzo/Rma/Mdzo	d

As a matter of fact, in Ndzo [d-] alternates with [dz-] – another reduced form of the cluster C+affricate. The [dz-] onset (*[hdz-] > [dz-] > [d-]) is the first exception to the common reduction pattern. The second exception concerns La and Chab that have reduced the onset cluster by replacing the affricate with the corresponding fricative. Forms with the voiceless onset [ҫts-] and [ʂts-] for OT *sl-* confirm that the D-epenthesis likewise occurred in both dialects.[21] That means that [ɣz-] (< [rz-]) has resulted from the reduction of the original [rdz-]. The alternative hypothesis would have to assume that the rhotacism in AT followed immediately after the metathesis *s*L > L*s*, yielding !/sl-/ > /ls-/ = [lz-] > [rz-]. However, in that case the D-epenthesis that demonstrably affected all Tibetan dialects without exception would have to appear independently in AT, since after the rhotacism this group already formed a separate branch. This is a less plausible explanation. Moreover, this change would have resulted in a merger with /rz-/ < PT **r + z-*.[22] After the first change the onsets in La and Chab underwent further reductions:

La/Chab	*rdz	> rz	ɣz	əz

The onset [əd-] listed in Table 4 for La and Chab should probably be seen as a borrowing.

If in the voiceless set an AT dialect has two (or more) pronunciations (C+affricate and reduced), the reduced pronunciation is a borrowing from a non-AT dialect. These borrowings are characterised by the presence of a lateral, even though not even one case of a lateral is attested in the voiced onsets. Moreover, the onset with a lateral is attested in a few verbs but in nouns exclusively in the syllable *slob*.

There is only one example of a reduced voiceless cluster in AT:

Rma/Mdzo

ts

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[21] Moreover, both dialects (like all the other AT dialects) underwent devoicing of plain consonants in onset that occurred after the D-epenthesis (see section 9.2).
[22] See p. 9, fn. 25.

It concerns one word: CT *sla mo* [tsamo] 'cheap' (CDTD: 8991), which belongs to the mercantile vocabulary and as such could be a borrowing (but compare [dz-] for OT *zl-* in Ndzo).[23]

It seems that the reduction of the onset C+affricate is an ongoing process in AT. Until now it has only affected voiced onsets, whereas the inherited cluster C+affricate in the voiceless set is preserved, although in most dialects (exceptions: Gol and Shan) it has to compete with borrowed onsets containing laterals. The diffusion of the lateral onsets started most probably with vocabulary related to education and based on the syllable *slob*. Since prior to Chinese occupation the main educational centres were located in Central Tibet, monks from all around the country were traveling there for studies and brought the related vocabulary back to their homes.[24]

CDTD provides relevant data for only two non-tonal dialects from outside the WAT and AT groups:

OT			*zl-*	*sl-*
non-tonal	WIT	ZkTP		ɬ
	KT	Na	dz ~ d	ɬ ~ l ~ ʔl

Table 5. Reflexes of OT *sL-* in non-tonal dialects from outside WAT and AT

The data for Na proves once more that the voiced and voiceless onsets have diverged in their development after the D-epenthesis.

3.2 /sr-/

It appears that the OT onset *sr-* underwent sound changes independently from the above discussed onsets *zl-* and *sl-*. The reason for that is most probably the rhotic /r̥-/. Again, however, WAT and AT are the only dialects that have preserved the onset cluster of the OT. They also attest to a shared D-epenthesis.[25]

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[23] Tibetan languages spoken in northeastern Amdo have been exposed to many other languages throughout their history. This fact might have been partly responsible for the plenitude and diveristy of the forms quoted above. It is likewise probable that some of the sound changes were influenced by the neighbouring (non-Tibetan) languages and can be explained only in comparison with their phonetics. Compare, for instance, Hill's discussion of the origins of uvular consonants in Amdo under the influence of local Mongolian and Qiangic languages (2009: 124–6).

[24] Compare the remark by Denwood: "In the Amdo dialects, the items with affricate reflexes often coexist with others having reflexes in l or hl-. In these cases the l- or lh- (sic) reflexes seem always to be in words associated with Buddhism such as slob-dpon, bslab-bya, slob-grwa, and therefore likely candidates for borrowing from central dialects (in the case of l-) or Kham dialects (in the case of hl-)." (1996: 26). This fact has not been recognised by Sprigg, hence his confusion concerning some of the reflexes in Golok (1972: 564). Strong influence of Central Tibetan dialects on other Tibetan dialects has also been noticed by other authors, cf., e.g., Bielmeier 1982: 410 on Skyid-groṅ. The OT *sl-* onset has been variously borrowed into Stau (Horpa) from Tibetan, depending on the source dialect, cf.: [loma] 'small basket' < CT *slo ma;* [tsaŋŋa] 'pan' < CT *slaṅ ba* (Wang 1970: 643).

[25] The clusters *sR-* did not undergo metathesis (*sR-* > !R*s-*) because this would have brought about a merger with the reflexes of the OT *rz-* (> *rdz-*) and **rs-* (> *rts-*); *r-* = prefix. The onset **rs-* is attested neither in OT nor in modern dialects. In contrast, *rz-* occurs in a few words in Bal, Kar, Tsha, and Mul (cf. CDTD) and is once attested in Or.8210/S.2228: r5 (it is preceded by the syllable *rja* that was crossed out by the scribe). This is further evidence that the metathesis *sL-* > L*s-* occurred before the D-epenthesis (that also affected *rz-* and **rs-* in OT) for otherwise *rz-* and **rs-* would have

WAT	Bal/Har/Kar/Tsha/Chik/Tur/Par/Thuw/Dar/Hanu	str
AT	Gol	ṣtr
	Mdzo	ṣtṣ

Table 6. Cluster reflexes of OT *sr-* in WAT and AT

From these Mdzo is the only dialect that possesses a cluster onset for the OT *sr-* although its reflexes of the OT *zl-* and *sl-* are much reduced: [d-] and [ɬ-] respectively.[26] Linguistic data on the reflexes of the OT *zl-* and *sl-* onsets in Tur, Par, Thuw, Dar, and Hanu is missing.

In some dialects the cluster form alternates with a reduced onset:

WAT	Tsha	str ~ ṣ
	Kar/Chik	str ~ ṣṭ ~ ṣ
AT	Mdzo	ṣtṣ ~ tṣ

The data from Kar and Chik provides a hint for the development in WAT which can be sketched as:

[str-] > *[ṣtr-] > *[ṣtṣ-] > [ṣṭ-] > [ṣ-]

In Table 7 I list the WAT dialects for which data on the *sr-* reflex, and on at least one from the *s*L- reflexes, is provided (apart from Bal, only the most conservative variant is given in case of onset alternation). The first onset to undergo reduction was the cluster reflex of the OT *sr-* – all dialects that have a cluster onset for *sr-* have also cluster onsets for *zl-* and *sl-*. The reduction of the voiced onset [ldz-] preceded the reduction of [ɬts-] – the same tendency can be established for AT dialects (Table 8):

OT		*zl-*	*sl-*	*sr-*
WAT	Bal	lz ~ ldz	ɬts ~ ṣts	str
	Kar/Tsha/Chik	ldz	ɬts	str
	Har		ɬts	str
	Hanu		ɬts	str
	Sapi/Mul	ldz	ɬts	ṣ
	Khal/Nur/Leh	ld	ɬts	ṣ
	Wan/Nub	ld	ɬ	ṣ

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become *rdz-* and *rts-* earlier and no merger could have arisen from the metathesis *s*R- > !R*s*-. The D-epenthesis seems to have been a widespread process that could have affected some other consonantal clusters as well, cf.: **r+s- > rts-; *r+z- > rdz-; *r+ź- > rj-; *s+s- > sts-; *m+ź- > mj-; *m+l- > *mdl- > md-/ld-* (Bodman's law; Hill 2011: 450); **m+ś- > mc-; *ɣ+s- > ɣts-; *ɣ+ś- > ɣc-; *ɣ+z- > ɣdz-; *ɣ+ź- > ɣj- ; *ɣ+r- > ɣdr-; *ɣ+l- > *ɣdl- > *ɣld- > ld-; *ɣ+ḷ- > *ɣtḷ- > *ɣḷt- > lt-*. Changes triggered by the prefix *ɣ-* are called 'Li's first law' in Hill 2011: 446f. One could speak of affricatisation in those cases where the root consonant was a fricative. Because aspiration was not phonemic in OT (see Hill 2010, esp. p. 119, and Bialek (Unpublished manuscript b)), I have omitted it from the presentation.
[26] As has been argued above, the onset [ɬ-] is most probably a borrowing.

Lam/Nim	ɬ	ʂ

Table 7. Reflexes of OT *sr-* and *s*L- in WAT

OT			*zl-*	*sl-*	*sr-*
AT	Gol		rdz	ʂts	ʂtr
	Mdzo		d	& ɬ	ʂʈʂ
	Rma		d	& ɬ	ʈʂ
	La		rz	ҫts	ҫs
	Chab		ɣz	ʂts	ҫs
	TheHua		rdz	rts	ɸs
	ArTBL		rdz	rts	ʂ
	The/Mkha/Rka/Rnga		rdz	ʂts	ʂ
	BayHua		hdz	hts	ʂ
	Ndzo		dz	& hl	ʂ
	Shan		əd	ҫts	ʂ

Table 8. Reflexes of OT *sr-* and *s*L- in AT

The arrangement of the data in Table 8 demonstrates that the first reduction to occur concerns the reflexes of OT *sr-*.[27] Furthermore, this juxtaposition makes it even clearer that the onsets with a lateral consonant (here preceded by an '&'-sign) are external to the phonetic systems of the AT dialects and have to be treated as borrowings.

To sum up, we may set up a relative chronology of reductions: 1. *sr-;* 2. *zl-;* 3. *sl-*. Thus, if a dialect has a reduction in the *sl-* slot, it has also a reduction in the *zl-* set; if a dialect has a reduction in the *zl-* set, it has a reduction in the *sr-* set as well. Another important conclusion is that dialects with a complex onset in the reflexes of *sr-* are most conservative with respect to the OT clusters *s*L- and *s*R-.

4   Modern reflexes of OT *zr-*

The above lengthy discussion has set up the context that should now allow us to proceed to the proper subject of this paper: the modern reflexes of the Early Old Tibetan /sr-/. But where to look for modern reflexes of the Early Old Tibetan /sr-/? The sets of reflexes for the Early Old Tibetan /sl̩-/ and /sl-/ attest to two common sound changes: 1. metathesis; and 2. D-epenthesis. In addition, the AT dialects underwent rhotacism. Can we expect the same parallelism between reflexes of /sr-/ and /sr̩-/? The modern reflexes of the OT *sr-* attest to only one common sound change: D-epenthesis. The analysis has also demonstrated the relative chronology of sound changes within dialect groups. In the WAT group, Bal, Har, Kar, Tsha, Chik, Tur, Par, Thuw, Dar, and Hanu can be said to be most conservative with respect to the analysed elements – they all have preserved the complex onset in the

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[27] [ʂʈʂ-] in Mdzo is already a reduction: stop + rhotic [-tr-] > retroflex affricate [-ʈ͡ʂ-].

sr- set. Among the AT dialects only Gol has preserved a cluster onset in all three sets of reflexes. Mdzo attests to a cluster onset in the *sr-* set but it already underwent reduction followed by a reduction in the *zl-* set.

WAT				AT		
	OT *sgr-*	OT !*sdr-*[28]	OT *bgr-*		OT *sgr-*	OT *bgr-*
Bal	zdr ~ rg	zdr	rg	The	ɣdʐ ~ rdz	rdz
Kar	zgr ~ r	zdr	zgr	Rnga	ɣdʐ ~ rdz	
Chik	zgr ~ r	zdr	zgr	ArTBL	ɣdʐ ~ dʐ ~ rdz	tʂ
Tsha	zgr	zdr	zgr	TheHua	hdʐ ~ rdz	
Har	zdr			Rka	ɣdʐ ~ rɟ	
Par	zdr			Mkha	ɣdʐ ~ ədʐ ~ əɟ ~ rɟ	
Sapi	zdr ~ -zɖ[29] ~ r			La	ɣdʐ ~ ədʐ ~ ɣɟ ~ əɟ ~ tʂ	
Mul	zdr ~ r			BayHua	hdʐ ~ r	
Thuw	zgr			Chab	ədʐ ~ hdz ~ əɟ	
Dar	zgr			Shan	ədʐ	
Sod	zgr			Ndzo	dʐ	
Hanu	zgr			Rma	dʐ	ndʐ
Tur	gr			Mdzo	dʐ ~ tʂ	
Shar	r					
Lam	r					
Khal	r					
Wan	r					
Liṅ	r					
Dib	r					
Nur	r ~ ʈ		r ~ ʈ			
Leh	r		r			
Nim	r					
Nub	r ~ ʂ ~ ɖ					

Table 9. Predicted reflexes of OT *zr-* in WAT and AT

The logical conclusion is to look for reflexes of *zr-* that would parallel those attested for *sr-* (cf. the parallelism between *zl-* and *sl-*). Accordingly, the reflexes of the Early Old Tibetan *zr-* would all have to have undergone the D-epenthesis as those of *sr-* have. This would yield the onset *[zdr-] for the WAT dialects and *[ʐdr-] for the AT group. On the grounds of the established relative hierarchy of changes *(sl- → zl- → sr-*; read: changes in *sl-* imply changes in *zl-,* changes in *zl-* imply changes in *sr-)* we can make another prediction: changes in reflexes of *sr-* imply changes in reflexes

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[28] CDTD.V: 704 falsely reconstructs the CT form !*sdril* from Bal, Kar, Tsha, and Chik [zdril]. The form !*sdril* is attested neither in OT nor in any database for CT (RKTS, TBRC) and, as a matter of fact, goes against the orthographic conventions of CT (as observed also in Simon 1960: 165). Instead, the modern verb [zdril] should be identified with the WT *sgril*. The Kar and Chik form *ril* (listed in CDTD.V: 303 s.v. *sgril*) is most probably a borrowing from another WAT or WIT dialect.

[29] This pronunciation is attested word-internally in *ɲidzɖa* (CT *gñid sgra*) 'snoring' (CDTD: 3037).

of *zr-* (because changes in voiced sets precede changes in voiceless sets). According to this prediction, only dialects with unreduced reflexes of the *sr–* onset can (but do not have to!) have complex onsets in their reflexes of *zr-*. Thus, the complete hierarchy of changes would be: *sl- → zl- → sr- → zr-*. The fact that the onset *zr-* was the first to undergo sound changes is even reflected in the written language: its only attestations come from the above discussed OT toponym Zrid and the OT common noun *zre mo* (see section 7.2). As opposed to that, the remaining onsets are amply attested throughout the history of Written Tibetan. Therefore, we may expect to find only very few (if any) cluster reflexes of the onset *zr-.*

In Table 9 I present the data on the hypothesised reflexes of *zr-* restricted however to the WAT and AT dialects which have proven most informative.

The same dialects that were said to be most conservative for the reflexes of OT *sr-* (Bal, Har, Kar, Tsha, Chik, Tur, Par, Thuw, Dar, Hanu), likewise preserve complex onsets in the predicted reflexes of OT *zr-.*

Surveying CDTD for the predicted *[zdr-] onset has yielded yet another complex onset in the WAT dialects: [zgr-]. Thus, it seemed legitimate to look also for other reflexes with this onset. The new survey has added the WT verbs *bgraṅ, bgrad*, and *bgres*. Only *bgrad* has reflexes in WAT and AT. *bgraṅ* is only attested in ArTBL (AT). In addition, dialectal data is provided for the nouns *bgraṅ ma, bgres po,* and *bgrod pa.* From these *bgres po* is only attested in Nur (WAT) and Rma (AT). The reflexes of WT *bgr-* tie in with the reflexes of WT *sgr-* not only in WAT but also in AT (the sole exception is Rma: [ndʐ-] (for CT *bgres*) vs [dʐ]).

The predicted onset [zdr-] for WAT is preserved in three lexemes only:

		WAT									AT
OT	Meaning	Bal	Har	Par	Sapi	Mul	Kar	Tsha	Chik	Hanu	The
sgruṅ	'tale'	zdruŋ	zdruŋ	zdruŋs	zdruŋs	zdrums	[zgrums]	[zgruŋs]	[zgrums]	[zgrums]	rdʑuŋ
sgran (V)	'to fight'				zdran						
sgril (V)	'to roll'	zdril					zdril	zdril	zdril		

Table 10. The predicted onset [zdr-] for OT *zr-* in WAT

Three lexemes from Bal have somehow unexpected onset [rg-] for the OT *sgr-:*

		WAT						AT
OT	Meaning	Bal	Kar	Tsha	Chik	Sapi	Mul	The
sgam	'box'	rgam	zgram		zgram			
sgom	'box'	rgom	zgrom	zgrom	zgrom			
sgrig (V)	'to arrange'	rgik	zgrik	zgrik	zgrik	rik	rik	ɣdʑəç ~ rdʑəç

Table 11. Reflexes of OT *sgr-*

In Bal the same onset is attested for OT *bgr-:*

		WAT				AT
OT	Meaning	Bal	Kar	Tsha	Chik	The
brad (V)	'to stem against'	rgat	zgrat	zgrat	zgrat	rdʑal

Table 12. Reflexes of OT *bgr-*

In tables 10-12 I have added data from The because this is the only AT dialect in which OT *sgr-* (~ Bal [rg-]) and *bgr-* have reflexes. The data, although scanty, seems to suggest that all three onsets merged in The to [rdʑ-].[30]

In Bal [rg-] does not alternate with [zdr-] in any lexeme. If Bal has [rg-] no dialect has [zdr-]. Therefore, I put forward the hypothesis that at some early point */sDr-/ merged with /sgr-/:

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[30] As a matter of fact, all dialects have the same reflexes for the OT *sgr-* and *bgr-*. The onset *sgr- could perhaps be analysed as *s+rg-.

EOT	Bal	Kar	Chik	Tsha	Har	Par	Sapi	Mul	The
sgr–	rg	zgr	zgr	zgr			r	r	rdz
ẓr–	zdr	zdr	zdr	zdr	zdr	zdr	zdr	zdr	rdz ~ ɣdʐ̩

Table 13. Reflexes of EOT *sgr–* and *zr–*

For now the following picture emerges: *zr-* of the Early Old Tibetan changed to [zdr-]. The merger of [zdr-] with *sgr-* occurred after the [zdr-]-dialects of WAT separated but clearly before the eldest extant text was written. However, the merger has spread to all WAT dialects as can be inferred from the fact that the [zdr-] onset has been preserved in only three lexemes. The merger shows its continuing influence in Kar, Tsha, and Chik that have [zdr-] in only one word now.[31]

Regarding the AT group, no dialect has the predicted onset *[ẓdr-]. What seems to be the oldest attested cluster onset, [ɣdʐ̩-] or [hdʐ̩-] (see Table 9), bears evidence to an epenthesis. If we assume that the merger [zdr-] > *sgr–* took place before AT dialects separated, we can easily account for the lack of the predicted onset *[ẓdr-] by adding the merger to obtain *[ẓdʐ̩-].[32] This onset changed to either [ɣdʐ̩-] or [hdʐ̩-] parallel to the reflexes of OT *zl-* (cf. Table 4). The simplicity of the AT reflexes of *sr-* (i.e. [ʂ-]) on the one hand (see Appendix B), and the complex clusters for the reflexes of *zr-*, on the other hand, suggest that [ʂ-] might be a borrowing from a non-AT dialect. This is supported by the fact that the same dialects have rather complex onsets for OT *zl-* and *sl-*.

To sum up, the WAT and AT dialects with most complex onsets attest to the D-epenthesis (*zr-* > *zDr-*), as was predicted by the modern reflexes of OT *sr-*. It also seems to be the only sound change shared by all dialects. The data, although scanty in this respect, suggests that AT participated in the merger of *sgr-* and [zdr-] and thus separated from the common stock later than the [zdr-]-dialects of WAT. This automatically implies that the L > [r] rhotacism in AT occurred after *sgr-* and [zdr-] had merged.

5 Modern reflexes of *s*L- and *s*R- clusters. A summary

Table 14 summarises the data from the WAT and AT dialects that have preserved the most complex onsets for the discussed clusters. I have arranged the data according to the previously established chronology of changes: 1. *zr-*; 2. *sr-*; 3. *zl-*; 4. *sl-*. The prevalence of the onset [ʂ-] for the OT *sr-*, that goes against most patterns, proves in my opinion that it has spread across dialects somehow independently, probably under influence from outside WAT and AT. The above juxtaposition demonstrates that any changes in a column were bound to the occurrence of a change in the column to its left (change hierarchy). This, however, does not say anything about the quality of the changes but only confirms the prediction that only dialects with unreduced reflexes of the *sr-* onset can have complex onsets in their reflexes of *zr-*. The only AT dialect with an unreduced onset for the

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[31] An analogous merger of *ɣdr-* and *ɣgr-* has occurred in other dialects (cf. also OT *ɣdrul* ~ CT *ɣgrul*) but has not reached the conservative WAT dialects yet. Although Che postulates that the change indeed occurred "by the middle or late stages of the Royal Period" (1990: 82), more research is needed (also on other clusters C*r*) to support or reject the hypothesis.

[32] Cf. hereto Mdzo [ʂtʂ-] for OT *sr-*.

OT *sr-* is Gol, for which unfortunately no data is provided concerning reflexes of *zr-*. Regarding the WAT dialects, the sole exception concerning this hypothesis is the [ʂ-] onset of Sapi and Mul, which is spreading in WAT from the non-conservative WAT dialects.

	WAT				AT				
	*zr-	*sr-*	*zl-*	*sl-*		**zr-*	*sr-*	*zl-*	*sl-*
Bal	zdr	str	lz ~ ldz	ɬts ~ ʂts	ArTBL	ɣdʐ ~ dʐ ~ rdz[33]	ʂ	rdz	rts
Har	zdr	str		ɬts	Gol		ʂtr	rdz	ʂts
Par	zdr	str			Mkha	ɣdʐ ~ ədʐ ~ əɟ ~ rɟ	ʂ	rdz	ʂts
Tsha	zdr ~ zgr	str	ldz	ɬts	The	ɣdʐ ~ rdz	ʂ	rdz	ʂts
Kar	zdr ~ zgr ~ r	str	ldz	ɬts	Rka	ɣdʐ ~ rɟ	ʂ	rdz	ʂts
Chik	zdr ~ zgr ~ r	str	ldz	ɬts	Rnga	ɣdʐ ~ rdz	ʂ	rdz	ʂts
Sapi	zdr ~ zɖ~ r	ʂ	ldz	ɬts	TheHua	hdʐ ~ rdz	ɸs	rdz	rts
Mul	zdr ~ r	ʂ	ldz	ɬts	BayHua	hdʐ ~ r	ʂ	hdz	hts
Hanu	zgr	str		ɬts	La	ɣdʐ ~ ədʐ ~ ɣɟ ~ əɟ ~ tʂ	çs	rz	çts
Thuw	zgr	str			Chab	ədʐ ~ hdʐ ~ əɟ	çs	ɣz	ʂts
Dar	zgr	str			Shan	ədʐ	ʂ	əd	çts
Sod	zgr				Ndzo	dʐ	ʂ	dz	hl
Tur	gr	str			Mdzo	dʐ ~ tʂ	ʂtʂ	d	ɬ
Nur	r ~ ʈ	ʂ	ld	ɬts	Rma	dʐ	tʂ	d	ɬ
Khal	r	ʂ	ld	ɬts					
Leh	r	ʂ	ld	ɬts					
Wan	r	ʂ	ld	ɬ					
Nub	r ~ ʂ ~ ɖ	ʂ	ld	ɬ					
Lam	r	ʂ		ɬ					
Nim	r	ʂ		ɬ					

Table 14. Modern reflexes of *s*L- and *s*R- clusters in WAT and AT

As I have argued in section 4, the D-epenthesis was the last sound change common to all dialects. All following changes were either characteristic of all the dialects within one group or occurred only within particular dialect-subgroups. I tentatively suggest reconstructing the ensuing changes as shown in Tables 15 and 16:[34]

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[33] Many AT dialects tend to merge the reflexes of the OT /sr-/ with palatalised onsets that correspond to the CT *rgy-, brgy-, sgy-, bsgy, rj-, lj-,* and *brj-*.
[34] Hyphen indicates that the change does not apply.

	Metathesis	Epenthesis	Merger	Reduction			
zr-	-	zdr	-				
			zgr	zḍ	ḍ		
				gr	r		
sr-	-	str	-	*ṣtr	*ṣtṣ	ṣṭ	ṣ
zl-	lz	ldz	-	ld-			
sl-	*łs	łts	-	ł			

Table 15. Reconstructed changes in WAT

	Metathesis	Epenthesis	Merger	Rhotacism	Reduction			
zr-	-	*zdr	*zgr	-	*zḍʐ	ɣdʐ	ədʐ	dʐ
					hdʐ	ədʐ	dʐ	
sr-	-	*str	-	-	ṣtr	ṣtṣ	tʂ	ṣ
					ɸʂ	ʂ		
					çʂ	ʂ		
zl-	*lz	*ldz	-	rdz	hdz	hd	əd	d
					dz		d	
					rd		d	
					rz	ɣz	əz	
sl-	*łs	*łts	-	rts	ṣts	hts	ts	
					çts	ts		

Table 16. Reconstructed changes in AT

Needless to say, not every stage of a change is preserved in all dialects that attest to some sort of reduction.

A general picture that emerges is that the conservative WAT dialects separated first from the stock of OT and only slowly have initiated any changes in their reflexes of the Early Old Tibetan *zr-*, *sr-*, *zl-*, and *sl-*. They have retained the conservative onsets but do not seem to share any common innovation. The merger of the *[zdr-] with *sgr-* has probably spread to WAT from other non-conservative dialects and is still not completed. AT dialects, on the other hand, do share a common innovation: the rhotacism of L to [r] in absolute onset of the type *l*D-. They also attest to more advanced onset reductions than the conservative WAT dialects.

6 Modern relics of OT *zr*-words

Due to the early merger of the *[zdr-] and *sgr-* onsets it is almost impossible to provide any secure set of words that could have been derived from a root with the voiced *r-* onset by means of the prefix *s-*. The following preliminary list includes first of all the very few lexemes, the modern reflexes

of which attest to an earlier *[zdr-] onset. The set is extended by some other pairs of lexemes which, in my view, could be considered as following the same morphological pattern.[35]

    1. *sgruṅs* 'parable'   ~ *ruṅ* 'to be suitable'

sgruṅs would have originally denoted a kind of didactic narrative that contained a moral or an instructive lesson; *ruṅ* > **s+ruṅ* 'to make suitable; to make sth. right' > **sruṅ+s* 'what should make one righteous; parable'.[36]

    2. *sgran* 'to fight'   ~ *ran* 'to be proportionate'
                                               ~ OT *ɣdran,* CT *ɣgran* 'to vie with'

The etymological meaning of *ran* was *'being equal to sb./sth. in quality or strength'; cf. Rka 'fitting' (CDTD: 7962) and MT '¹fitting well in size' (Gs: 1030a). The derivation is assumed to have proceeded along the following lines: *ran* 'to be matching' > 'to be in competition with sb.' > **s+ran* 'to cause sb. to go in competition; to vie with'.

    3. *sgril* 'TR to roll'   ~ *ril* 'INTR to roll'
                                           ~ *ɣdril* 'to be rolled around'

Examples 2 and 3 contain cognates with the onset *ɣdr-*.[37] Therefore, I propose also adding other analogous sets of verbs and reconstructing their attested *sgr-* onsets as *zr-:

    4. *sgral* 'to cut into small pieces'   ~ *ral* 'to get torn' < *'INTR to rip' (?)
                                           ~ *ɣdral* 'to tear' < *'to be torn' (?)

    5. *sgre* 'to mix'   ~ *re (?)[38]
                                   ~ *ɣdre* 'to be mixed'[39]

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[35] It is not my aim to present complete word-families of the respective verbs. I quote only those forms that contribute to the discussion. The sole purpose of this juxtaposition is to identify lexemes that could have developed from the original *zr-*.

[36] Bielmeier seems to suggest that the original final of the CT *sgruṅ* was *-*ms* (1985: 10); cf. Kar, Thuw, Dar, Sod, Chik, Hanu /zgrums/; Mul /zdrums/ (CDTD: 2025). In that case, the word would have to be reconstructed as *zrums and the hypothesised connection to *ruṅ* would be broken. Simon, on the other hand, relates *ruṅ* to *sruṅ* (1960: 166).

[37] As was suggested by Li (1933: 149), the onset *ɣ*DC- (D = dental; C = [+liquid] or [+fricative]) has resulted from an epenthesis of the original **ɣ*C-. This sound change exactly parallels the D-epenthesis put forward for *s*L- and *s*R- in the present paper. It remains for future research to examine whether these two epentheses were correlated and occurred simultaneously or not.

[38] This verb might have been given up after its homonym *re* 'to hope' had gained in popularity.

[39] This group is undoubtedly related to *sre* 'cEA to mix'. *sgre* (< *zre) ~ *sre* would be another pair of alternating voiced/voiceless prefixes (see section 7.2).

6. *sgreṅ* 'to erect'   ~ *reṅ* 'INTR to stretch out' (?)
      ~ OT *ɣdreṅ*, CT *ɣgreṅ* *'to be erect'

7. *sgrub* 'cEA to complete'   ~ *rub* 'cA to unite'   ~ *ɣdrub* 'ncA to heal'[40]

Needless to say, the list is preliminary and, apart from the first three sets, subject to confirmation.

7 OT *zr-* revisited

We should now turn again to the OT words with the onset *zr-* and discuss their significance for the Tibetan historical phonology. The toponym Zrid and the common noun *zre mo* prove that the lacuna in the set of the OT onsets /s/+liquid is not accidental but has resulted from a regular sound change. In the preceding sections I have tried to trace the dialectal reflexes of this change.

7.1 Zrid

I have assumed that Zrid, as a conservative form, was longer retained in language due to it being a toponym. If at some point it was nevertheless changed following regular sound changes (rather than just given up), it should have merged with the consonant cluster represented in the script by *sgr-* and afterwards continued common development. It happens that in most CtrT dialects (e.g., in Lhasa), reflexes of CT *sgr-* have merged, among others, with reflexes of CT *ɣbr-* yielding the low tone [ʈʂ-] (cf. CDTD). The final *-d* of the written language is never pronounced in CtrT.[41] As is so often the case with local toponyms in Tibet, their written forms are not always easy to determine. I venture the hypothesis that the syllable *ɣbri* in the modern toponyms ɣbri-smad and ɣbri-chu-kha (see section 1) was arrived at in the written language partly as an outcome of a regular sound change (merger of CT *sgr-* and *ɣbr-* in CtrT), partly as a folk etymology (by analogy with *ɣbri* concerning its rime). Be that as it may, it seems to be indeed a modern form of the OT toponym Zrid, but the outcome is rather idiosyncratic.

7.2 Zre mo

As one of the anonimous reviewers has kindly informed me, there is yet another example of *zr-* attested in OT documents:

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[40] Since the sound marked in script by the letter *ɣ* has been convincingly explained by Hill as a voiced velar fricative [ɣ] (2009), the hypothesis (as raised, e.g., in Simon 1969) that it could have represented a nasal homorganic with the following stop has to be rejected. The existence of sets like the OT *riṅ ~ sriṅ ~ ɣdriṅ (*cf. Bialek 2018b) provokes the question as to whether not all CT *sgr-* onsets could go back to **zr-*.

[41] Its loss, however, may cause some compensatory changes. According to Bielmeier, the loss of final consonants is "a very recent phenomenon in western, southwestern and central dialects" (1988: 47).

ɣu phrad kyis (5) gsol paɣ // myi ɣjer źes bgyi ba la rnam pa lṅa mchis te // sbrul daṅ zre mo gñis myi (6) ɣjer // lug daṅ spyaṅ ku gñis myi ɣjer // khyi daṅ byi la gñis myi ɣjer // źes (7) bgyi (PT 992: 29r)
[Councillor] ɣu-phrad said: "As for the so-called *myi ɣjer*, there are five kinds [of them]: snake and *zre mo* are *myi ɣjer*; sheep and wolf are *myi ɣjer*; dog and cat are *myi ɣjer*."[42]

The passage is defective because instead of the announced five kinds (*rnam pa lṅa*) it only lists three *myi ɣjers*: snake-*zre mo*, sheep-wolf, and dog-cat. It is obvious that the term *myi ɣjer* denotes animals that are each others' enemies in the natural environment. This confirms the reviewer's suggestion that *zre mo* should be identified with CT *sre moṅ* 'weasel' (J: 584a).[43] However, its juxtaposition in one pair with snake would rather suggest mongoose – an animal not known in Tibet and therefore subsumed in the language under the same name as weasel. The CT term for the animal, *sre moṅ,* and modern dialectal reflexes attest to the second syllable *moṅ* (see CDTD: 8973), but lexicographical sources also know the form *sre mo* "[1]srog chags sre moṅ gi miṅ; [2]mi dred kyi miṅ" (DSM: 986b). Thus, the identification of OT *zre mo* with CT *sre mo(ṅ)* seems confirmed.

The question is then: why do we find the form *zre-* even though later sources attest to *sre-*? This is, however, not an isolated case of alternation between voiced and voiceless prefixes before a liquid consonant in OT. We also find: *zla ~ sla* 'moon; month' and *zlog ~ slog* 'to turn'. Thus far no explanation of this alternation has been proposed.[44] As I have already mentioned, PT 992 was written by one scribe. Nevertheless we find there the following alternation: *bzlogs* (5r2, 30r1), *zlog* (27v2) ~ *bslogs* (22r3).

Although the etymology of *sre mo(ṅ)* remains unknown, we observe that in CT there are several terms for animals that end with the syllable *moṅ: rṅa moṅ ~ rṅa boṅ* 'camel', *dred mo* 'a yellow bear' (D: 657a) ~ *dred moṅ* 'bear' (CDTD: 4014), *gzig mo(ṅ)* 'porcupine' (J: 493). Because *moṅ*

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[42] PT 992 has not been translated yet. The manuscript contains several distinct texts written, as it seems, by one scribe. Some of the texts, like the one in question (22r–33v), are clearly Buddhist. Another text is, according to Thomas (1957: viii), a complete version of ITJ 730. Our text is a dialog between the king Go-ɣphaṅ and his councillor ɣu-phrad.

[43] Regarding the otherwise unknown term *myi ɣjer, myi* is certainly a negation and therefore *ɣjer* should be either an adjective or a verb. In Bialek 2018a (s.v. *dgra bźer*), I have tentatively reconstructed the verb conjugation **ɣjer / bźer / gźer.* Verb *gźer* is rendered in Mongolian sources as 'tüsikü' (SR.2: 722.5), whereas in Tibetan dictionaries we find it glossed as 'bsten pa' (D: 1082b, GC: 750a). I have proposed the translation 'to lean against; assist; to rely on, depend on' for *ɣjer.* Thus, *myi ɣjer* can be literally rendered as 'not assisting'. Apparently *myi ɣjer* denoted animals hostile towards each other, i.e. the general translation could be proposed as 'antagonist' or 'adversary'. This interpretation is indirectly confirmed by another, Classical Tibetan text:

    mi ɣphrod paɣi mi mthun pa ni ɣdi lta ste / sbrul daṅ sre moṅ gñis daṅ / byi (r6) la daṅ / byi ba gñis daṅ / gcig la gcig phyir rgol źiṅ dgrar gyur pa gñis lta bu yin no (Asaṅga, *Rnal ɣbyor spyod paɣi sa las byaṅ chub sems dpaɣi sa*; D 4037, sems tsam, wi 53r5–6)
    Antagonists who are adversaries are like snake and weasel, cat and mouse, and those two that, while fighting against each other, became enemies. (I would like to thank Johannes Schneider for his valuable suggestions concerning the translation of the passage.)

Here we have the same motif of animal pairs that are natural enemies and their enmity is expressed by a negated verb, *mi mthun*, lit. 'not agreeing'. This coincidence also suggests that the motif from PT 992 is of Indian origin.

[44] The only comment on the alternation *sl- ~ zl-* known to me comes from Hill: "Since voiced lateral initials are much more common than voiceless lateral initials, while the written cluster <zl> is much rarer that (sic) <sl>, there is reason to believe that the spelling <sl> can be used both for /sl/ and /sl̥/, while <zl> specifies /sl/ only." (2010: 120).

sometimes alternates with *boṅ*, we can extend our list by *ri boṅ ~ ri goṅ* 'hare, rabbit' (CDTD: 8018). Even more interesting are written variants of CT *sre mo(ṅ)* found in lexicographical sources (ordered alphabetically):

> *skre moṅ* 'sre moṅ gi miṅ'(DSM: 43a)
> *sgre moṅ* 'neɣu leɣi miṅ' (DSM: 124b)
> *spre moṅ* '(yul) sre moṅ ste. neɣu le yaṅ zer' (BTC: 1690a)
> *sbre moṅ* 'neɣu leɣam sre moṅ gi miṅ' (DSM: 617b), '(rñiṅ) sre moṅ' (BTC: 2035b)
> *ze mo* 'incorrectly for *sre moṅ* the weasel' (D: 1097a)
> *ze moṅ* 'sems can gzugs mo' (BTC: 2469a)

Dialectal data on WT *sre moṅ* is scarce. Only the following forms can be quoted: Kyir [t̠imōŋ] ~ [t̠imū] 'weasel', TheHua, BayHua [ṣemo], ArTBL [ṣemoŋ] 'yellow weasel' (CDTD: 8973). Especially valuable are the forms from Kyir, the low tone of which confirms the original voiced onset of its WT equivalent. Kyir low tone [t̠] is a reflex of the WT onsets *gr-, grw-, dgr-, bgr-, sgr-,* and *dr-* (cf. Huber 2005: 33–4 and CDTD).[45] The written forms cited above attest to the development of the syllable *zre* in accordance with the predicted sound changes. The form *sgre* has resulted from the merger *[zdr-] > sgr-. skre* is either a scribal or a reading error of the original *sgre.* The form *sbre* has been arrived at in a dialect in which the reflexes of WT *sgr-* merged with the reflexes of *sbr-. spre* could be either a folk etymology (*sbre > spre* by analogy with *spre* 'monkey' as likewise denoting an animal) or again a scribal or a reading error. The form *ze mo(ṅ)* is a hypercorrection from *zre mo(ṅ).* The scribe has taken the 'additional' horizontal stroke at the bottom of the letter *z-* for an error; cf., for instance, the syllable *zre* in PT 992: 29r5:
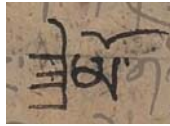

Fig. 1. © Bibliothèque nationale de France

If, on the other hand, we accept the voiceless forms (*skre, spre*) as original, no logical explanation can be delivered for the variants with the *z-* onset. It is a fortunate coincidence that OT *zre mo* is indeed attested. The evidence from modern Kyir as well as a handful of WT variants seem to be the final proof for the proposed hypothesis on the development of the OT onset *zr-.*

Now it is obvious that OT *zre mo(ṅ)* participated in the voiced ~ voiceless alternation of: *zla ~ sla, zlog ~ slog, zre mo(ṅ) ~ sre mo(ṅ).*[46] To the best of my knowledge these would be the only pairs thus far identified as participating in the alternation.[47] Because this phenomenon concerns a very small group of lexemes, it follows that the voiced forms are archaisms preserved from the period in which the feature [+voice] of the root consonant was still spreading to the prefixes. It is feasible that

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[45] Kyir low tone [t̠] in the reflexes of WT *sre mo(ṅ)* is the only low tone reflex of the WT onset *sr-* found in CDTD.

[46] I have not come across *sre mo(ṅ)* in OT documents so far. It is feasible that *sre* in *sre mo(ṅ)* is a cognate of the *sgre/sre* word-family from section 6.

[47] To these one can perhaps add *sgre* (< *zre*) ~ *sre* (see section 6) and *zrid ~ srid* (see section 2).

with the introduction of the script, or shortly afterwards, when the first attempts at standardisation were undertaken, the orthographic rules were re-devised in favour of the phonemic representation of the language.[48] The *s*-prefixation was still productive after the assimilation of prefixes to the root consonant had ceased in the spoken language. Henceforth, the prefix was written as *s*- before voiced and voiceless liquids alike.[49] Because WAT are the only dialects in which assimilation of the EOT prefix *s*- to the feature [voice] of the root consonant has been preserved, we can assume that this process ceased after the split of Proto-WAT. The voiced forms (i.e. the reflexes of OT *zl*- and *zr*-) have been preserved as archaisms in all the other dialect groups.

8 Historical background

In this section I attempt to sketch a broader historical perspective from which to look at the traced sound changes. The goal is to provide an outline of historical events from the early period of the Tibetan Empire that could have coincided with the language development or could even have had a considerable impact on the latter.

8.1 Script invention

According to Chinese sources, in the year 648 Tibetans sent a mission to the Chinese court asking, among others, for ink and paper manufacturing technology (Bushell 1880: 446; Pelliot 1961: 6). The etymology of the verb *ɣbri* 'to write' < **ri* 'to cut (e.g., letters in wood)'[50] suggests that Tibetan was first written (lit. 'cut') on wooden tablets (also for the lack of paper prior to 648) and thus was certainly invented some time before 648. The oldest datable mention of the script in OT records is the entry from the OTA for the year 655:

> *blon che stoṅ rtsan gyịs / ɣgor ṭịr / bkaɣ /* (30) *grịms gyị yi ge brịs* (PT 1288)
> Great councillor [Mgar]-stoṅ-rtsan-[yul-zuṅ] wrote down the text of the sovereign laws
> at Ɣgor-ti.

The earliest datable events that are described in the OTA concern the year 641/2[51] but are preceded by ten lines of text written on much destroyed paper. Some of the events related in that

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[48] As I argue in Bialek (Unpublished manuscript b), at the time of its invention the Tibetan alphabet was preponderantly phonetic and did not pay much attention to the phonemic system of the language.

[49] Because the group of lexemes that attest to voicing/devoicing of prefixes depending on the value of the root consonant is likewise limited (see section 2), we may reasonably argue that this process ceased to be productive in an early phase of the language, most probably ousted by new sound changes and, foremost, the ubiquitous epenthesis. The archaisms were retained in the language, but the new words formed with the non-assimilating *s*– prefix have acquired slightly different meanings or the meanings of old "assimilated" forms underwent specialisation.

[50] Compare hereto the etymology of Eng. *write* 'Old English *wrītan* 'score, form (letters) by carving, write', of Germanic origin; related to German *reissen* 'sketch, drag' (https://en.oxforddictionaries.com/definition/write; accessed 25.08.2017). From the same root **ri* the group of lexemes focused around the sense to diminish (CT *ɣbri, ɣphri* etc.) were derived. For a detailed discussion of the word family, see Bialek 2018a, s.v. *rkyen ris*. Other comparable examples from Tibeto-Burman languages are quoted in Benedict 1939: 220. Wooden slips inscribed with ink that were found in Central Asia are of course later artifacts.

[51] Cf. Dotson 2009: 82, fn. 127.

section took place in the 630s. Therefore, we can assume that the Tibetan script was invented no later than in the early 640s, during the reign of Khri-sroṅ-brtsan, to whom it is also ascribed in PT 1287: 451–4. As a matter of fact, the Tibetan tradition maintains that the Tibetan script was invented in the year 632 by Thon-mi Sambhoṭa.[52] The date of the invention would agree with the rough estimation arrived at above. van Schaik (2011) has convincingly argued that the Tibetan script came to Tibet via Nepal. In the 630s the Nepalese king Narendradeva was in exile in Tibet and, as witnessed by the OTA, was installed on the throne by the Tibetans after they had killed the usurper Jiṣṇugupta/Viṣṇugupta in 641/2:

> bal po yu sna kug ṭi bkum / na rị ba ba rgyal phor bchug / (PT 1288: 12)
> [One] killed the Bal-po Yu-sna-kug-ti [and] installed Na-ri-ba-ba as a king.

van Schaik contends that Tibetans came into contact with the script during the stay of Narendradeva in Tibet (ibid., p. 72ff.). Narendradeva had to leave Nepal after Jiṣṇugupta/Viṣṇugupta had usurped the throne in 631. Therefore the time frame 631–641/2 is the most probable for the introduction of the script in Tibet.[53]

In historical sciences, introduction of script marks off the boundary between pre-history and history. Since we can date the introduction of the Tibetan script only roughly to the period between 631 and 641, it is reasonable to accept the year 648 (i.e. the year of the mission to the Chinese court) as the *terminus ante quem* for the script invention and as the beginning of Tibetan history.

Because toponyms show strong tendency towards conservatism, I assume that the change *zr-* (cf. Zrid) > *[zdr-] occurred in EOT, obviously after the script invention – the orthographic conventions put forward for the first time with the script invention allowed for writing *zr-* in the onset.

8.2   *Political situation on the Tibetan Plateau around 630*

The political situation on the Tibetan Plateau in the period preceding Tibetan conquests is schematically illustrated on Map 1. Needless to say, the map presents only approximate location of the polities.[54] From it we can infer the approximate extension of the area where pre-historical Tibetan could have been spoken around 630 – its limits were defined by other non-Tibetan speaking political and ethnic entities (first of all Źaṅ-źuṅ to the west and north-west of Three Horns, Sum-pa to the north-east, Ɣa-źa still farther to the north-east, and Mon to the south and south-east) or by geographical boundaries; cf. also Beckwith 2011: 234f.[55] This does not preclude the possibility that Tibetans were encountered outside this area. Xuanzang, for instance, noted their presence in Leṅ-cu (Ch. Liangzhou) in 629 (Richardson 1985: 1).

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[52] Cf. Hahn (1996: 1) and Thomas (1951: 151). Usually the 620s or 630s, i.e. the very beginning of the rule of Khri-sroṅ-rtsan, are accepted by Western scholars for the introduction of the script (Uray 1955: 105). The historicity of the script-inventor has been challenged by modern scholars but will not be discussed here.

[53] In a more recent paper, Schuh has argued for the Northwest Indian and/or (?) Central Asian provenance of the Tibetan script (2013). As I demonstrate in Bialek (Unpublished manuscript b), neither paleographical nor historical data confirms this hypothesis.

[54] Similar maps can also be found in Dotson 2009: 166 (Map 2) and Ryavec 2015: 44–5 (Map 11).

[55] The exact borders of the polities are not known and were most probably fluid depending on the actual political situation in the whole region.

The socio-political centre of the Tibetan Empire (ca. 630s–840s) was located in the so-called Dbu-ru, in the valleys of Skyi-chu and its upper tributaries.[56] For the language history it does not really matter whether we consider here Lhasa (OT Ra-sa) or any other locality (e.g., Yar-luṅ) to be the 'very' cradle – the Empire had a decentralised administration as evidenced by the changing *btsan pos*' residences and council places.[57] Their common characteristic was that they all were located in Central Tibet, predominantly in Dbu-ru.

From the region now called Central Tibet (*dbus gtsaṅ*; Bod-yul on Map 1) Tibetans started all their conquests. Beginning with the first half of the 7th century their military campaigns mainly focused on two directions: the west (up the Gtsaṅ-po river and then down the Indus) and the northeast (along the caravan route towards Central Asia).
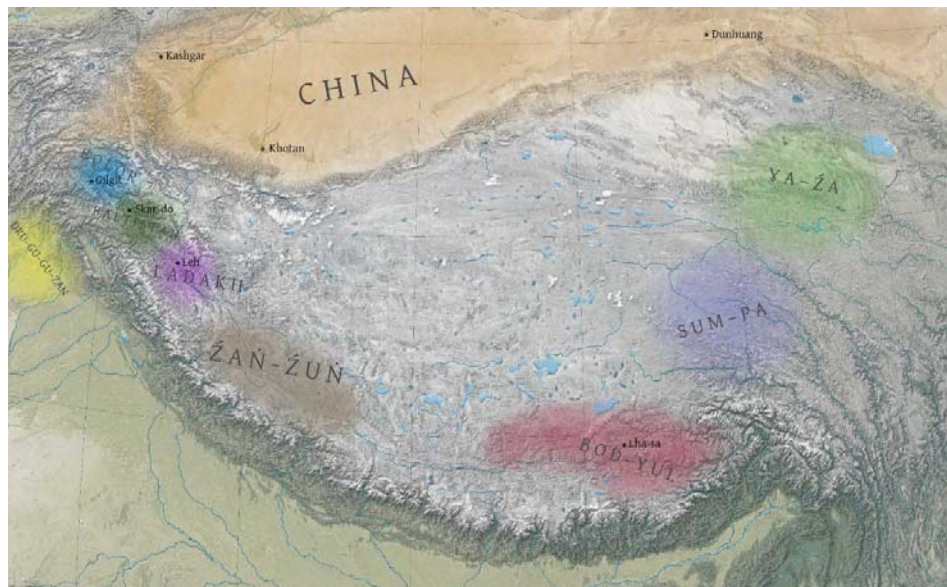
Map 1. Political situation on the Tibetan Plateau prior to Tibetan conquests (i.e. around 630); Map based on satellite photo: © 2016 Google; Image Landsat / Copernicus

[56] As against Zeisler's assumption that '[w]e do not know enough about early Tibetan history to locate the socio-political 'epicentre' of the imperial period' (2009: 82–3). There are serious arguments for the location of the political centre of the Tibetan Empire in Central Tibet: 1. Tibetan imperial inscriptions (including the international treaty inscription in Lha-sa); 2. The highest density of elite burial mounds (including those of the royal family; cf. https://www.oeaw.ac.at/tibetantumulustradition/maps/overview/; accessed 06.07.2018); 3. Council sites and royal residences (see Map 7.1–2 in Dotson 2009: 213–4); and 4. Birth places of the *btsan pos*. All these were located within the three administrative units called Horns (*ru*) – with Dbu-ru being the most prominent – leaving no doubt about their political significance. In addition, all foreign embassies mentioned in the OTA were received at the *btsan po*'s actual residence in Central Tibet. On the other hand, no historical facts are known that would favour any other locality on the Tibetan Plateau (or its margins) as a political centre of the Tibetan Empire. For a more detailed description of the political role of the Skyi-chu region in the formational period of the Tibetan Empire, see Hazod 2003.

[57] Cf. Map 7.1 in Dotson 2009: 213 and more detailed discussions of the 'moveable' political centre of the Empire in Hazod 2003: 36–7 and Dotson 2009: 43–6.

8.3 Western conquests

In Bialek (Unpublished manuscript a), I have attempted to demonstrate that the conquest of polities and regions to the west and nothwest of Źaṅ-źuṅ must have started right after the latter had come under Tibetan control in the 640s. Ladakh, Baltistan, and Gilgit (i.e. later Great Bolōr) must have been subjugated by the Tibetans between 644 (the final defeat of Źaṅ-źuṅ) and 663 (conquest of Kashgar; see Map 2 on p. 26). Furthermore, a new evaluation of historical data on Western Turk dynasties ruling south of Hindukush has revealed their conformity to the information contained in the OTA. These prove that the Tibetan presence in these regions was not transitional but developed in permanent civil settlements shortly afterwards – settlements that must have supplied Tibetan armies fighting against various Western Turkic dynasties during the 670s and 680s. Since both Tibetan and Chinese historical sources are silent on any later re-conquest of Ladakh and Baltistan by the Tibetans we can assume that the regions remained in Tibetan hands and underwent successive Tibetanisation.[58]

8.4 Conquest of Central Asia

In the early period of the Tibetan Empire, Tibetans put much effort in conquering polities that were located between Dbu-ru and Central Asian oases. The most powerful polities seem to have been those of Sum-pa and Ɣa-źa.

8.4.1 Sum-pa

Information on Sum-pa provided in the OTA is rather poor. In 702/3 we read:

mdo smad gyị dgun ɣdun nam ldoṅ prom du khu maṅ po rje lha (141) *zuṅ daṅ / blon maṅ rtsan ldoṅ źịs bsduste / sum ruɣị mkos chen po bgyịs /* (ITJ 750)

The winter council of Mdo-smad, convened by Khu-maṅ-po-rje-lha-zuṅ and councillor Maṅ-rtsan-ldoṅ-źi at Nam-ldoṅ-prom, made a great administration of the Sum-pa's horn.

Administration of a region presupposed its previous conquest. According to the *Old Tibetan Chronicles* (OTC; PT 1287: 299–305), Sum-pa along with other dependent principalities revolted after the death of Slon-mtshan but were soon again subjugated by his son Khri-sroṅ-brtsan:

(300) *gñen źaṅ źuṅ / mdzo sum pa // ñag ñị dags po // rkoṅ po / myaṅ po kun kyaṅ log // yab gnam* (301) *rị slon mtshan dug bon te bkroṅs so // sras sroṅ brtsan sku gźon ma phan te // gzod ma* (302) *dkuɣ ba daṅ / dug pa rnams rabs bchad do // de ɣi rjes la / de ɣị myi log kun ɣbaṅsu slar bkuɣ* (303) *goɣ //*

Likewise all *gñen* Źaṅ-źuṅ, *mdzo* Sum-pa, *ñag ñi* Dags-po, Rkoṅ-po, and Myaṅ-po revolted.[59] Having given the father Gnam-ri-slon-mtshan a poison, [one] killed

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[58] Unlike Ladakh and Baltistan, Great (Chilas/Gilgit) and Little Bolōr (Yasin/Hunza) remained the bone of contention in Sino-Tibetan fights over the spheres of influences at least till the mid-8th century.

[59] For a tentative interpretation of the terms *gñen*, *mdzo*, and *ñag ñi* in this sentence, see Bialek (Unpublished manuscript a).

[him]. The son Sroṅ-brtsan, of young body, not being progenitive [yet][60], destroyed first the lineages of tricksters and poisoners. Therafter, [he] subjected all of these rebels again.

This narrative suggests that Źaṅ-źuṅ and Sum-pa were already conquered by Tibetans during the reign of Slon-mtshan, the father of Khri-sroṅ-rtsan, i.e. prior to 630s. The Preamble of the OTA, which relates events from the 630s, states that Ɣa-źa and Chinese were compelled to pay tribute to Tibetans. This could only have happened after they had lost a war against Tibetans. Because Ɣa-źa's territory could be reached only via the Sum-pa's area, we can reasonably assume that the latter was already controlled by the Tibetans.
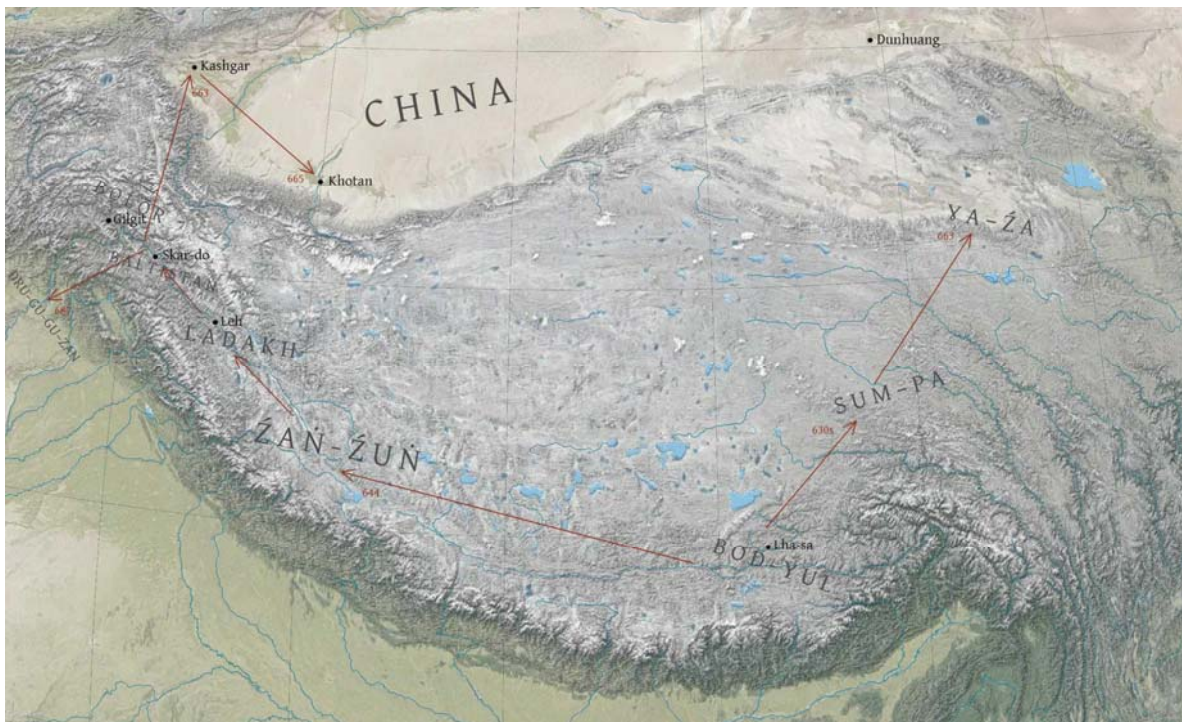
Map 2. Military campaigns in the 7th century;
Map based on satellite photo: © 2016 Google; Image Landsat / Copernicus

8.4.2 ɣa-źa

As already stated above, the Preamble of the OTA (in the section on the 630s) alludes to a war won against the Ɣa-źa people. The second half of the 7th century was marked by intense contacts

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[60] In Bialek 2018a (s.v. *myi ṅo*), I have proposed translating *ɣphan* (v2 *phan*) tentatively as '(to be) progenitive'. The term seems to have qualified persons with numerous progeny and was an antonym of *rmaṅ* 'barren'. In the present context, the description of Sroṅ-brtsan as not being progenitive (*ma phan*) corresponds well with the statement that he was (still) young *(sku gźon)*. The passage uses the negated form *ma phan* instead of *rmaṅ*, because he was not barren by nature and it was expected (we may assume) that he would have offspring one day.

between Tibet and Ɣa-źa. Beginning with the year 659/60, great councillor Mgar-stoṅ-rtsan-yul-zuṅ spent several years in the Ɣa-źa land (cf. PT 1288: 36ff.). According to Chinese sources analysed by Beckwith, in 663 Ɣa-źa forces were eventually defeated by the Tibetans (1993: 31). In the year 689/90 *btsan mo* Khri-baṅs was married to the lord of Ɣa-źa (ITJ 750: 102–3). In due course, this must have brought about regular Tibetan settlements in the region.

Although we are not able to date the first conquests of the discussed polities with absolute certainty, we may definitely state that Źaṅ-źuṅ and Sum-pa were defeated around the same time, not later than at the beginning of the 630s (probably even earlier) during the reign of Slon-mtshan.[61] Shortly afterwards the first war against Ɣa-źa was won. The latest dated military campaigns against the polities were: Źaṅ-źuṅ — 644, Sum-pa — *terminus ante quem*: 663, and Ɣa-źa — 663 (see Map 2). However, a measure of a successful conquest, that would lead to a permanent political dependency and possible Tibetanisation of a people, was marriage alliance. The marriage of Sad-mar-kar with the ruler of Źaṅ-źuṅ was probably conluded in the 630s.[62] We have no information on political marriage with Sum-pa but because (beginning with 692/3) councils in Mdo-smad are mentioned on regular basis in the OTA and in 702/3 the Sum-pa's horn (*sum ru*) already existed, the people must have been fully controlled by the Tibetans by that time. In 689/90 a marriage between *btsan mo* Khri-baṅs and the ruler of Ɣa-źa was arranged.[63]

9 Conclusions

By way of conclusion, in this section I will summarise the results of the linguistic analysis and consider them in the light of the historical events briefly sketched in section 8.

9.1 *Chronology of changes*

Hill has reconstructed the phoneme set of voiced and voiceless liquids /l, l̥, r, r̥/ for Old Tibetan (2010: 118). The facts that I have established in this paper are:

EOT had onsets:	*zr-*	*sr-*	*zl-*	*sl-*
OT had onsets:		*sr-*	*zl-*	*sl-*

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[61] It seems that some authors writing on this period in Tibetan history tacitly assume that the Tibetans had only one army at a time. The simultaneous conquests of Źaṅ-źuṅ and Sum-pa in the 630s and 640s as well as the conquests of Ɣa-źa and Kashgar in 663 prove however that they could successfully operate on two fronts at the same time.

[62] In Bialek (Unpublished manuscript a), I argue that Lig-myi-rhya of the OTC (to whom Sad-mar-kar was married) was not the same person as Lig-sña-śur of the OTA (whom the Tibetans defeated in 644/5). From PT 1287: 300–3 it follows that the first conquest of Źaṅ-źuṅ (or, at least, a part of it) was undertaken during the lifetime of Gnam-ri-slon-mtshan, the father of Khri-sroṅ-brtsan (see the respective passage quoted above on p. 25). The defeat of Źaṅ-źuṅ by Khri-sroṅ-brtsan was meted out to Lig-myi-rgya (= Lig-myi-rhya; PT 1287: 430–4) and happened after his marriage with Sad-mar-kar. Thus, the chronology of events would have been: 1. Defeat of Źaṅ-źuṅ by Slon-mtshan; 2. Marriage of Sad-mar-kar with Lig-myi-rhya; 3. Defeat of Lig-myi-rhya by the Tibetans (on Sad-mar-kar's request); and 4. Defeat of Lig-sña-śur in 644/5.

[63] Two other political marriages mentioned in the OTA concerned *je ba* Ɣdron-ma-lod and *kha gan* of Dur-gyis (Turk. Türgiš) in 734/5, and *je ba* Khri-ma-lod and the lord of Bru-źa in 740/1.

However, in no modern dialect is any of these onsets preserved. The onsets that mostly resemble these (because they contain the etymological fricative and liquid (bold) consonants) are:

WAT	*zdr-*	*str-*	*l(d)z-*	*lts-*
AT	*ɣdʐ-*[64]	*ʂtr-*	*rdz-*	*ʂts-*

The toponym Zrid is attested between the years 665/6 and 728/9. It does not necessarily follow that the onset *zr-* was still present in the spoken language but indicates that the very toponym was not changed yet.[65] As a matter of fact, only a very few words beginning with *sgr-* are attested in the OTA: *sgregs* (a toponym), *sgrog, sgra* (only in proper names Stag-sgra and Khri-sgra), and *sgrom*. Extending the list of surveyed documents by adding Central Tibetan inscriptions only provides us with an extra *sgra* as a common noun. It appears that *sgr-* was not a very common onset at that time.[66] It is certain that the merger of *sgr-* and **[zdr-]* occurred during the period of Old Tibetan because we find the verb *bsgran* in PT 1283 (ll. 393 & 394); cf. Sapi [zdran].[67]

The conservative WAT dialects are located in the farthest west on the maps of the Tibetan dialects[68] and, as stated above, were the first to separate from the common stock.[69] Nevertheless they demonstrably inherited the D-epenthesis in all reflexes of the EOT onsets *zr-, sr-, zl-*, and *sl-*, but Bal has also preserved side by side the *lz-* onset.[70] A few important conclusions can be drawn from this.

First of all, because the metathesis *sL- > Ls-* preceded the D-epenthesis but Tibetan script allows only the onsets *zl-* and *sl-*, this change must have taken place after the script invention but before the conservative WAT dialects separated. Secondly, the epenthesis can be dated to early historical times, shortly after the introduction of the script. Both changes, first the metathesis and then the D-epenthesis, must have started within a relatively short period of time. This was the time of military expansion towards the west and intensified language contacts that, together with the introduction of the script, might have been the most significant triggers for these sound changes.[71] The easiest way to explain why Bal has preserved the onset *lz-* (and *rz-*) is to assume that the conservative WAT dialects separated before the D-epenthesis was completed and so inherited two variants in each set: with and without the D-epenthesis. The variants with the epenthesis, as more innovative, were slowly displacing the archaic onsets. This process is by now almost completed in all WAT dialects beside a few words of Bal (and Bal, Kar, Tsha, and Mul for the *rz-* onset). Alternatively,

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[64] This onset attests to a more advanced reduction than the remaining ones.

[65] As I have indicated above (see section 7.1), the toponym was changed at some point, since it is not found in that form in any later historical sources. PT 992, in which *zre mo* is attested, is not dated, but it is most probably a copy of an earlier work.

[66] Onset *sgr-* is abundantly attested in OT records, but here I only refer to those documents that originated in Central Tibet and can be unanimously dated to the period of the Tibetan Empire.

[67] The identification of the syllable *sgril* in PT 1285 (l. v94) remains uncertain.

[68] See Map 4 (p. 39) and Map 5 in Appendix A. Map 7 in Ryavec (2015: 26–7) shows the localisation of other dialectal groups.

[69] It is not quite correct to speak of 'separation'. As I argue below, the group of languages spoken today north-west of Ladakh spread to this region in consequence of the military conquest in the 7th century (see also Map 3, p. 37).

[70] In addition, Bal, Kar, Tsha, and Mul have preserved the *rz-* (OT > *rdz-*) onset (frequently alternating with *rdz-*) in several words.

[71] By that I don't mean that without these language-external circumstances Old Tibetan would not have changed. It would have, just as it was changing afterwards (see below).

the first group (including at least Bal, Kar, Tsha, and Mul) could have separated before the epenthesis which spread to them later from other dialects that separated from the common stock after the epenthesis. Thirdly, the merger of *sgr-* with *[zdr-] occurred after the most conservative group of the WAT dialects had separated. This merger has been inherited by all the remaining dialects, including AT.

Concerning the AT dialects, as a consequence of the defeat of Ɣa-źa (663) and the active military presence of Tibetans west of Kokonor, the AT dialects started to form themselves and sometime later the rhotacism L > [r] occurred. Thus, whereas the AT dialects can be classified together as a sub-branch of OT on the basis of this shared innovation, a linguistic definition of the WAT dialects based on a shared innovation cannot be provided yet. The conservative group within the WAT dialects (including Bal, Har, Kar, Tsha, Chik, Tur, Par, Thuw, Dar, and Hanu) can only be defined by a shared retention of some old onsets – a fact that in itself does not allow for a sub-grouping.

9.2   Other language changes

The chronology and the rough dating of changes proposed above are supported not only by historical facts of military activities of Tibetans in the said regions, but also by other language changes that occurred in OT. For instance, radical sound changes (as compared with EOT) in a Central Tibetan dialect are documented in Chinese transcriptions of Tibetan proper names in the text of the ST Treaty inscription from the year 823. In a recent paper Preiswerk puts forward the hypothesis that the dialect of the inscription already had phonemic tone (2014, esp. pp. 131ff).[72]

One of the factors leading to the development of tone in Tibetan was devoicing of plain voiced consonants in onset (see Bielmeier 1988: 43). Two loanwords prove that devoicing might have already started in the 7th century.[73] The first loanword is the ethnonym Dru-gu mentioned for the first time in the OTA in year 675/6 as a part of the toponym Dru-gu-yul, lit. 'Dru-gu land' (ITJ 750: 64).[74] Its equivalents in other Central Asian languages all had a voiceless dental consonant in onset

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[72] Cf. also Miller 1955 and Takata 1981. Takata has analysed a group of Chinese Buddhist texts from Dunhuang written in the Tibetan script. The transcriptions show that the Tibetan dialect of the scribe already had tones. Since modern Amdo Tibetan dialects have not developed tones (yet), we may conclude that the scribe was of Central Tibetan descent. In a forthcoming publication (see Bialek (Unpublished manuscript b)), I argue that the scribe who wrote the parts OTA II-A (Or.8212/187: 62–8) and OTA II-C (Or.8212/187: 69–86) was a Chinese native speaker who had a good grasp of local Tibetan vernacular. A few characteristic sound changes, like vowel assimilation (*yege* < *yige*), *–es* > *-i,* devoicing, loss of the final *-s,* and fricativisation in reflexes of the OT *rts-* onset, reveal that his Tibetan dialect was a daughter language of the Proto-AT which had already undergone several changes peculiar to the AT group today.

[73] Devoicing of inital plain consonants (stops, fricatives, and affricates) in a Tibetan dialect from the period of the Tibetan occupation of Dunhuang (roughly 787–848) has been demonstrated by Takata on the grounds of Tibetan transcriptions of Chinese (1981: 283ff.). Chinese documents written in the Tibetan script and surveyed by Takata attest not as much to a chronological development within the Tibetan language (as tacitly assumed by Takata) but rather to a co-existence of various Tibetan dialects at the time of the Tibetan occupation of Dunhuang (cf. also Takata 1981: 279f.).

[74] The ethnonym Dru-gu has a variant form Drug which is sometimes used in compounds (cf. *rgya drug* or *rgya drug ɣjaṅ*). However, compounds like *dru gu yul* or *dru gu gu zan yul* (even *dru gu rgyal po* is attested) would rather suggest that the original form of the word was borrowed as *dru gu* and not *drug* as supposed by Beckwith (2005: 13–4, fn. 41).

(cf., e.g., Turk. *türk/türük*, Khot. *ttrûka/ttûrka*, Sogd. *twrk*, Arab. *twrk-,* Greek τουρκ- [turk-][75]). On the other hand, the Central Tibetan toponym Mal-t(h)ro and the personal name Tshes-poṅ-tre-goṅ (alias Źaṅ-tre-goṅ), both occurring in the same document[76], prove that the cluster 'voiceless dental+rhotic' was not blocked in OT. Whereas the AT dialects have solely voiceless reflexes of CT *dr-*, in the conservative group of WAT, both [dr-] and [tr-] onsets are attested. This would suggest that the Proto-WAT language separated from the common stock either after the devoicing in OT *dr-* has set in but was not completed yet, or rather that the voiceless onsets spread there from other dialects.

The second clear case of devoicing concerns the title *ga tun.* In the year 708/9 the OTA report a funeral of a *btsan mo ga tun* (ITJ 750: 170). *ga tun* is a loanword from OTurk. *xa:tun* 'lady' (Clauson 1972: 602b). Earlier, in the years 694/5, 699/700, and 700/1 the title *kha gan* occurs — a loanword from OTurk. *xaǧan* 'an independent ruler of a tribe or people' (Clauson 1972: 611a). Tibetans transcribed the OTurk. [x] (voiceless fricative velar) with the voiceless *kh-* in *kha gan* but with the voiced *g-* in *ga tun*. A plausible explanation can be put forward: *kha gan* was borrowed earlier, at the time when the Tibetan letter *g* still represented a voiced sound and did not match the pronunciation of the Turkic [x]. Later on, after the devoicing of plain stops in initial position has set in, one obviously considered the letter *g* to better match the sound of the Turkic voiceless fricative velar and transcribed OTurk. *xa:tun* as *ga tun*. The same approach can be observed with respect to the ethnonym Dur-gyis (< OTurk. Türgiš), which occurs for the first time in the OTA in the year 732/3 (ITJ 750: 263), and other ethnonyms listed in PT 1283b (cf. Róna-Tas 1992: 701).[77]

Because, contrary to AT, the conservative WAT dialects have retained the voicedness of plain consonants in onset (Bielmeier 1988: 44; see also CDTD), it can be reasonably argued that they had separated before the devoicing of plain onset consonants took place – the earliest occurrence of devoicing comes from the toponym Dru-gu-yul attested as early as 675/6!

Another change that contributed to tone development in the history of the Tibetan language was the loss of prefixes. According to Preiswerk, the dialect of the ST Treaty attests to the loss of the OT prefixes *g-*, *b-*, and *r-* (2014: 131). For the prefixes *l-* and *d-* there is no data in the inscription.[78] The AT dialects preserve reflexes of the OT prefixes *g-, b-,* and *r-*, as opposed to the language of the ST treaty.

In conclusion we can state that the Proto-WAT language separated not later than in the second half of the 7th century, most probably at the very beginning of the second half (cf. Dru-gu-

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[75] Pulleyblank 1965 and Beckwith 2005: 13ff. But compare Ch. 突厥 *tūjué;* MC *dwot-kjwot,* OC **m-thˤut-kot* (Baxter and Sagart 2014); LH *thuət-kyat, duət-kyat,* OCM **thût-kot, *dût-kot,* ONW *dot-kuat* (Schuessler 2007: 327, 501). The reconstructions demonstrate that the Tibetan ethnonym could not have been borrowed from a Chinese dialect. Róna-Tas is of the opinion that Dru-gu was borrowed from Khot. *ttrukä* (1992: 701).

[76] The cluster *t(h)r* in these forms occurs in entries for the years: Mal-tro 660/1, 694/5, 713/4, 761/2; Mal-thro 714/5; Tshes-poṅ-tre-goṅ 714/5; Źaṅ-tre-goṅ 745/6.

[77] Venturi proposes the year 744 as *terminus post quem* for the redaction of the original text on which PT 1283b (ll. 533–642) was based (2008: 7) and the end of the 8th century for the particular copy at our disposal (ibid., p. 8). The devoicing of word-initial *d-* and *g-* has likewise been demonted by Róna-Tas on the basis of a later Uyghur text transcribed in Tibetan (PT 1292; 1992: 699ff.).

[78] Takeuchi (2012: 10) dates the loss of the prefixes *b-, d-, g-,* and *r-* to the late 8th–9th century, however, without specifying the reasons for the dating.
The discussed loss of prefixes concerns phonetics and not orthography. The latter remains very conservative and preserves all the prefixes and suffixes even today.

yul attested in 675/6).[79] The Proto-AT language could have separated following the political marriage with the Ɣa-źa ruler in 689/90 but not later than at the beginning of the 8th century, after the merger of *sgr-* with *[zdr-] and after the devoicing of the plain onset consonants.

9.3   Periodisation of OT

9.3.1   Previous attempts

Before presenting a new periodisation of Old Tibetan based on the linguistic data analysed in this paper I shall give a brief overview of previous proposals. A few periodisations have been put forward so far[80]:

Miller (1968: 147–8, fn. 1)[81]

> Proto-Tibetan: ?–7th century ("early form of the language for which we have no written records but which we can reconstruct using other, later stages of the language (principally Old Tibetan [...]) and the modern dialect reflexes")
>
> Old Tibetan: 7th – first part of the 9th century ("consists of the oldest forms of the language for which we have written records"):
>
>> Old Church Tibetan: from the reign of the first of the Tibetan kings Sroṅ-btsan-sgam-po to the 9th century (the language of Buddhist texts with influences of Sanskrit originals)
>>
>> Old Tibetan (proper): till 821/2, i.e. the ST Treaty inscription (the language of non-canonical texts of Central Asian manuscripts and inscriptions)
>
> Late Old Tibetan: first part of the 9th – 10th century
>
>> Classical Tibetan ("new canonical language" of the Tibetan Buddhist estab¬lish¬ment; after the orthographic reform of Khri-lde-sroṅ-btsan in 826)
>>
>> Literary Tibetan: 9th century onwards ("the language of non-canonical texts")

Róna-Tas (1985: 94–101)

> Pre-Tibetan (Sino-Tibetan, Tibeto-Burman, Tibeto-Himalayan)

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[79] We know that the year 737 marks off the first successful conquest of Bru-źa (see Bialek (Unpublished manuscript a)) but there can be no doubt that the Proto-WAT language had separated from the common stock long before that date. Otherwise we would have to attribute all changes between the WAT onsets and the much reduced onsets in Chinese transcriptions of Tibetan names on the ST Treaty inscription to about eighty years between ca. 737 and 822/3. It is quite possible that a considerable number of troops that participated in the conquest of Bru-źa and the neighbouring areas recruited from (in the meantime Tibetanised) descendants of those who had settled in the west (primarily in Ladakh and Baltistan) after the conquest of Źaṅ-źuṅ. The foundation of the Ladakhi Kingdom at the beginning of the 10th century (cf. Petech 1977: 16) does not preclude earlier Tibetan settlements that followed successive westward military conquests. On the contrary, it is hardly imaginable that a scion of the Tibetan royal family (traditionally identified as Khri(s)-kyi-l(d)iṅ or Skyid-lde-ñi-ma-mgon, ibid., p. 15) would have chosen a region without any Tibetan presence as the seat of his kingdom in the far west.

[80] Bracketed information provides the main characteristics of each period as presented by the authors. I quote only those periods that correspond to the periods of Old Tibetan discussed in this paper.

[81] As Miller himself states, his periodisation is an adaptation, '[...] a system which is basically that of Nishida (i.e. Nishida, Tatsuo. 1963. "Jūroku seiki ni okeru Seikōshō Chibettogo Tenzen hōgen ni tsuite – Kango-Chibettogo tangoshū iwayuru Heishūbon 'Saibankan yakugo' no kenkyū." *Daigaku Bungakubu Kenkyū Kiyō 7:* 85–174 – JB*)'.

Ancient Tibetan ("von der Absonderung des Tibetischen von den nächsten verwandten Sprachen bis zu den ältesten faßbaren Nachrichten über die tibetische Sprache")

Old Tibetan

Early Old Tibetan: the first half of the 7th century (the rise of the Tibetan Empire; first attempts at writing down the Tibetan language)

Middle Old Tibetan: 650–814 (Buddhism as the state religion; standardisation of the pre-classical Written Tibetan)

Late Old Tibetan: 815–11th century (*Sgra sbyor bam po gñis pa*; intense translation activity)

Róna-Tas (1992: 697)

Early Old Tibetan: prior to the death of Sroṅ-btsan-sgam-po in 649 (domination and spread of the Yar-luṅ valley dialect over other Central Tibetan areas; no standardisation)

Middle Old Tibetan: ~ 650–814 (expansion of the Tibetan Empire; Buddhist translation activities)

Late Old Tibetan: 815–11th century (decay of the centralised government)

Takeuchi (2012)

Early Old Tibetan: ~ 650 to mid 8th century (script invention; establishment of the orthography; establishment of different written styles and formulas)

Middle Old Tibetan: late 8th to mid 9th century (expansion over the Tibetan Plateau and to Central Asia; divergence of the written and spoken registers; loss of prefixed consonants *b-*, *d-*, *g-*, *r-*; devoicing of initial stops)

Late Old Tibetan: 842–11th century (collapse of the Tibetan Empire; continued usage of Tibetan and influence of the Tibetan Buddhism in the erstwhile colonies – Tibetan as a *lingua franca*; emergence of new formulas; semi-cursive script; phonemic tones from the 10th century onwards; change from synthetic to analytic syntax; development of the auxiliary *-pa-yin)*

Beckwith/Walter (2015: 56)

Late Old Tibetan: 842–11th century (collapse of the Tibetan Empire; continued usage of Tibetan and influence of the Tibetan Buddhism in the erstwhile colonies – Tibetan as a lingua franca; emergence of new formulas; semi-cursive script; phonemic tones from the 10th century onwards; change from synthetic to analytic syntax; development of the auxiliary *-pa-yin)*

Early Imperial Tibetan (as represented in the OTA)

Middle Imperial Tibetan (the language of the Źol and Bsam-yas inscriptions)

Late Imperial Tibetan (the language of the ST Treaty inscription)

Late Old Tibetan ~ post-Imperial Old Tibetan (the language of the majority of the documents found in Dunhuang)

As soberly assessed by Miller with respect to his own periodisation based heavily on Nishida, "The principal problem of the above system is that it is too largely based upon historical criteria and too little related to specific linguistic features." (1968: 149, fn. 1). This statement can be extended to other periodisations as well. All previous periodisations speak of 'periodisation of the OT language'

when, in fact, discussing historical events and establishing a 'language chronology' according to them.[82] It is beyond question that historical events can have immediate impact on language, triggering or accelerating changes and introducing inventions, but a periodisation of a language should primarily concentrate on linguistic phenomena.

9.3.2 A new proposal

In accordance with the accepted linguistic terminology, Proto-Tibetan is a common ancestor language reconstructed by means of the comparative method from all Tibetan languages (written or spoken) attested in the history.[83] A pre-language is a stage of a one particular language arrived at via internal reconstruction.[84] Hence, in a Tibetan context, it is reasonable to speak of Proto-Tibetan and Pre-Old Tibetan[85], but not of !Pre-Tibetan.

Since EOT is the only language that attests to the onsets *zr-, sr-, zl-*, and *sl-* and all modern Tibetan dialects inherited the epenthetic onsets (or their reduced offshoots), it can be deemed proven that Tibetan dialects descended from EOT[86], and Proto-Tibetan can in fact be equated with Pre-Old Tibetan.

In this paper three different topics have been discussed. Below they are summarised in a chronological order:

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[82] The only exception is the inclusion of devoicing, loss of prefixes, and the emergence of tones and analytical constructions by Takeuchi in his periodisation.

[83] A common (mis)usage of the term 'Proto-Tibetan' in literature to address forms that are arrived at by comparing Old or Classical Tibetan written forms with forms of other Tibeto-Burman languages, is a terminological flaw and for the sake of clarity should be avoided. A definition of Proto-Tibetan similar to the one favoured here has also been put forward by Miller (1968: 147, fn. 1): "[Proto-Tibetan is] that early form of the language for which we have no written records but which we can reconstruct using other, later stages of the languages (principally Old Tibetan [...]) and the modern dialect reflexes which [...] have complex initial clusters."

[84] Cf. Campbell 2004: 226. Tournadre understands Pre-Tibetic as "the ancestor of not only Tibetic languages but also of languages belonging to a higher grouping that may correspond partly to the Bodish branch" and Proto-Tibetic as "direct ancestor of the Tibetic languages" (2014: 112). Tournadre's "Proto-Tibetic" seems to correspond to my "Proto-Tibetan."

[85] Or, for that matter, Pre-Balti, Pre-Golok etc., but Proto-AT, Proto-WAT etc.

[86] The same view is shared by Sun: "[...] whatever dialect served as the basis of Written Tibetan, the latter seems quite capable of covering all the modern dialects." (1986: 146, fn.5), "all distinct (i.e., language-like) forms of Tibetan should a priori be placed directly under Old Tibetan as its first-order offshoots" (2003: 796), and Hill: "Balti and Ladakhi are direct daughter languages of Old Tibetan, just like the other Tibetan languages." (2010: 111). Compare also Bielmeier's conclusion: "The statement that a certain dialect is more archaic than Ancient Tibetan in certain features can only be justified if this more archaic character shows up in the regular correspondences, but so far I have not been able to find a clear phonological feature in Balti or Purik which is more archaic than the corresponding feature of Ancient Tibetan." (1985: 11). On the other hand, Bielmeier is also right when he writes "Balti is in certain features more archaic that (sic) Old Tibetan." (ibid., p. 6). In a later paper Bielmeier has accepted Shafer's view (see Shafer 1950b: 1020) that some archaic varieties (Balti, among others) do not originate from common OT (2004). As I argue in the present paper, Balti, together with some other conservative dialects of WAT, separated from the common stock of Tibetan languages during EOT whereas the OT documents at our disposal come from the stage of Late Old Tibetan (LOT) or even Early Middle Tibetan.

Historical events	Sound changes		Dialect formation
Sum pa:	Metathesis: *s*L > L*s*		Proto-WAT
conquest 630s/640s	Assimilation of *s*-		Proto-AT
Źaṅ-źuṅ:	D-epenthesis		
political marriage 630s	Merger: *[zdr-] > *sgr*-		
conquest 644	Devoicing	~675	
Ɣa-źa:	Prefix loss: *g*-/*b*-/*r*- > Ø	< 823	
conquest 663	Rhotacism: L- > [r-]		
political marriage 689			

Table 17. Summary

I have already related some of the events from distinct columns of Table 17 to each other (see also Table 18 below). Now I propose a periodisation of OT based on the identified sound changes and the early formation of dialectal groups:

Early Old Tibetan (EOT) started with the invention of the script and still had a rather homogeneous structure.[87] The first change to have occurred (quite early after the script introduction) was the metathesis *s*L- > L*s*-. Since it has been established that the chronology of the changes was: *zr*- > *sr*- > *zl*- > *sl*-, it is possible that the D-epenthesis of *zr*- and *sr*- started before the metathesis was fully completed. This would be another explanation of the fact that some of the conservative WAT dialects preserve two onsets, with and without the epenthesis. Assimilation of the prefix *s*- to the voiceness of the root consonant was still productive and was retained in Proto-WAT. During this phase Sum-pa, Źaṅ-źuṅ, Ladakh, and Baltistan were defeated and colonised. The end of EOT was marked by the separation of Proto-WAT.[88]

Middle Old Tibetan (MOT) began without Proto-WAT. The D-epenthesis was initiated shortly before. During this period the merger of *sgr*- and *[zdr-] as well as devoicing of plain consonants in onset occurred. As has been established above, the merger must have followed the D-epenthesis in the case of the *zr*- onset. According to the chronology of changes (see p. 15), *zr*- was the first onset to have undergone any change. Hence it is possible that the merger of *sgr*- and *[zdr-] occurred or at least started before the D-epenthesis was completed in all the other onsets. Devoicing was independent of the heretofore discussed changes and could have started soon after Proto-WAT had separated. On the political scene the marriage with

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[87] Theoretically it is possible that already at that point a few early dialects existed, but only one of them gave rise to the whole family of Tibetan languages as we know it today and this dialect is called Proto-Tibetan. The remaining dialects were either incorporated in the dominating dialect or died out. Be that as it may, no linguistic traces of them are left. This situation can be compared to the genetic pool of the modern human species. Genes of all humans can be traced back to one "Y-chromosomal Adam" and one "mitochondrial Eve" even though synchronically there were always more than just one man and one woman.

[88] That means, changes that occurred during Middle Old Tibetan (MOT) were not inherited by Proto-WAT. The toponym Zrid proves that EOT was spoken in Central Tibet from whence it spread across the Plateau. Similarly, the Kyirong forms [țimōŋ] ~ [țimū?] < OT *zre mo(ṅ)* confirm the existence of the EOT onset *zr*- in Central Tibet – the dialect is classified as Central Tibetan in CDTD.

the Ɣa-źa ruler sealed the incorporation of the Ɣa-źa polity into the Tibetan sphere of influence. MOT ended with the separation of the Proto-AT language. After its separation from the common stock, the Proto-AT introduced rhotacism. However, the exact date for this invention could not be determined yet.[89]

During Late Old Tibetan (LOT) but prior to 823 (the erection of the ST Treaty inscription), Central Tibetan varieties lost the prefixes *g-, b-,* and *r-* in word-initial position.

To summarise, Proto-WAT descended from EOT, Proto-AT from MOT, whereas the remaining dialect groups most probably from LOT.[90] The preliminary *Stammbaum* of Tibetan languages in presented in Figure 2.

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[89] Since all surveyed AT dialects have undergone rhotacism in all forms, this change must have occurred relatively early. It could have spread to AT from a non-Tibetan language of the region or could be an areal feature.

[90] The data discussed in this paper allows us to count Bal, Har, Hanu, Tur, Par, Thuw, Dar, Kar, Chik, Tsha, Shar, Mul, and Sapi among the conservative WAT dialects. (The data on Shar relevant for the present study is scanty, but its other features (e.g., the assimilation of the *s–* prefix) allow us to classify it as a conservative WAT dialect, most closely resembling Mul and Sapi.) The conservative WAT dialects unanimously derive from Proto-WAT. Controversial is the status of the remaining WAT dialects (Khal, Nur, Leh, Nub, Wan, Lam, Nim). Their reflexes of the OT *zr–* and *sr–* onsets attest to advanced reduction that seems to be slowly spreading to the reflexes of *zl–* and *sl–* as well. In some cases the non-conservative WAT dialects have preserved plain voiced plosives in onset but there is a clear tendency to replace them by their voiceless equivalents. They also have preserved some of the prefixes (the reflexes of WT *g–, d–, b–, r–, l–, s–),* but prefixless forms can be likewise encountered. Nowadays the geographical boundary between conservative and non-conservative dialects of WAT can be set somewhere between Khatalse and Chiktan (see Map 5 in Appendix A). Because neither the devoicing of the plain consonants nor the loss of the prefixes has led to the development of phonemic tones in the non-conservative WAT dialects, we may assume that these changes have been influenced by the neighbouring WIT dialects. The influences may be of a relatively recent date because, as witnessed by Jäschke, in the nineteenth century the pronunciation [lz-] for WT *zl-* was still present in Nubra (1868: 162). It seems that the town of Leh, as a regional trade, administrative, and cultural centre, might have played a crucial role in this process facilitating the 'exchange' between different dialect groups – the dialect of Leh frequently displays the most advanced changes in onset when compared with other WAT dialects.

The WIT dialects could reflect the second wave of settlement that accompanied the foundation of the Ladakhi kingdom approximately 250 years after the first Tibetan conquest of Ladakh. The WIT dialects attest to all changes that characterised LOT, including the loss of the prefixes, devoicing, but also phonemic tone. Such a long exposure to the WIT dialects would explain the disappearance of the 'archaic' traits from the non-conservative WAT dialects. Therefore, despite their 'innovative' traits, I assume that the non-conservative dialects of WAT (including Leh) likewise developed from Proto-WAT (closer proximity of Leh to the WAT dialects rather than to Zeisler's Kenhat group is also evident from Tables 1 and 2 in Zeisler 2011: 237f.).

My conclusions support the classification of the WAT dialects put forward in CDTD, but seem to oppose Zielser's subgrouping of western Tibetan dialects into Shamskat and Kenhat. The following juxtaposition demonstrates the differences:

	JB		Zeisler	
	conservative	Bal Har Par Tsha Kar Chik Sapi Mul Hanu Thuw Dar Sod Tur Shar		Shamskat
	non-conservative	Nur Khal Wan Nub Lam Nim		
		Leh	Cem Sha Gya Nyo	Kenhat
		ZkTP	Ham Man Pip	

Proto-Tibetan = Pre-Old Tibetan   prehistory

Early Old Tibetan   history

Middle Old Tibetan   Proto-WAT

Late Old Tibetan   Proto-AT
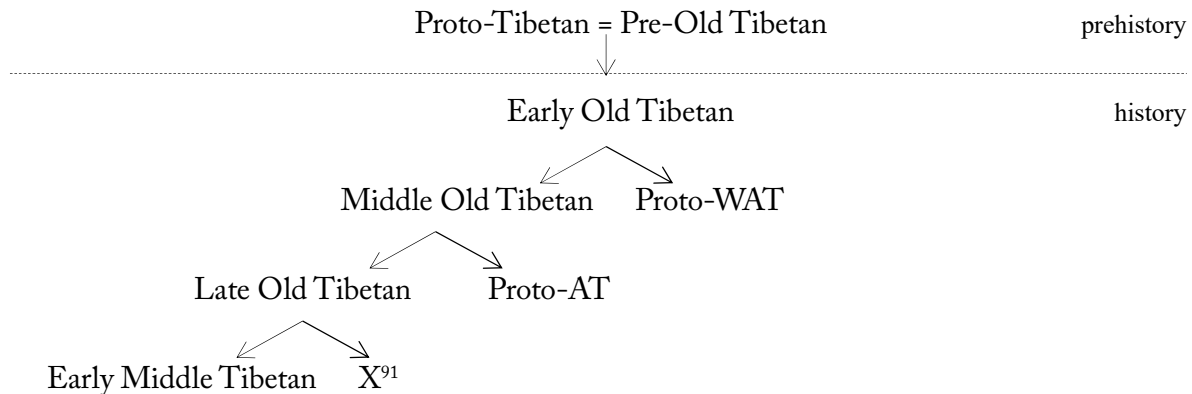
Early Middle Tibetan   X[91]

Fig. 2. Stammbaum of the Tibetan languages

Map 3 illustrates the hypothesised spread of Proto-WAT and Proto-AT accompanying military conquests in the 7th century.

The presentation of Zeisler's subgrouping is based on Figure 1 in Zeisler 2011: 242. According to Zeisler, the modern boundary between conservative (Shamskat) and non-conservative (Kenhat) dialects of Ladakh runs north of Leh. The first village of the Shamskat area is Sñemo/Ñimo (ibid., p. 240; = Nim of CDTD). In Zeisler's classification Shamskat includes "dialects of the lower Indus region (Sham proper), western Nubra, Purik, and Baltistan," whereas Kenhat comprises varieties of the Upper Indus region and Zanskar (2009: 89, fn. 21). Zeisler's geographical description of the Kenhat dialects is much more precise than the one delivered by CDTD. Because similar to the dialects of Zanskar, the dialects of Cem and Sha do not have phonemic tones, and Gya is about to develop them (see Zeisler 2011: 237, Table 1, pp. 251ff. & pp. 294ff.), it could be that their advanced sound changes come from intense contacts with the WIT dialects, but they themselves would have originally derived from Proto-WAT. In this case, both the Shamskat and the Kenhat groups would have derived from Proto-WAT.

Map 5 in Appendix A suggests that the 'innovative' features are spreading from the WIT dialects (spoken in Upper Ladakh east and south-east of Leh) along the rivers Zanskar and Indus. This is confirmed by Zeisler's observation that "The dialect of Yulchung-Nyeraks, for example, is clearly Shamskat." (2011: 242). The direction of influence is even more apparent if we look at the data in Zeisler 2011: 237, Table 1; the structure of the syllable onset becomes more and more simplified as we move southward from Leh: Cem has preserved traces of most WT prefixes, whereas Nyo has lost all the prefixes and their traces (ibid., p. 245). Nyo is the only dialect from those discussed by Zeisler that has phonemic tone and could be a descendant of Proto-WIT, but the data is too scanty to allow us any conclusion. Because the data at hand is not conclusive, I leave the decision on the classification of the Zanskar dialects and the dialects south-east of Leh to future research (this hesitation is shown by the dotted line between Leh and ZkTP in the JB column of the above table).

[91] It is left to future research to determine whether the remaining dialectal groups all come from LOT or branched off one by one. In tree models developed in historical linguistics bifurcations are preferred (cf. Gąsiorowski 1999: 41ff.), but the political circumstances of Tibetan conquests and the enhanced mobility of considerable social groups over a large territory from the mid-8th century till the fall of the Empire would perhaps favour the simultaneous creation of several languages in this particular case.
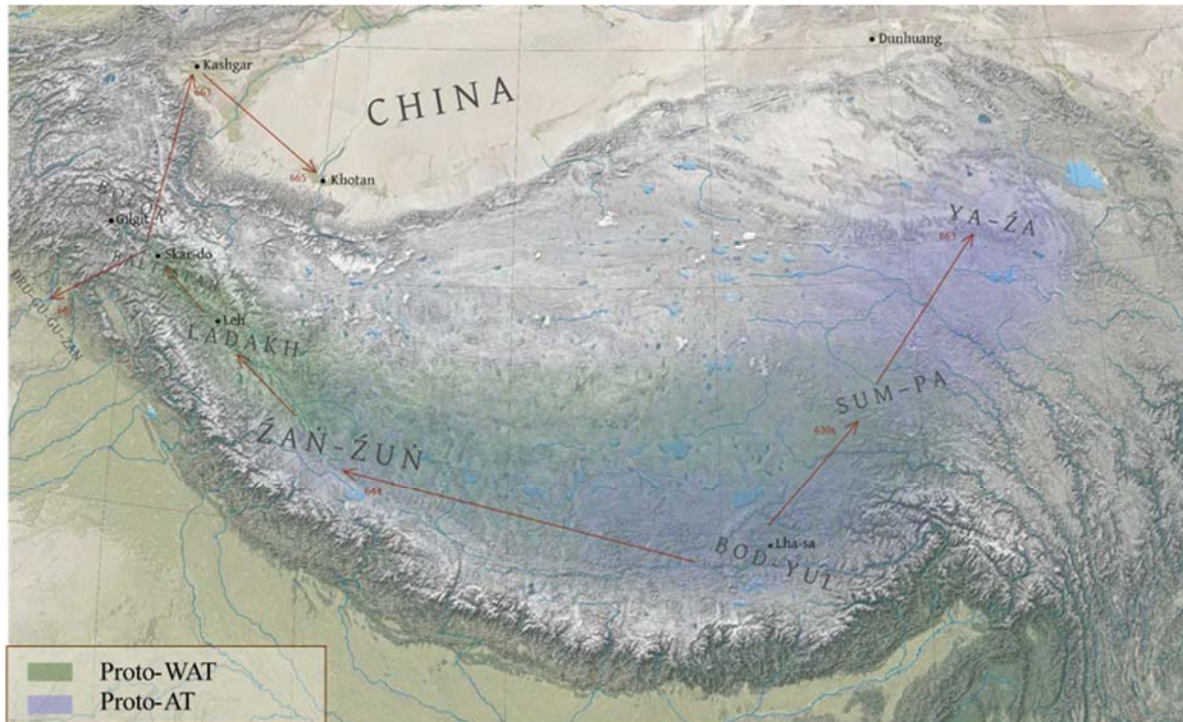
Map 3. Military campaigns in the 7th century and the spread of Old Tibetan;
Map based on satellite photo: © 2016 Google; Image Landsat / Copernicus

Table 18 shows the reconstructed sound changes arranged chronologically and situated in historical context:

Sub-branching			Proto-WAT				Proto-AT	
Sound change		Metathesis		Epenthesis		Merger/(Devoicing)	Rhotacism	*g-/b-/r- > Ø*
	s+r-	*zr-*			*zdr-*	*zgr-*		
	s+r-	*sr-*			*str-*			
	s+l-	*zl-*	*lz-*		*ldz-*		*rdz-*	
	s+l-	*sl-*	**ls-*		*łts-*		*rts-*	
Language stage	PT	EOT			MOT			LOT
Year		630s 644		650s	663	689		823
(Pre-)historical events		Script	Źaṅ-źuṅ conquest	Baltistan conquest	Ɣa-źa conquest	Ɣa-źa marriage		ST Treaty

Table 18. Periodisation of OT

The historical events of Table 18 should only serve as orientation points and not as exact dates for a sound change. Concerning the interrelations between the discussed language and historical facts, we can be quite certain about two things: 1. the relative order of the sound changes; and

2. the fact that all these changes must have occurred between the script invention (when the orthography mirrored the pronunciation of the *zr-, sr-, zl-,* and *sl-* onsets) and the year 823 – the erection of the ST Treaty inscription.

      Analysing proper names from Central Asian contracts, Takeuchi has demonstrated that approximately 60 years of the Tibetan occupation of Dunhuang (which ended in 848) was sufficient for the local population not only to adopt Tibetan as its official language but also to Tibetanise on a personal level (1995: 121ff.). The latter phenomenon is evidenced by mixed proper names (already in the second generation) that consist of a non-Tibetan element (clan or an ethnic name) and a Tibetan given name. Thus, it is not astonishing that the occupation of the most western areas would have led to their Tibetanisation as well.[92] As a matter of fact, the occupation of Baltistan and Ladakh was much longer than that of Dunhuang and must have turned into a regular settlement very early.[93] The Proto-WAT and Proto-AT languages were carried to their actual locations with the first Tibetan conquests of the respective areas (see Map 3, p. 37).[94] Later settlements, like that related to the foundation of the Ladakhi kingdom, have brought new waves of Tibetans who spoke a more innovative language – Proto-WIT.[95] However, it is justified to ask why such radical changes (from complex onsets to the tone development in the 9th century Lhasa) took place within 'merely' 200 years whereas the following 1000 years have witnessed only moderate phonetic development. In my opinion, a set of interrelated circumstances fostered the rapid development of OT; the most important of those were: script introduction, military conquests, territorial expansion[96], economic growth that led to social stratification and demographic boom, incorporation of non-Tibetan speaking peoples into one political unit — the Tibetan Empire, encounter with other languages and cultures, introduction of Buddhism — a world religion already at that time, and intense activity in

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[92] In the linguistics it is usually assumed that, under normal circumstances, three generations (i.e. about 60 years) are required for a sound change to have completed.

[93] We only know that Tibetans lost the Four Garrisons of the Tarim Basin to the Chinese in the 690s (Beckwith 1993: 54). Chinese sources remain silent on the fate of Baltistan and Ladakh so that we can reasonably assume that they were controlled by the Tibetans throughout the period of the Tibetan Empire.

[94] The main directions of the western and north-eastern conquests of the 7th century overlap with the localisation of the contemporary WAT and AT dialects. I venture the hypothesis that the north-western boundary of the WAT speaking area once coincided with the geographical boundary between Baltistan and Bolōr. According to Jettmar, "the natural boundary (between Gilgit and Baltistan – JB) would have been the defile of Rondu between the Haramosh massif and the Deosai plains." (1977: 415). This quite well corresponds to the westernmost reaches of the Tibetan speaking area today. The lack of permanent Tibetan settlements further to the north-west might have been caused by difficulties of supplies for greater defensive units in the long term (cf. Stein 1922: 119).

[95] Tucci's statement that "we have to wait for the dissolution of the Tibetan dynasty (after 842) for the beginning of the conquest of Ladakh by the Tibetans." (1977: 74) is in apparent contradiction with historical events established from written sources; cf. Bialek (Unpublished manuscript a).

Two waves of Tibetan settlement in Western Tibet have already been suggested by Jäschke on the basis of two layers of loanwords in Bunan (1868: 176ff.): e.g., [k'ral] 'tax' (WT *khral*) can be juxtaposed with [t'im] 'law' (WT *khrims*; transcription after Jäschke). The pronunciation [khr-] for WT *khr-* can still be encountered in the conservative WAT dialects and only there (cf. CDTD).

[96] Because no comparable territorial expansion occurred ever after in Tibetan history it is legitimate to maintain that the wide distribution of Tibetan dialects reflects the military successes achieved during the Tibetan Empire. As Scott states, "In terms of demography alone there is nothing like warfare for the mass movement and relocation of populations." (2017: 193).

the field of translating foreign literature.[97] On the other hand, Tibetan languages were also evolving in later times but, as it seems, the changes concerned rather syntax, first of all the rise of analytical verb constructions.
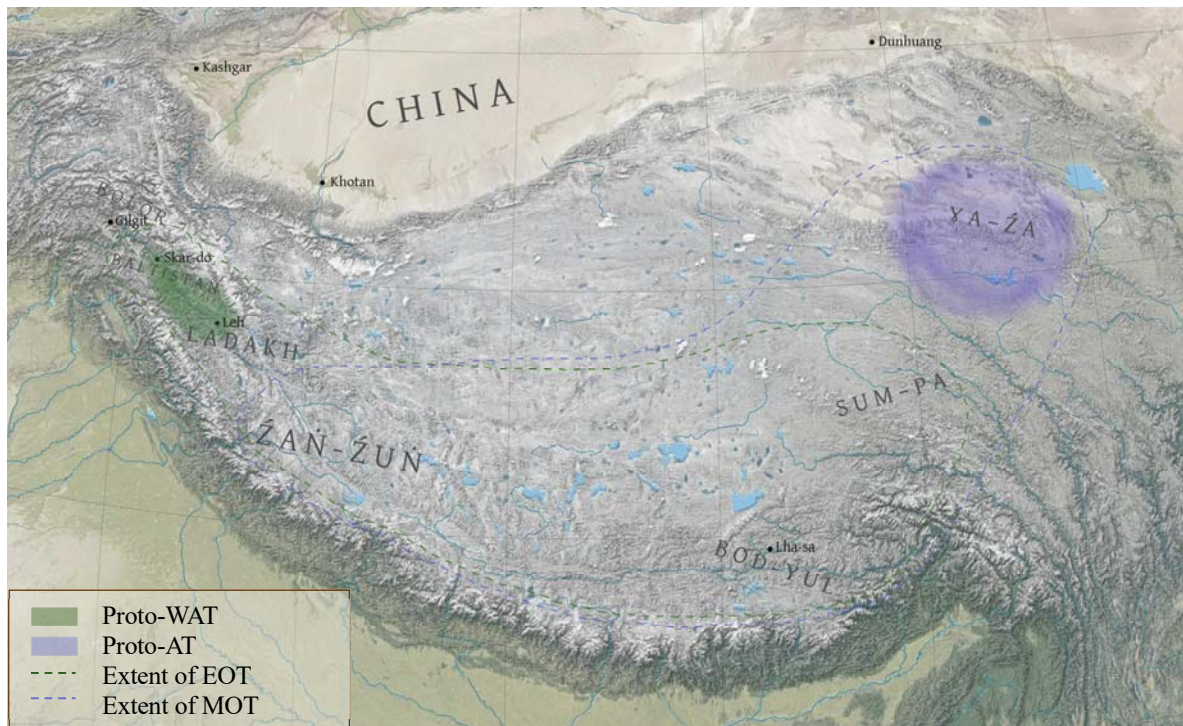
Map 4. Precursors of modern dialects – Proto-WAT and Proto-AT;
Map based on satellite photo: © 2016 Google; Image Landsat / Copernicus

No written document and no tradition has been handed down to us from the earliest times of the Tibetan Empire – times when people inhabiting what is today called Central Tibet were still speaking Early Old Tibetan. The conjectures formulated in this paper are based first of all on comparative linguistic reconstruction. The results of the reconstruction however gain additional significance through historical facts uncovered from written Tibetan and Chinese sources.

It is left to future research to settle whether the stages of Old Tibetan thus distinguished should be further refined.[98] Needless to say, the history of Old Tibetan cannot be written based solely on a relatively small sample of sound changes as I have done in this paper. Nonetheless, the approach has turned out fruitful and the chronology of sound changes could be put in a context of historical events as documented in Tibetan and Chinese sources to the effect that the linguistic data could be

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[97] It is worth emphasising that it was the political centre of the Tibetan Empire – 'Three Horns' – where all the discussed changes (apart from rhotacism) were initiated. From this centre all the primary military conquests were undertaken and this may well explain why Tibetan languages, even though spread over a large territory, are geographically contiguous.

[98] Likewise without an answer remains the question about the end of the LOT and the beginning of the Middle Tibetan. For instance, one could think of tone as a possible landmark between Old and Middle Tibetan in phonology and analytical verb constructions in syntax (cf. Takeuchi 2012).

shown to conform to historical processes. Now, the conclusions on the language history drawn from the development of the Proto-Tibetan *sL- and *sR- onsets should be tested by surveying other sound changes from OT to modern spoken dialects. Only when this work has been done can we proceed to ultimately periodising Old Tibetan and refining, correcting, or rejecting the proposals put forward in my paper which should be treated as a humble beginning.

ABBREVIATIONS

!	historically/logically impossible form or process
Arab.	Arabic
AT	Amdo Tibetan
BTC	Zhang 1993 (see References)
C	consonant
cA	controllable verb/absolutive
CDTD	Bielmeier et al. (see References)
cEA	controllable verb/ergative-absolutive
Ch.	Chinese
cons.	conservative
Cs	Csoma, 1834 (see References)
CT	Classical Tibetan
CtrT	Central Tibetan
D	1. excrescent dental consonant
	2. Das 1902 (see References)
DSM	Btsan lha ṅag dbaṅ tshul khrims 1997 (see References)
Eng.	English
EOT	Early Old Tibetan
GC	Chos kyi grags pa 1957 (see References)
Gs	Goldstein 2001 (see References)
HT	Northern Kham Tibetan
IDP	International Dunhuang Project (see Internet sources)
INTR	intransitive
ITJ	IOL Tib J
J	Jäschke, 1881 (see References)
Khot.	Khotanese
KT	Kham Tibetan
L	lateral consonant
LH	Later Han Chinese
LOT	Late Old Tibetan
MC	Middle Chinese
MOT	Middle Old Tibetan
MT	Modern Tibetan
n-cons.	non-conservative
ncA	non-controllable/absolutive
OC	Old Chinese

OCM	Minimal Old Chinese
ONW	Old Northwest Chinese
OT	Old Tibetan
OTA	*Old Tibetan Annals*
OTC	*Old Tibetan Chronicles*
OTDO	Old Tibetan Documents Online (see Internet sources)
OTurk.	Old Turkic
PT	1. Pelliot tibétain
	2. Proto-Tibetan
PTB	Proto-Tibeto-Burman
R	rhotic consonant
RKTS	Resources for Kanjur & Tanjur Studies (see Internet sources)
Sogd.	Sogdian
SR	Sumatiratna 1959 (see References)
ST	Southern Tibetan
ST Treaty	ST Treaty inscription
STEDT	Sino-Tibetan Etymological Dictionary and Thesaurus (see Internet sources)
TB	Tibeto-Burman
TBRC	Tibetan Buddhist Resource Centre (see Internet sources)
TR	transitive
TTT	Tibetan Tumulus Tradition (see Internet sources)
Turk.	Turkic
V	verb
WAT	Western Archaic Tibetan
WIT	Western Innovative Tibetan
WT	written Tibetan

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International Dunhuang Project：http://idp.bl.uk/

Old Tibetan Documents Online：http://otdo.aa.tufs.ac.jp/

Oxford dictionaries：http://www.oxforddictionaries.com/

Resources for Kanjur & Tanjur Studies：https://www.istb.univie.ac.at/kanjur/xml3/xml/

Sino-Tibetan Etymological Dictionary and Thesaurus：
http://stedt.berkeley.edu/~stedt-cgi/rootcanal.pl/

Tibetan Buddhist Resource Centre：http://tbrc.org/#home/

Tibetan Tumulus Tradition：https://www.oeaw.ac.at/tibetantumulustradition/home/

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Appendix A

Map 5 includes all WAT and Kenhat dialects discussed in this paper apart from the conservative WAT dialect Thuwina (after CDTD), which I was unable to localise.[99] Zeisler (2011) discusses single words from various Shamskat dialects but the data does not suffice for their classification as either conservative or non-conservative. Therefore, I have only included her two Shamskat dialects: Yulchung and Nyeraks, which (for what we know now) mark the geographical boundary between the Kenhat and the Shamskat dialects in the valley of the Zanskar river (ibid., p. 242).
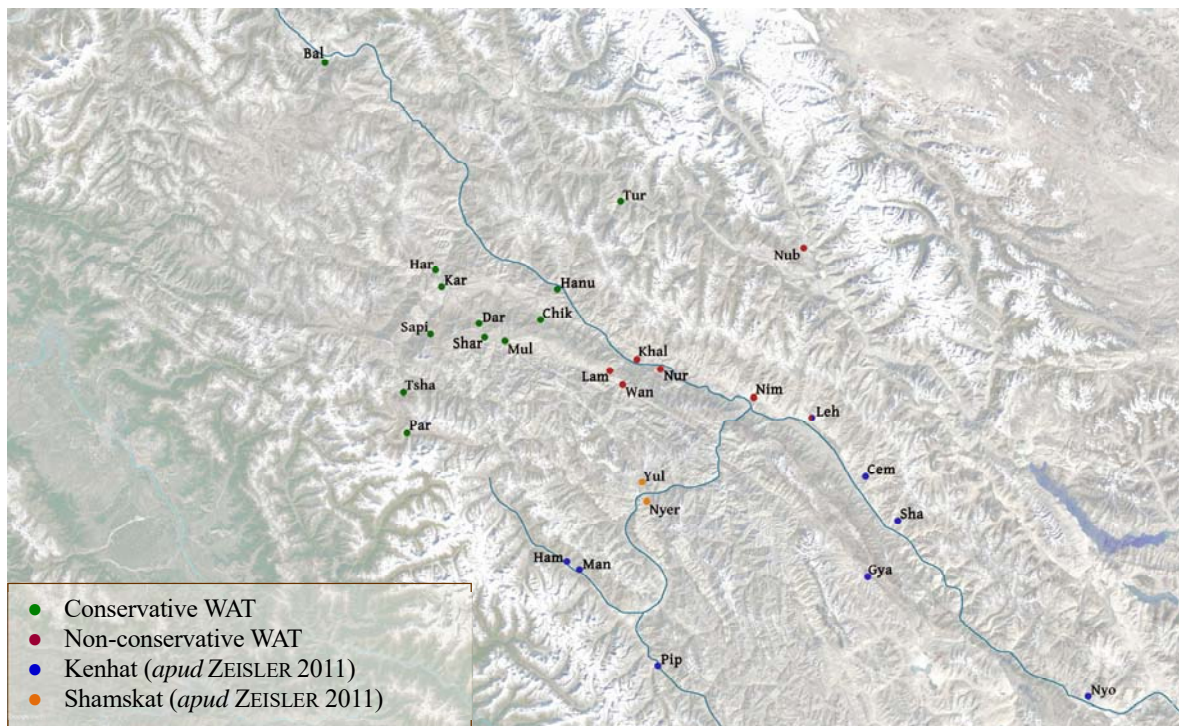
Map 5. Assumed descendants of Proto-WAT; Map based on satellite photo: © 2018 Google;
Image Landsat / Copernicus

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[99] Regarding the problems with the localisation of Manda village, see Zeisler 2011: 243, fn. 21.

APPENDIX B

Modern dialectal reflexes of the OT *sl-*, *zl-*, and *sr-* onsets:

Group	Dialect	*sl-* /sl-/	*zl-* /sl̥-/	*sr-* /sr̥-/
WAT	Bal	ɫts ~ ʂts ~ xl ~ ɫ[100]	lz ~ ldz	str
	Har/Hanu	ɫts		str
	Tur/Par/Thuw/Dar			str-
	Kar/Chik	ɫts ~ ɫ	ldz	str ~ ʂʈ ~ ʂ
	Tsha	ɫts ~ ɫ	ldz	str ~ ʂ
	Mul	ɫts ~ ɫ	ldz	ʂ
	Sapi	ɫts ~ ɫ ~ l	ldz	ʂ
	Khal/Nur/Leh	ɫts ~ ɫ ~ l	ld	ʂ
	Nub/Wan	ɫ	ld	ʂ
	Lam/Nim	ɫ ~ l		ʂ
	Shar			ʂ
WIT	Trang	lā	ld̠ ~ nd̠	c̄
	Thol	ɫā ~ lā	nd̠	ʂ̄ ~ s̄
	Tabo	lā	nd̠	ʂ̄ ~ s̄
	ZkTP	l		ʂ
	Nam	lā		ʈā
	MM	lā		ʈā ~ ʂ̄
	Nako			ʈʂ̄ ~ ʈā
CtrT	Pur	lā	nt̠	ʈʂ̄ ~ s̄
	Ru/Gerg/Tsho	lā	nt̠	ʈʂ̄ ~ ʂ̄ ~ s̄
	Gar	lā	nt̠ ~ t̠	ʈʂ̄ ~ ʂ̄ ~ s̄
	LhaQT	lā	t̠	ʈʂ̄ ~ s̄
	WDro	lā	l̠ (V) ~ t̠	ʈā ~ ʂ̄ ~ s̄
	Smu	lā	t̠	ʂ̄
	Nu	lā	t̠	ʂ̄ ~ s̄
	Ding	lā	t̠	r̄ ~ c̄ ~ s̄
	Kyir	lā ~ là ~ ɫā ~ ɫà	d̠ ~ ḍ	ʂ̄ ~ s̄
	Jir	lā ~ là ~ ɫā	d̠	c̄
	Shi	lā ~ ɫà ~ là	ḍ ~ t̠	ʂ̄ ~ s̄
	Yol	lā ~ ɫà là	ḍ	r̄ ~ s̄
ST	Dzo	lā ~ ɫā	d̠ ~ ḍ	s̄

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[100] Letter *ɫ* is used in CDTD to mark the voiceless lateral /l̥/.

HT	Ger	ts̄ ~ lā	dẕ ~ nḏ	ʈʂ̄ ~ s̄ ~ ʂ̄
	Am	ts̄		ʈā ~ ʂ̄ ~ s̄
	Hor	tshā ~ ts̄ ~ lā	dẕ ~ ḏ	ʈā ~ ʂ̄ ~ s̄
	Nak/Bach	ts̄		s̄
KT	Na	ɬ ~ l ~ ʔl	dz ~ d	s
	Ba/Li	ɬā	nḏ	s̄
	Da	ɬā ~ lā	nḏ	s̄
	BaTBL	ɬā ~ lā	nḏ	s̄
	De/Ka	ɬā ~ lā ~ ts̄	ḏ	s̄
AT	Gol	ʂts	rdz ~ rd	ʂtr
	TheHua	rts ~ hts ~ hl ~ ɬ	rdz ~ hdz ~ hd	ʂ ~ s
	ArTBL	rts ~ ɣl ~ ɬ	rdz ~ rd	ʂ
	The	ʂts ~ ɣl ~ ɬ	rdz ~ rd	ɸs ~ ʂ ~ s
	Mkha	ʂts ~ ɣl ~ ɬ	rdz ~ əd	ʂ ~ s
	Rka	ʂts~ rl ~ ɬ	rdz ~ rd	ʂ ~ s
	Rnga	ʂts ~ ɬ	rdz ~ rd	ʂ
	Chab	ʂts ~ ɣl ~ ɬ	ɣz ~ əz ~ əd	çs ~ ʂ ~ s
	BayHua	hts ~ hl ~ ɬ	hdz ~ hd	ʂ
	La	çts ~ ɬ	rz ~ ɣz ~ əz ~ əd	çs ~ ʂ
	Shan	çts ~ ɬ	əd	ʂ
	Rma	ts ~ ɬ ~ l	d	ʈʂ ~ s ~ ʂ
	Mdzo	ts ~ ɬ ~ ɬ	d	ʈʂ ~ ʂtʂ ~ ʂ
	Ndzo	hl	dz ~ d	ʂ

APPENDIX C

List of dialect names. Dialects classified as Kenhat or Shamskat are quoted after Zeisler 2011, the remaining ones after CDTD.

Abbreviation	Name	Dialect group	Abbreviation	Name	Dialect group
Am	Amdo	HT	Na	Nangchen	KT
ArTBL	Arik	AT	Nak	Nakchu	HT
Ba	Bathang	KT	Nako	Nako	WIT
Bach	Bachen	HT	Nam	Namgya	WIT
BaTBL	Bathang TBL	KT	Ndzo	Ndzorge	AT
BayHua	Bayan	AT	Nim	Nimu	WAT
Chab	Chabcha	AT	Nu	Nubri	CtrT
Chik	Chiktan	WAT	Nub	Nubra	WAT
Cem	Cemre	Kenhat	Nur	Nurla	WAT
Da	Dartsedo	KT	Nyer	Nyeraks	Shamskat
Dar	Darket	WAT	Nyo	Nyoma	Kenhat
De	Derge	KT	Par	Parkachik	WAT
Ding	Dingri	CtrT	Pip	Pipcha	Kenhat
Dzo	Dzongkha	ST	Pur	Purang	CtrT
Gar	Gar	CtrT	Rka	Rkangtsha	AT
Ger	Gertse	HT	Rma	Rmastod	AT
Gerg	Gergye	CtrT	Rnga	Rngaba	AT
Gol	Sertha	AT	Ru	Ruthok	CtrT
Gya	Gya	Kenhat	Sapi	Sapi	WAT
Ham	Hameling	Kenhat	Sha	Shara	Kenhat
Har	Hardas	WAT	Shan	Shando	AT
Hanu	Hanu	WAT	Shar	Shargol	WAT
Hor	Nakchu Ngari	HT	Shi	Shigatse	CtrT
Jir	Jirel	CtrT	Smu	Southern Mustang	CtrT
Ka	Kardze	KT	Tabo	Tabo	WIT
Kar	Kargil	WAT	The	Themchen	AT
Khal	Khalatse	WAT	TheHua	Themchen HUA	AT
Kyir	Kyirong	CtrT	Thol	Tholing	WIT
La	Labrang	AT	Thuw	Thuwina	WAT
Lam	Lamayuru	WAT	Trang	Trangtse	WIT
Leh	Leh	WAT/Kenhat	Tsha	Tshangra	WAT
LhaQT	Lhasa	CtrT	Tsho	Tshochen	CtrT
Li	Lithang	KT	Tur	Turtuk	WAT
Man	Manda	Kenhat	Wan	Wanla	WAT
Mdzo	Mdzorganrabar	AT	WDro	Western Drokpas	CtrT
Mkha	Mkharmar	AT	Yul	Yulchung	Shamskat
MM	Man-Merak	WIT	Yol	Yolmo	CtrT
Mul	Mulbek	WAT	ZkTP	Zanskar	WIT