What did they eat? Grain crops of the Burmic groups[1]

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Paul Benedict has had a long-standing interest in the reconstruction of various language groups of the Southeast/East Asian linguistic area. He has also applied his reconstructions to the study of the societies and material cultures of the speakers of these languages. His PhD thesis, (Benedict 1942), was an extended study of the kinship terminology and kinship structures of the Tibeto-Burman (TB) and other Southeast Asian groups. Since then he has made many insightful, creative and even revolutionary contributions over the years, especially on the material culture and homeland of the Austro-Thai and other groups, most notably in Benedict (1975), but also major works on TB, Sino-Tibetan (ST), and Austroasiatic historical linguistics.

This paper will take a closer look at the reconstruction of words for various grain crops within the Burmic subgroup of TB, with a few more general remarks about TB and ST. It will then attempt to draw some conclusions about the implications of this reconstruction for the original homeland of the Burmic, TB and ST groups.

Following the schema for Burmic set out in Benedict (1972) and further developed in Bradley (1979a), Burmic can be divided into the Burmish, the Niish (formerly Loloish)[2] and the Gong subgroups. The following table shows the words for nine major grain crops. Not all of these crops are currently used by all of these groups, and as one would expect, in some languages some cognates are missing and some cognates have shifted meaning.

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[1]I am very pleased to acknowledge data provided by speakers of a large number of languages, including Li Yongxiang on Nisu, Tseng Kuo-pin on Sani, Bai Bibo on Hani, and many others; also the comments of colleagues at the Second International Hani-Akha conference in Chiangmai in April 1996, and of students and staff of the Department of Nationality Languages of the Yunnan Institute of Nationalities in June 1996 where earlier versions of this paper were presented. Naturally all remaining errors are solely my responsibility.

[2]The former term for this part of Burmic was Loloish; another current term is Yipho, but as both are based on exonyms I now prefer the term Niish, from Ni, the autonym for most Northern subgroups, also included as the second syllable in the name of some Southern subgroups such as Hani, and possibly cognate with the first syllable of the autonym of some Central subgroups such as Lisu, Laha and Lalo. In fact the "Central" subgroup is now mainly in the western part, the "Northern" subgroup in the northeastern part, and the "Southern" subgroup in the southeastern part of the Niish range.

The most likely inference is that the loss of a cognate may suggest a period of non-use of that grain. A semantic shift may imply a change in the use of more than one grain. Both of these changes may be due to migration. Thus the distribution of cognates and semantic shifts can suggest which groups have migrated into new ecological zones, and thus provide independent support for other historical evidence. The new terms and their sources indicate prior or current contacts and thus provide evidence about the direction of migration.

Grains whose use is less universal or which have a lesser importance in some societies may be less likely to show widespread cognacy, as in the case of 'Job's tears'. Newly-introduced grains may be named using internal linguistic resources or by using a contact term; in either case these terms are unlikely to show widespread cognacy, except among those groups which have only separated after the introduction of that grain. For example, 'corn/maize' is now a major grain crop in the region, planted by all Burmic groups; but it is believed to have been introduced to East and Southeast Asia by the Portuguese early in the sixteenth century.

The Lisu, Sani and Lahu are from the northern, eastern and southern extremes of what is usually called the Central subgroup of Niish; the Nosu are representative of the so-called Northern subgroup, and the Akha are from the Southern subgroup. Burmese is representative of the Burmish languages, and is of course orthographically attested since the early twelfth century. They represent the main subgroups within Burmic.

Table 1. Burmic grain crops

	Lisu	Sani	Lahu	Nosu	Akha	Burmese
'grain'	dza^{44}	tsɒ^{33}	tɕa^{21}ɕi^{11}, z^{33}	dza^{33}	tɕhɛ^{55}, kha^{55}	səba^{42}
'rice'	tɕhɯ^{33}	tɕhɪ^{33}	tɕhɛ^{33}	ʈʂhɯ^{33}	tɕhɛ^{55}	shan^{22}
'millet (S)'	tshø?^{21}	tshɤ̲^{21}	lɔ^{53}	tshi^{55}	ɕa^{55}dɔ̲^{33}	sha?^{5}
'millet (P)'						lu^{42}
'sorghum'	ly^{55}	mo^{55}ɬo^{55}	kɔ^{33}lɛ^{33}	kɯ^{21}bu^{33}	ɕa^{55}lɔ̃^{21}	pjaun^{42}
'buckwheat'	gwa^{21}	qɒ^{21}	ɣa^{53}	ŋgɯ^{33}	ɣa^{21}	-
'barley'	zu^{44}	z^{33}	tɕho?^{21}	zu^{21}	lɔ^{21}lø^{55}	məjɔ^{42}
'wheat'	ɕwa^{33}	ʂɒ̲^{33}	(Bse)	ʂa^{33}ma^{33}	(Bse)	dʑoun^{22}
'Jobs'tears'	(Cse)	le^{21}ku^{33}sz^{21}	dʑu^{21}pi^{35}ɕi^{11}	(Cse)	lɔ^{55}ba^{33}, a^{21}tsɤ̲^{21}	dʑei?^{5}
'corn/maize'	khɯ^{21}ɕa^{33}	ʂɒ^{44}pɯ̲^{33}	ɕa^{33}ma^{33}	i^{55}m^{21}, i^{55}ma^{33}	a^{55}du^{33}	pjaun^{42}

The two varieties of millet represent botanically different plants which are distinguished in Burmese, but not in the other languages. The botanical terms for these grains and words in the modern dominant majority languages of the Burmic area are given in Table 2 below.

Table 2. Some plant names in majority languages

English	Botanical	Burmese	Thai	Chinese
'rice'	Oryza sativa	ဆန်	ข้าว	稻子
'foxtail millet'	Setaria italica	ဆဝ်	ข้าวฟ่าง	黍
'panicled millet'	Panicum miliaceum	လူး		稷
'sorghum'	Sorghum vulgare	ငြောင်း	สมุทรโคดม	高粱
'buckwheat'	Fagopyrum cymosum	သျှာရိုမ်	ผักบุ้งส้ม	荞子
'barley'	Hordeum vulgare	မုယော		大麥
'wheat'	Triticum aestivum	ဂျို	สาลี	小麥
'Job's tears'	Coix lacryma-jobi	ကျိတ်	เดือย	薏苡
'corn/maize'	Zea mays	ငြောင်း (ယူး)	ข้าวโพด	玉米

As noted below, the 'buckwheat' term in Burmese is a Jinghpaw loan, and the 'wheat' term is an Indic loan. There is no indigenous Thai term for 'barley', and Thai does not distinguish the varieties of millets; several of the Thai terms given are relatively recent loanwords, which came with the relevant grains. The two distinct Chinese terms for the types of millet have several competing modern alternatives, but these are the cognate forms.

1. Reconstructed grain crop system

'Rice' appears to have been the basic grain crop of the Burmic speakers; the etymon for this crop can also be used in various languages as a general term for "grain". It can be reconstructed as **tsan*^{1} (Bradley (1979a #280) and has some cognates throughout TB, and indeed in ST. There are distinct terms for various stages in the use of 'rice'; this etymon refers to the grain before it is husked and cooked. For 'cooked rice' representatives of various alternative etyma can be found. One is from the 'food' etymon **dza*^{1} (Bradley 1979a #274) which is in turn related to the 'eat' etymon **dza*^{2} (Bradley 1979a #629). Another is a 'cooked rice' etymon **haŋ*^{2} (Bradley 1979a #281B) with cognates in Central Niish Lahu, throughout Southern Niish, and in Naxi, Dulong, Idu and Shixing elsewhere in eastern TB. A third is an alternative 'cooked rice' etymon **(ta)maŋ*^{2} (Bradley 1979a #281A) with the same rhyme and tone, but a different initial; cognates are found in Burmese, Gong, Niish Jinuo, as well as Karen. There is a further distinct compound term for 'rice plant' in many languages, also often derived from the 'food' etymon.

The Burmese 'grain' term [səba^{42}] appears to be a borrowing from Mon, the language of the culturally dominant group in Lower Burma at the time the Burmans founded their valley-based kingdom in Upper Burma in the eleventh century. It is widely observed in all types of taxonomic systems that superordinate

category terms are often borrowed from culturally dominant contact languages; for example, the terms for 'animal' and 'plant' as well as 'grain' in English come from Romance sources. The borrowed Burmese 'grain' term is sometimes incorrectly related instead to the Tibetan form *hbras*. The alternative Akha grain term is derived from a homophonous verb meaning 'to plant'. Other general 'grain' terms come either from the **dza*^{1} 'food' etymon or the **tsan*^{1} 'rice (grain)' etymon in various Burmic languages.

'Foxtail millet (*Setaria*)' can be reconstructed back to Proto-ST with a form something like **tsap* or **tsat*. Its Burmic reconstruction is **tsap*^{L} which is supported by cognates throughout Burmish and Niish. In most Central and Northern Niish languages this term has been generalised to refer also to 'panicled millet'; this may be due to the fact that the 'panicled millet' and 'sorghum' terms would have become quite similar due to regular sound change.

The only unimpeachable evidence for a separate 'panicled millet (*Panicum*)' etymon is in Burmese, whose form indicates a reconstruction **lu*^{2}. This may also be related to a non-Burmese Burmish etymon for 'buckwheat', **kyu*^{2}, if that in fact reflects an earlier **k-lu*^{2} with a prefix. In Akha this etymon appears to have a cognate in the second syllable of 'barley', which has shifted from an earlier meaning of 'millet'; another possible cognate, but with an irregular rhyme correspondence, is seen as the second syllable of Lahu 'sorghum'. Otherwise this etymon is weakly attested in Niish.

'Sorghum' can be confidently reconstructed as **p-loŋ*^{2}. The evidence for the initial **l* is found in the Burmese inscriptional form *ploŋ* (Luce 1981), which also gives evidence for the **p* prefix. This prefix accounts for the voiceless [ɬ] initial in those languages which have this initial, such as Southern Niish Bisu, some varieties of Hani, some types of Northern Niish such as Nasu and Nisu, and so on. Elsewhere the regular reflex is an initial [l]. The rhyme and tone correspondences are also quite regular. The possibility of reconstructing a **p* prefix is unusual for this part of TB, and is due to the preservation of the prefix by fusion in Burmese.

'Buckwheat' is universally cognate in Niish languages, with a form that can be reconstructed as **ŋga*^{2}. The correspondences are entirely regular. Sun (1991:560) shows cognates for this etymon in Qiangic Guichong and possibly Ersu, Naxi and Bai as well as Nu and Idu; Dai (1992:138) gives another Qiangic cognate also in Namuyi; so perhaps this is an Eastern Tibeto-Burman etymon. There is no Burmese cognate, and as noted above the Burmic form may instead be related to one of the 'millet' etyma. The Burmish groups lived at lower altitudes together with speakers of other languages who did not use this crop or used different words for it, so this lexical gap is unremarkable.

'Barley' is another dry-field highland crop, for which a Niish etymon **zu*^{3} can be reconstructed. Cognates are widespread within Niish, nearly all with the meaning 'barley'. The Burmish form **məyaw*^{2} does not show regular correspondences to the Niish form, but the Bai form [me^{55}zo^{42}] may indicate a link between Burmish and Niish. Other TB cognates are unclear.

'Wheat' as a crop is similar in its distribution and use to 'barley'; a Niish etymon *$ʃa^3$ is reconstructible. Limited evidence for this etymon outside Niish can be found in Burmic Lashi (Dai 1992:137) as well as closely related Nusu, Nu and Dulong. Likely cognates are also found in some Qiangic languages including Zhaba, Ersu, Pumi and Namuyi (Sun 1991:558). So, like 'buckwheat', this may be an Eastern TB cognate. Like 'buckwheat' and 'barley', this unirrigated crop would have become irrelevant to the Burmans when they reached the valley of Upper Burma more than a millenium ago, so the absence of solid Burmese cognates is not surprising. The modern Burmese form, which is also the source of the Lahu and Akha forms, is a loanword from an Indic source. It is interesting to note that this etymon is also used in various compounds: in Akha as a prefix with the 'millet' and 'sorghum' terms, and in various Central Niish languages in compounds to create forms for the newly-introduced 'corn/maize'.

'Job's tears' is the most problematic of these crops, as cognate forms are absent from many languages. Nevertheless, forms which may be cognate appear in Burmese, the first syllable of the Central Niish Lahu term, and the second syllable of one of the Southern Niish Akha terms; a possible reconstruction is *$(m/ʔ)$-$tsit^L$. The Lahu form shows an irregular tonal correspondence; one would expect the high rising tone, but perhaps the first of two syllables with this tone shows a dissiliatory sandhi here. The Burmese form shows an irregular initial; in spoken Burmese it is voiced, and though phonetically similar to the Lahu and Akha initials, the position of articulation is irregular, reflecting initial *$ʔky$. Part of the problem could be accounted for if one postulates that the Lahu form is actually derived from the 'cowrie' etymon *m-jwe^1 (Bradley 1979a #239) or a blend of this with the 'Job's tears' term. This is not unreasonable as both are small round white decorative objects, used mainly for sewing onto clothing and for bracelets and necklaces. In this case, the main 'Job's tears' etymon could instead be reconstructed as *$ʔ$-$tsit/kyit^L$, removing the tone problem and the irregularity in the initial manner.

'Corn/maize' is of course not a reconstructible etymon for Proto-Burmic; if it were there would be a serious historical problem, as the crop was only introduced in the sixteenth century. Bradley (1979a #290) proposes a Central Niish form which is in fact a compound containing the 'wheat' etymon. Otherwise, the new forms used for it involve semantic shift (from 'sorghum' in Burmese), an innovative form *du^3 cognate across much of Southern Niish, and borrowing (in Nosu and various other languages).

It is interesting to note that three of the reconstructed grain crop terms have Proto-Tone 3, including 'barley', 'wheat' and the new Southern Niish 'corn/maize' term. This tone is one of the defining characteristics of the Burmic subgroup of TB but can only be reconstructed in a small proportion of the inherited TB lexicon, mostly in cases involving *s or *$ʔ$ prefixation in etyma without final stops. Thus it is not too surprising that new lexicon should add to the proportion of words with this lexically infrequent tone.

In the third branch of Burmic, the Gong forms provide support for the 'rice' etymon with a form [$sɛ^{35}$] (with [s] from earlier [tɕh]), for one of the 'cooked rice' etyma in [$maŋ^{33}$], and for the 'sorghum' etymon in [$lɔŋ^{35}lɔŋ^{35}$]. The form for

'corn/maize', [khu^{33}mɛʔ^{35}], is unsurprisingly not a cognate. Given the extensive and longstanding contact between Thai and Gong, it is unremarkable that other cognates are missing.

In the strictest sense, one might need to exclude the 'buckwheat' and 'wheat' etyma from Proto-Burmic; but as these are also attested in various less closely related Qiangic TB languages to the north, this gap is more likely to be due to subsequent loss of the words with the crops by the Burmish groups. More problematic is 'barley', which shows distinct though similar forms in Niish and Burmish, perhaps linked by a Bai form.

2. Changes to grain crop terminology in Burmic languages

To give a better idea of the degree of internal difference within a subgroup of Niish, the forms from two nearly mutually intelligible languages of the Southern Niish subgroup, Akha and Hani, are given in Table 3. From traditional migration stories it is known that the Akha migrated to the southwest away from the main Hani area of south central Yunnan some 20 generations ago; this ties in well with the fact that the term for 'corn/maize' (introduced, as noted above, in the early sixteenth century) is identical in Hani and Akha; a cognate form is also found in other closely related languages such as Piyo and Khatu in China and Mpi in Thailand.

The two terms for 'Job's tears' reflect two different varieties with different uses: the hard, inedible white subvariety, widely used for bead ornaments, is the cognate form [a^{21}ts$\underline{\text{ɣ}}^{21}$], while the softer, edible off-white subvariety shows a noncognate form [lɔ^{55}ba^{33}]. The replacement of terms for 'wheat' and 'barley' in both languages suggests that these were not core crops for the Hani/Akha. This is hardly surprising given the many centuries of labour put into the creation and maintenance of terraces of irrigated fields up the hillsides in the Hani area.

Table 3. Hani / Akha Grain Crops

Grain	Hani	Akha
'rice'	tshɛ^{55}	tɕhɛ^{55}
'millets'	lɔ^{21}ly^{55}	ɕa^{55}dɔ̲^{33}
'sorghum'	sɛ^{55}lɔ21	ɕa^{55}lɔ̲^{21}
'buckwheat'	ɣa^{21}lɛ^{33}	ɣa^{21}
'barley'	(Chinese)	lɔ^{21}lø^{55}
'wheat'	(Chinese)	(Burmese)
'Job's tears'	lɔ^{55}ba^{33}/a^{21}ts$\underline{\text{ɣ}}^{21}$	lɔ^{55}ba^{33}/a^{21}ts$\underline{\text{ɣ}}^{21}$
'corn/maize'	a^{55}du^{33}	a^{55}du^{33}

One can easily see that even four centuries of separation can lead to substantial semantic shifts and replacements. In Akha, the cognate form for 'millet' has come to mean 'barley' (or other unfamiliar small grain), and a new term for

'millet' has been coined. Various minor vowel differences are due to phonological change in the intervening centuries since separation, as are the addition of a suffix in Hani 'buckwheat'. It is interesting to note that even though the core etymon for 'wheat' is no longer used to refer to this grain, it has become grammaticalised into a prefix for two other small grain crops, in 'sorghum' where it has been prefixed to the cognate syllable, and in the newly-compounded Akha 'millet', where the [do^{33}] syllable may be from a verb meaning 'come up and out'. The sources of the new terms for 'wheat' and for Hani 'barley' indicate that the Hani remain in contact with speakers of Chinese, and the Akha in Burma and Thailand have borrowed various words including 'wheat' from Burmese.

The language with the largest number of semantic shifts is Lahu; this may be attributed to the migration of the Lahu from the north, according to their traditional stories, and the resulting ecological and grain crop shifts. Briefly, the Lahu cognate [z^{33}] for the *barley etymon means 'unfamiliar grain'; the Lahu cognate [tɕho?^{21}] for the Niish *foxtail millet etymon means 'barley', and the Lahu cognate [lɔ^{53}] for the *sorghum etymon means 'millet'. The cognate status of the Lahu form [kɔ^{33}lɛ^{33}] for 'sorghum' is unclear, though the second syllable may be related to the *panicled millet etymon if it is not just an early Chinese loan; and Lahu has borrowed a Burmese term for 'wheat', retaining the cognate only as one syllable in the compound for 'corn/maize'; this may indicate that the migration and contact with Burmese is relatively recent. The Yellow Lahu form [khɤ?^{21}ɕa^{33}] for 'corn/maize' (Bradley 1979b:174) also retains the cognate of the *wheat etymon, but in second position and with a first syllable reminiscent of the Lisu form. Thus the separation of Black and Yellow Lahu, unlike the separation of the Hani and Akha, may antedate the introduction of this crop. The Lahu [dʑu^{21}] form for 'Job's tears' may actually be a blend of this etymon and the etymon for *cowrie. Thus relatively few forms in Lahu show cognates without semantic shifts, even though most cognates are attested.

Conversely, the other two Central Niish languages, Lisu and Sani, have retained cognates for nearly all grain crops in their reconstructed meanings, apart from the merger of the millets under the 'foxtail millet' etymon. Sani has added a prefix to the 'sorghum' form, and the two languages have independently created new compound forms for 'corn/maize' using the 'wheat' form plus another syllable: in Lisu, a prefix parallel to the one in Yellow Lahu, and in Sani, a suffix [pu^{33}] written with a Sani character that only refers to a grain of corn or maize (Jin 1983:9). Some versions of Sani traditional history suggest that the Sani migrated from the far west, the area around Dali in western central Yunnan, which ties in well with the close linguistic relationship to be found between Sani ('Southeastern Yi'), and the more northerly members of the Central Niish subgroup who still live in that area, the Lalo ('Western Yi'), Lolopo and Lipo ('Central Yi') and Lisu.

In the Northern Niish subgroup, most languages retain a large proportion of the cognate forms; in fact Nosu is unusual among languages of this subgroup in having replaced the cognate for 'sorghum' with a new form. Despite this, Nosu is used here as an exemplar of the Northern subgroup because it is the most widespread, best-described language within this subgroup. Cognates for 'sorghum' can be found elsewhere in Northern Niish; see for example Sun (1991:562) where

various forms including Nisu ('Southern Yi') and Nasu ('Eastern Yi') are given. The term for 'wheat' has been augmented with the suffix **ma*^{3} meaning 'something big', and the term for 'corn/maize' appears to be a loan from the regional Sichuan form [ji^{35}m^{21}] reflecting standard [jy^{35}mi^{214}]. It is not unexpected that Nosu should show some lexical innovations, as Nosu is the Northern Niish group which has migrated furthest from traditional territory near Kunming, and is out of contact with the other members of its subgroup.

The Burmans are another group who migrated long ago into upper Burma. It is probable that they arrived there as part of the Nanzhao armies which destroyed the Pyu cities there in the early 9th century (Stargardt 1990:78). The languages most closely related to Burmese are Maru, Atsi, Lashi, Ngochang and the other Burmish languages of what is now the Northern Shan State in Burma and the adjacent areas of the southeastern Kachin State in Burma and Dehong Prefecture in western Yunnan. These other Burmish groups have remained in a symbiotic cultural relationship with the surrounding Jinghpaw (Kachin) and Tai (Shan) groups, while the Burmans have become the dominant majority of central Burma. Traditional history backdates their arrival somewhat, but the earliest Burman rulers of upper Burma enter conventional history in the mid-eleventh century, using and developing the irrigation and other infrastructure created by the Pyu. Given this radical geographical, political, social and economic change of about a millenium ago, it is hardly surprising that the Burmese language does not retain cognates for all of the grain crops found in other Burmic languages.

In fact, most speakers of modern Burmese do not know all of the terms in Tables 1 and 2. The differences between the various varieties of millet are unknown to most speakers, and the old 'barley' term is not used; an English loan is more widespread. The 'corn/maize' term is semantically shifted from the older term for 'sorghum', [pyaun^{42}], sometimes but not always with [bu^{42}] 'gourd' added as a suffix; for most people 'corn/maize' is now the primary referent of this word. Cognate terms for 'buckwheat' and 'wheat' are completely absent; these upland crops were not reported among the early crops grown by the Burmans. For 'buckwheat' the other Burmish languages have a form derived from another etymon, **kyu*^{2}; see cognate forms in Dai (1992:138). Modern Burmese sometimes uses [ʃəri mã] which is a loan from Jinghpaw, but many speakers are not familiar with this word either. Another interesting loanword is from Mon, speakers of which formed the literate elite of the early Burman kingdom in the eleventh and twelfth centuries; it is the general term for 'grain' [zəba^{42}].

3. Conclusion

It appears likely that the Burmic groups used all of the eight grain crops for which etyma have been reconstructed. There have been various losses and shifts in meaning with migration and consequent changes in contacts, ecology and crop use. These changes are greatest for Burmese, whose speakers' migration about a thousand years ago led to very substantial cultural and ecological changes including the loss of several upland grain crops; and for Gong, whose speakers have been out

of contact with other Burmic groups for a long time, and in very close contact with speakers of Thai and other languages.

The original homeland of the Burmic groups appears to have been the uplands of what is now Yunnan in China; all these crops still exist in this area, and indeed several of them were first domesticated here or nearby, probably by speakers of ST languages.

The relatively recently introduced grain, 'corn/maize', is interesting because it shows how these languages coin new compounds or shift the meaning of existing words. Perhaps most interestingly, shared forms reflecting a new etymon *du^3 for 'corn/maize' may indicate that the Hani/Akha group of languages was still unified or at least in close contact when this crop was introduced in the sixteenth century. Conversely, distinct terms indicate that closely related languages or dialects were no longer unitary at that time, as in the case of Black Lahu and Yellow Lahu, or indeed standard Thai and Northern Thai. On the other hand, compound forms created for this grain in Lisu, Sani and Lahu based on the 'wheat' term may suggest that these languages were still in contact, and that the Sani had not yet migrated to the east at that time.

Taking the reconstruction further back, one finds cognates for 'rice' and 'sorghum' in Gong to the south and in a variety of other Tibeto-Burman languages to the west and north. Cognates of some etyma for upland unirrigated crops, such as 'wheat', 'barley' and 'buckwheat', are found mainly among the eastern TB Qiangic languages to the north. At the most remote level, comparing Sinitic forms, some ST cognates can also be found: see, for example, Karlgren (1972) 737d *$l\underset{\frown}{i}ang$ glossed as 'fine millet'; this is the 'sorghum' etymon. For 'foxtail millet', Karlgren 337e *$ts\underset{\frown}{i}\hat{a}d$ and 922b *$ts\underset{\frown}{i}\partial k$ are probable cognates, also showing an ST origin for this etymon. Luce (1981) also proposes a Sinitic cognate for Burmic 'panicled millet' in Karlgren 93a *$\acute{s}\underset{\frown}{i}o$, which would also provide an ST etymology. Luce (1981) also notes the 'rice' cognate reflected in Karlgren 154c *$ts'\hat{a}n$ glossed as 'fine pure grain'. It is interesting that all of these are or can be primarily highland crops, perhaps suggesting a mountain homeland for ST as well as TB and Burmic. This correlates well with botanical evidence that rice, foxtail millet, panicled millet, buckwheat and probably Job's tears were first domesticated in this region (de Wet 1992, Joshi and Rana 1995).

This discussion is part of a larger-scale study of the linguistic history of plants among these groups, which will eventually attempt a cultural reconstruction of this area of traditional knowledge.

REFERENCES

Benedict, Paul K. 1942. "Kinship in Southeastern Asia." Ph.D. dissertation, Harvard University.

Benedict, Paul K. 1972. *Sino-Tibetan: a conspectus*. Contributing editor James A. Matisoff. Cambridge: Cambridge University Press.

Benedict, Paul K. 1975. *Austro-Thai Language and Culture*. New Haven: Human Relations Area Files.

Bradley, David 1979a. *Proto-Loloish*. Scandinavian Institute of Asian Studies Monograph Series 39. London and Malmö: Curzon Press.

Bradley, David 1979b. *Lahu Dialects*. Canberra: Australian National University Press.

Bradley, David 1994. *A Dictionary of the Northern Dialect of Lisu*. Canberra: Pacific Linguistics C-126.

Dai Qingxia. 1992. *A Tibeto-Burman Lexicon* [in Chinese]. Beijing: Central Institute of Nationalities Press.

Jin Guoku et al. 1983. *Concise Yi-Chinese Dictionary* [in Sani and Chinese]. Kunming: Yunnan Nationalities Press.

Joshi, B.D. & Rana, R.S. 1995. "Buckwheat (Fagopyrum esculentum)." In *Cereals and Pseudocereals*, ed. J.T. Williams, pp. 84-127. London: Chapman & Hall.

Karlgren, Bernhard 1972. *Grammata Serica Recensa*. Stockholm: Museum of Far Eastern Antiquities.

Lewis, Paul 1989. *Akha-English-Thai Dictionary*. Chiangrai: Development and Agricultural Project for Akha.

Luce, Gordon H. 1981. *A Comparative Word-list of Old Burmese, Chinese and Tibetan*. London: School of Oriental and African Studies.

Mahei Muga et al. (eds) 1989. *Chinese-Yi Dictionary* [in Chinese and Yi]. Chengdu: Sichuan Nationalities Press.

Matisoff, James A. 1988. *The Dictionary of Lahu*. University of California Publications in Linguistics 111. Berkeley: University of California Press.

Myanmar Language Commission 1993. *Myanmar-English Dictionary* [in Burmese and English]. Yangon: Ministry of Education.

Stargardt, Janice 1990. *The Ancient Pyu of Burma*. V.1, Early Pyu cities in a man-made landscape. Cambridge: Publications on Ancient Civilizations in South East Asia; Singapore: Institute of Southeast Asian Studies.

Sun Hongkai. 1991. *Phonetics and Vocabulary of Tibeto-Burman Languages* [in Chinese]. Beijing: Chinese Academy of Social Sciences Press.

de Wet, J.M.J. 1992. "The three phases of cereal domestication." In *Grass Evolution and Domestication*, ed. G.P. Chapman, pp. 176-198. Cambridge: Cambridge University Press.

Received: 4 July 1996

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