

SPECULATIONS ON EARLY TAI TONES

In a paper contributed to the Tenth International Conference on Sino-Tibetan Languages and Linguistics in 1977, E. G. Pulleyblank discussed the theory that the so-called rising tone of Middle Chinese originally had final glottal stop $ʔ$, and the so-called departing tone had final s , later h .¹ He credits A. G. Haudricourt with having first advanced this theory. In the course of his paper Pulleyblank points out (pp. 2-3) that at the time Burmese was reduced to writing, that language also appears to have had one tone ending in glottal stop and another ending in aspiration.

There is some evidence, admittedly meager and inconclusive, that the Tai languages, or at least some of them, at a period before the series of great tonal splits occurred in the various Tai languages and dialects (sometimes estimated at about a thousand years ago), similarly had, besides the plain tone, one tone ending in glottal stop and another

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ending in *h*. It is the purpose of this paper to call attention to this evidence, for what it is worth.

Most students of comparative Tai reconstruct for the parent language of the family a tone system consisting of three contrasting tones, called A, B, and C by F. K. Li, on syllables ending in a vowel or sonorant (nasal or semivowel), and a fourth category, D, ending in a voiceless stop *p*, *t*, or *k*, which showed no tonal differentiation. This tonal system must be assumed to have persisted for some time, perhaps several centuries, down to the time when each branch of the family underwent tonal splits, since in each of the daughter languages and dialects the tonal splits, although differing from place to place, are always found to have had the ABCD tonal system as the starting point. We will discuss first the evidence that the C tone of early Tai involved a final glottal stop *ʔ*, and then the evidence that the B tone of early Tai ended in *h*.

F. K. Li has postulated three branches for the Tai language family, a Northern branch spoken mainly in parts of southern China, a Central branch, which includes dialects (Tho, Nung, and so on) in the extreme northeastern part of Vietnam and adjacent areas in China, and a Southwestern branch, which includes the Tai dialects of northwestern Vietnam such as White, Black, and Red Tai, the Lue dialects of Yunnan, and all the Tai languages and dialects of the areas that are now Thailand, Laos, Burma, and Assam, including also the so-called Chinese Shan dialects in areas of Yunnan adjacent to Burma.² This tripartite classification of Tai languages is

practically very convenient, and has been widely used, but some, including myself, have had doubts as to the validity of the division between his Central and Southwestern branches, suspecting rather that the Tai family originally split into two branches, Li's Northern on the one hand, and on the other hand a group comprising his Central and Southwestern branches. Li's evidence for his three-way classification is, essentially, that his three branches are about equally different from each other phonologically and lexically. The case for a two-way classification has never been thoroughly worked out, but it appears likely that it would turn out to rest on two main points: first, evidence that between Li's Central and Southwestern branches there is no sharp boundary, but only gradual dialectal transition (this would be in the area about halfway across the northern part of Vietnam, for which available data are scanty); and second, an attempt to demonstrate that a single intermediate language can be reconstructed for Li's Central and Southwestern branches taken together. If it turns out that the suggested two-way division is correct, then one would probably have to conclude that the reason Li found such marked differences between his Central and Southwestern groups was that he was dealing with two extreme ends of a dialect continuum. This whole question is an important aspect of comparative Tai linguistics that awaits further study.

In virtually all modern Tai languages and dialects belonging to Li's Central and Southwestern branches, the tones (usually two) that have developed

from the earlier C tone are characterized by glottal constriction, sometimes called "creaky voice." This usually, perhaps always, is manifested by extreme tension of the glottis throughout the vowel, increasing gradually, with closure in glottal stop at the end of the syllable before pause or open juncture. When another syllable follows in close juncture, the glottal stop is omitted. The effect of creakiness in the vowel seems to result from intermittent voicing.

For example, the standard Thai language of Thailand (sometimes called Siamese) has two tones that have developed from the earlier C tone, the falling tone in words like *hâa* 'five' or *bân* 'village', and the high tone in words like *máa* 'horse' or *máay* (from earlier *máy*) 'wood'. All words having either of these two tones and ending in a vowel or sonorant are accompanied by this glottal constriction. I have found in my own fieldwork on some dozens of dialects of Li's Southwestern and Central branches of Tai, from all the various geographical areas, that it is almost always the case that the tones that have developed from the earlier C tone have this feature. These glottalized tones may have any pitch level or contour. In Siamese, as we have just seen, they are falling and high, respectively. In White Tai they are low rising and low falling. At Lungming in Kwangsi they are mid level and low falling-rising.

In his fine study of the dialects of Thailand, including also a few Shan and Lao dialects, J. Marvin Brown in his tone charts represents this feature of glottalization by a squiggly line.³ He also found

glottalization regularly in the tones that have developed from the earlier C tone. But he found (pp. 115-35) that the dialects of the southern peninsula of Thailand have no such glottalized tones at all, in tones that have developed from the earlier C tone or anywhere else in the tone system. So far as we know, this is the only area of any considerable extent constituting an exception to the statement that, throughout the Central and Southwestern branches of Tai, tones developed from the earlier C tone regularly show glottal constriction.

A curious unexplained incidental feature of this glottalization is that it generally, perhaps always, is stronger in the tone that has developed from the earlier C tone with an originally voiced initial (such as Siamese *máa* or *máay*) than in the tone that has developed from the C tone with an originally voiceless initial (such as Siamese *hâa* or *bâan*). Native speakers of Siamese or standard Thai who take up the study of linguistics always recognize the glottal feature of their own high tone easily, but sometimes have to be convinced that their falling tone also has it. (Asking them to pronounce a few words like *hâa* 'five' or *phîi* 'older sibling' ending in a vowel, with clear final glottal closure, always finally convinces them.)

Published descriptions of Tai dialects of the Southwestern and Central branches, even the best, have until very recent times generally ignored this feature of glottal constriction. It is easy to overlook, because these tones also are always differentiated from each other and from all other tones by

other features of pitch level and contour. Even so expert a fieldworker as F. K. Li, in his description and transcription of the Central Tai dialect of Lungchow, marked with final glottal stop the tone that has developed from the earlier C tone with originally voiced initial (in words like *maa* 'horse' and *may* 'wood') but not the tone that has developed from the earlier C tone with original voiceless initial (in words like *hâa* 'five' or *bâan* 'village'). In my own fieldwork on half a dozen other dialects in the Lungchow area I found both these tones to have glottal constriction. As a matter of fact, since the glottal feature is automatic, no additional mark is needed besides the tone mark.

Tai languages and dialects of Li's Northern branch, on the other hand, are apparently totally free of this feature of glottal constriction, with one easily explained exception, which we will deal with presently. Failure of published descriptions to mention such a feature in any Northern Tai dialect would not be good evidence on this point, since, as we have pointed out, earlier descriptions of South-western and Central Tai dialects, where we know that this feature exists, have usually ignored it, but again fieldwork on a number of dialects of this group has to me been totally convincing that Northern Tai languages do not have it.

One very competent phonetician has told me that he thought he heard glottal constriction on certain tones in Yay (a dialect of the Northern branch of Tai), in the speech of the same Yay speaker with whom I did fieldwork over a period of some years.⁴

It is my belief that what he probably heard was occasional, random, glottal constriction, which one might hear in English or any other language, rather than glottal constriction always and invariably accompanying certain tones and not others.

The single known exception to the assertion that no Tai language of the Northern branch has glottalized tones is Saek, a language of this branch now spoken far to the south of other Northern Tai languages, in a few villages in Nakhon Phanom Province in northeastern Thailand and a few villages across the river in Laos near the town of Tha Khek.⁵ In Saek the tones that I have called third (low falling) and sixth (mid level) are accompanied by glottal constriction, and these are the tones that have developed from the earlier C tone. Saek is known to have undergone its tonal splits after the time when it came into contact with Tai languages of the Southwestern branch, and to have participated with them in certain sound changes. Apparently it also acquired this feature of glottal constriction as a result of this contact. Whether this means that before the tonal splits the C tone of Saek acquired this feature from neighboring Southwestern Tai dialects, or that the feature was borrowed during or after the tonal splits, is impossible to determine at the present state of our knowledge.

In studying the historical development of the tonal system of any Tai dialect, one often finds that besides the tonal splits that have changed each of the old tones into two or more, there also has been coalescence in various parts of the system. For

example, such a coalescence in Siamese has occurred between the tone developed from the earlier C tone with voiceless initial, for example, *khâa* 'to kill', and the tone developed from the earlier B tone with voiced initial, for example, *khâa* 'price, value'. These two words are homophonous in modern Siamese, and both show glottal constriction, that is, in the coalescence of these two tones the feature of glottalization has spread from the tone developed from the earlier C tone to the tone developed from the earlier B tone with which the former coalesced.

In Saek there has been a similar coalescence between the tone developed from the C tone with original voiced initial, for example, *maa*⁶ 'horse', *nam*⁶ 'water', and the tone developed from the B tone with original voiceless initial, for example, *yuu*⁶ 'to be in a place'. All these are glottalized. As in the Siamese case, the feature of glottal constriction has spread from the tone developed from the earlier C tone to the other one with which it coalesced.

One has the impression that in any dialect where there has been such coalescence involving the C tone it is generally the case that the feature of glottal constriction spreads to the other tone. Brown's charts occasionally show the reverse situation, as in the Yo dialect of Sakon Nakhon (p. 112) and at Khorat (p. 113), where one of the tones developed from the earlier C tone has coalesced with one of the tones developed from the earlier B tone, and glottalization has disappeared from both. We may someday understand why, when tonal coalescence

occurred, the feature of glottal constriction usually spread to the other tone, but in some dialects the reverse occurred.

If, as we believe, it is generally true that Tai languages and dialects of the Central and Southwestern branches have this feature of glottal constriction on tones that have developed out of the earlier C tone, but Tai languages and dialects of the Northern branch do not, then one or the other of two inferences is possible. One possibility is that Proto-Tai, the prehistoric parent language of the entire family, had glottal constriction and/or final glottal stop as a feature of the C tone, and that the languages of the Northern branch, after separation from the others, lost it. The other possibility is that Proto-Tai had nothing of the sort, but languages of the Central and Southwestern branches acquired this feature after separation from the Northern group, perhaps as a result of contact with language families having such a feature. It appears that it will be a long time, not until we know a great deal more about the phonological history of the various branches of Tai, before we can feel certain as to which of these two possibilities is correct.

Lack of glottalized tones in the Tai dialects of the southern peninsula of Thailand must be relevant to this question, but could be viewed as possibly consistent with either theory. If Proto-Tai had glottalization as a feature of the C tone, then the peninsular dialects, like the entire Northern branch, must have lost it. If, on the other hand, the Central and Southwestern branches acquired this

feature later, then the peninsular dialects, on the periphery of the area, must have escaped this innovation.

This is the evidence, then, that at an earlier stage, before the tonal splits occurred, some or all of the Tai languages had glottal constriction or final glottal stop as a regular feature of the C tone. We turn now to the evidence that the B tone of earlier Tai had a final *h*.

Study of the tonal splits in any Tai dialect often turns up a curious fact. It is often, though not always, the case that the tonal splits that have occurred in the B tone show the same conditioning factors in initial consonants as do the splits that have occurred in the D tone (with final voiceless stop *p*, *t*, or *k*) with long vocalic nucleus. Moreover, the resulting tones are often, but not always, found in the modern dialect to be phonetically similar in the two categories, B and D-long.

For example, in Siamese the tonal splits that occurred in the B tone and the D-long tone were conditioned by a simple voiced/voiceless opposition in initial consonants. This was true also of other Siamese tone splits, except in the A tone, where the conditioning factors were different and more complicated. And the resulting modern tones in the B and D-long categories are phonetically similar, as follows: after originally voiceless initials, low level in the B category, as in *sìi* 'four' or *dàa* 'to revile', and also in the D-long category, as in *hàap* 'to carry on the two ends of a shoulder pole' or *dèet* 'sunshine'; and after originally voiced initials,

falling in the B category, as in *khâa* 'price, value' or *phîi* 'older sibling', and also in the D-long category, as in *lîat* 'blood' or *nôok* 'outside'.

Obviously one possible explanation of this curious agreement is that, like D-tone words, B-tone words may have had originally a final consonant, which conditioned the tonal splits but was afterward lost in all dialects.

It is tempting here to envisage a statistical study to determine whether the total number of B-tone words is comparable to the total number of D-long-tone words with one or another of the final voiceless stops *p*, *t*, or *k*. But two questions would immediately arise. For one thing, it would be difficult to know what words to include. Would one count only words known to occur in all branches of Tai? If one were to include other widespread but not universal Tai words, what would the criteria be? Another problem arises from the striking fact that in working with data from any Tai dialect one invariably finds that the number of words ending in *k* is largest, those ending in *t* next, and those ending in *p* fewest. Final nasals *m*, *n*, and *ŋ* show a similar statistical distribution, with the final velar most frequent and the final labial least. (Students of Chinese dialects report a similar phenomenon.) So, is one to compare the figures for the B tone with those for final *p*, or *t*, or *k*? To anticipate, if we allow ourselves to conjecture that the B tone had at some time a final *h*, one might expect the B tone to end up to the right of *k* in our table of statistics, since the sequence *p t k* is front to back in terms of

articulation, and *h* is even farther back phonetically. This would, gratifyingly, agree with the impression one has that there are probably more B-tone words in any dialect than there are words with the D-long tone and any one of the final stops *p*, *t*, or *k*, a feeling that might otherwise have caused us to shy away altogether from considering the possibility that the B tone is statistically comparable to the D-long tone with any one of the three final stops.

If the B tone had a final consonant at earlier stages, what evidence is there that this final consonant was *h*? So far as we know, the only evidence is local, from standard Thai or Siamese, and perhaps also from some neighboring dialects such as Lao, and involves the tonal treatment of loanwords from Sanskrit and Pali.

Indic words having a long vowel followed by a stop and a short vowel lost, when borrowed into Siamese, the short final vowel (and whatever inflectional ending), and for the stop consonant substituted the phonetically most similar Siamese final stop, *p*, *t*, or *k*. (It may be that the short final vowel had already been lost in the kind of pronunciation of Sanskrit to which Siamese was exposed.) Such words then fell into the D-long-tone category of Siamese, and underwent whatever tonal changes that category made. Thus the modern Siamese reflexes of Sanskrit, *loka-* 'world' and *rāja-* 'king', are *lôok* and *râat*, with falling tone. With an original voiceless initial, low tone results, as one would

expect, as in *khèet* 'boundary, area' from Pali *khetta-*.

On the other hand, when the Indic original had a long final vowel after the stop, as in *lokā* or *rājā*, the word was treated as having two open syllables, and each fell into the A category in Siamese, giving in modern Siamese, after the tonal changes, *lookaa* and *raachaa*, with mid level tone on each syllable.

When the Sanskrit or Pali original had *h* after the long vowel in place of the *k* of *loka-* or the *j* of *rāja-*, modern Siamese has no final consonant, but the word has the tone that would have resulted if there had been a final stop, so that Sanskrit *loha-* is pronounced in modern Siamese *lôo* (meaning 'shield'), with the same tone as *lôok* from Sanskrit *loka-*. With an originally voiceless initial low tone results, as in *sà nèe* 'charm, affection', from Indic *sneha-*, parallel to *khèet* from *khetta-*.

So the end result in these cases where the donor language had postvocalic *h* is a B-tone word. But since B-tone words in Siamese behave like (that is, have undergone the same tonal changes as) D-tone words with long vocalic nuclei, the most plausible explanation would seem to be that a word like *loha-* was borrowed as **loh* and then underwent the same tonal development as a word like *loka-* > **lok* > *lôok*, with final *h* behaving with regard to the conditioning of tonal changes exactly like the final stops *p*, *t*, and *k*.

Following is a list of all the examples of this phenomenon that I have been able to find in the Royal Institute dictionary of Thai. Doublets ending

in a long vowel are also cited, as well as doublets of another sort, in which the entire Indic word is reproduced in Siamese, including the postconsonantal short vowel, as in *loohà?* 'metal' beside *lôo* 'shield', both from Sanskrit *loha-*. Forms like *loohà?* are presumably later borrowings, which were not affected by the changes in which we are interested because they had not yet come into the language.

Examples with low tone on a syllable having an original voiceless initial:

sànèe 'charm, affection' < P. *sneha-* 'affection'. Doublets: *sàneehà?*, *sàneehăa*, *sànèehăa*, *sìneehà?*, *sìneehăa*.

?ùsàa, *?ùtsàa* 'to endure' < Skt. *utsāha-*, P. *ussāha-* 'energy, effort'. Doublet: *?ùtsăahà?*.

Examples with falling tone on a syllable having an originally voiced initial:

thêe 'body, self' < Skt., P. *deha-*. Doublet: *thee*.

pháyûu 'army' < P. *byūha-*. Doublet: *pháyúhà?*.

môo 'stupidity' < Skt., P. *moha-*. Doublet: *moohà?*. (The dictionary lists *maw* 'drunk' as a variant, but this is an error; *maw* is a native Tai word.)

phăa 'bearer, leader' < Skt., P. *vāha-*. Doublet: *phaahà?*. (Siamese also has an astrological term *sũunyáphăa* 'name of a sign of the zodiac' for which I can find no etymon in the Sanskrit and Pali dictionaries, but it appears to contain this same morpheme.)

râa 'name of a demon' < Skt., P. *rāhu*-.

Doublets: *raahù?*, *raahũu*. (This is the demon that devours the sun or moon during an eclipse, nowadays called *raahũu*.)

lôo 'shield' < Skt., P. *loha*- 'metal'.

Doublet: *loohà?* 'metal'.

sõnthêe 'doubt' < Skt., P. *sandeha*-. Doublet: *sãntheehà?*

thrôo < Skt. *droha*- 'injury, mischief', in the expression *kàbòt thót thrôo* 'to plot treason'.

Doublet: *thôo*.

Siamese *lêe* 'trick' (doublet: *leehà?*) and *pràlêe* 'like' are apparently from Sanskrit *praheli*- 'riddle, trick'. (If so, the original must have undergone metathesis of *h* and *l*.⁶ Siamese has also *pràhëen*, reflecting the unmetathetized Sanskrit form.)

In one example the postvocalic consonant is a sibilant rather than *h*: *?ùppàthêe* 'policy, strategy' < Skt., P. *upadesa*- 'instruction, advice'. Normally an Indic sibilant in this position is replaced by Siamese final *t*, as in *thêet* 'place, region' < Skt. *deśa*-, P. *desa*-.

The explanation for the falling tone on the final syllable of *phútthôo* (exclamation of pity, and so on) (cf. Skt., P. *buddho* 'Buddha', nom. sg., from which we would expect Siamese *phútthoo*, with mid-level tone on the final syllable) is probably different. Emphatic use as an interjection probably led to tonal distortion.

Another puzzling example is *mâa* (doublet: *maa*) 'kind of spirit or demon', spelled in Siamese with a

postvocalic *h* as it were another instance of our phenomenon. No Indic etymon is known, but there is said to be a similar Vietnamese word. The spelling with *h* may be an erroneous attempt to make the word look like an Indic borrowing.

We have noted doublets like *loohà?* beside *lôo*, where we assume that the full form is a later borrowing. There are many other cases where only the full form occurs; we must assume that such words were not borrowed at all until later times, or if borrowed early, then the form exhibiting our phenomenon must have been lost. Examples are *keehà?* 'house, home' < Skt., P. *geha-*; *thaahà?* 'heat, fire' < P. *ḍāha-*; and *leehà?* 'licking' < Skt. *leha-*.

Similar forms to our Siamese examples can be found in Lao and some other Tai languages in the areas immediately adjacent to Thailand, but it could be argued that these are not independent evidence; there is the strong likelihood that they are the result of influence from Thailand, especially since Indic loanwords of this sort are much used in sophisticated contexts dealing either with official matters or with the Buddhist monkhood, or in literary compositions. Thus in a language like Lao there is the possibility that they were not borrowed early, and did not there undergo changes similar to those posited for Siamese, but were rather late imitations of Siamese forms. We have not, therefore, thought it worthwhile to collect examples of this phenomenon from dictionaries of Lao or other neighboring languages.

The peculiar tonal behavior of these loanwords from Indic forms having *h* after a long vowel has not, so far as we know, been seriously studied. The only mention of the phenomenon in the linguistic literature seems to be in my own 1947 doctoral dissertation, where it was discussed briefly.⁷ I recall that in those days, thirty-odd years ago, I was wont to refer to it jokingly as my Siamese laryngeal. In Thailand some of the forms are sometimes explained in textbooks and in the classroom as resulting from transposition of the letter *h* in the orthography. This idea, implausible on the face of it, would at best explain only one or two of the examples.

It is perhaps surprising that the tonal phenomenon we are interested in is found only in forms in which the Indic original had *h* after a long vowel, not in forms having *h* after a nasal or semivowel. For example, Pali *uṇha-* 'hot' is Siamese *ʔūnhà?* Three possible explanations come to mind: (1) through accident, no examples involving *h* after a nasal or semivowel happen to have been borrowed early; (2) even if Siamese borrowed some forms of such shape early, perhaps what happened was that everything after the nasal or semivowel was dropped, as happened, for example, in such cases as Siamese *wōŋ* from Sanskrit *vaṃśa-* 'family'; and (3) the B tone may have ended in *h* only after long vowels, not after a nasal or semivowel.

The theory we have been assuming in our discussion of these forms is that at an early period, before the tonal splits, the B tone in Siamese had a

final *h*, and was not different from the checked D tone with long vocalic nucleus. The implication is that there was at that period no independent B tone. After the tonal splits the *h* would then have been lost, not only in these loanwords but also in all the native final *h* words, giving rise to the B tone.

Another possibility is that the language had no native words ending in *h* at all, and always had an independent B tone differing from A and C in other ways. Then, in borrowing the Indic forms with final *h*, the language assigned them to the D-long category, treating the final *h* like the final stops. Then after the tonal splits the *h* was lost, and the words fell into the phonetically similar B category. This latter possibility would, of course, completely negate our attempt to show that the B tone of early Tai had final *h*.

The evidence for final *h* on the B tone thus suffers two disadvantages: it is based on data from only one relatively small area of the Tai-speaking domain, and it is open to another interpretation.

We have now presented the evidence for final glottal stop on the C tone and final *h* on the B tone at earlier stages of Tai, such as it is and for what it is worth. If, in spite of the weaknesses of the evidence, we allow ourselves to speculate that Tai once had these two tones in addition to the plain A tone, and if other languages in the Far East and Southeast Asia such as Chinese and Burmese had similar systems, then a number of interesting questions follow.

For one thing, these would probably have to be called not tone systems but rather systems of contrasting phonation types or something of the sort. The way would seem to be made clearer to reconstructing for still earlier stages of Tai and Chinese a completely non-tonal phonological system. For another, one wonders what other linguistic families in the area may have had similar systems. The Miao-Yao family, we are told, had a three-tone system in earlier times.⁸ Might the three tones of this group also have consisted of a plain tone, a glottalized tone, and an aspirated tone?

So far as Chinese and Tai are concerned, the possibility arises that many of the old words occurring in both groups may have been borrowed in one direction or the other in precisely this period of similar tonal systems. It is interesting to note that Siamese *máa* 'horse', *hâa* 'five', and *kâaw* 'nine' (from earlier *kâw*) all have the glottalizing C tone in Tai, and the corresponding Chinese forms, I am told, have the so-called rising tone, which has been conjectured to have ended in glottal stop. And Siamese *sìi* 'four', with B tone in Tai, corresponds to a Chinese form with the so-called departing tone, conjectured to have ended in *h*. In this direction we may hope for enlightenment on the entire question of Chinese-Tai relationships. It seems possible that if the two families are genetically related, the common ancestor may have existed in some very remote age, perhaps even before the development of tones in either group. Any genuine cognates common to the two groups would surely have undergone such

changes as to become almost unrecognizable. The great number of words that are similar in Chinese and Tai, pointed out by many scholars, and the agreement in tonal categories pointed out in the examples above, might be due to borrowing in one direction or the other during the much later period of similar tonal systems that our speculations have led us to. Of course, competent scholars would have to check to see how many of the known examples of Chinese-Tai lexical similarity agree in tonal category in the way that 'horse' and the number words do.

It has sometimes bothered students of the Tai languages that we assume a tonal system for the parent language ABCD that survived intact for a fairly long period, perhaps several centuries, until, after the various languages and dialects were more or less in their present locations, the wave of tonal splits swept the area and affected each dialect differently, whereas on the other hand it appears that since the period of the tonal splits the tonal system of each dialect has been much more unstable, with many fairly rapid changes in pitch level and contour, and sometimes in the structure of the tonal system. It may be that a three-way system of phonation types of the sort conjectured has inherently greater potential for stability than does a tonal system of five or six or seven contrasting pitches and contours. To our conjectured picture of a vast area of the Far East and Southeast Asia sharing, regardless of genetic relationships, such a three-way system, one might compare the picture that Africanists give us of a large area of Western

Africa where unrelated language families are reported to share a three-level, tonal system, which may be analyzed in different ways from language to language depending upon the details in each case.

Our speculations on the tonal system of early Tai are offered as food for thought for Sino-Tibetanists.

Notes

1. E .G. Pulleyblank, "The Nature of the Middle Chinese Tones and their Development to Early Mandarin," 1977, typescript.
2. Li's evidence for the three branches was presented in two articles: "Classification by Vocabulary: Tai Dialects," *Anthropological Linguistics* 1-2 (1959):15-21; and "A Tentative Classification of Tai Dialects," in *Culture in History: Essays in Honor of Paul Radin*, ed. S. Diamond, pp. 951-59 (New York, 1960).
3. J. Marvin Brown, *From Ancient Thai to Modern Dialects* (Bangkok, 1965).
4. William J. Gedney, "Yay, a Northern Tai Language in North Vietnam," *Lingua* 14 (1965):180-93. [Reprinted in this volume.]
5. William J. Gedney, "The Saek Language of Nakhon Phanom Province," *Journal of the Siam Society* 58 (1970):67-87. [Reprinted in this volume.]
6. I should note that in my doctoral dissertation on Indic loanwords in Siamese, referred to below, I

failed to see this explanation and omitted the familiar word *lêe* 'trick' entirely. A number of other words in our present list were omitted there also because they are not common in the spoken language.

7. William J. Gedney, "Indic Loanwords in Spoken Thai," PhD diss., Yale University, 1947, 62-63.
8. G. B. Downer, "Chinese, Thai, and Miao-Yay," in *Linguistic Comparison in South East Asia and the Pacific*, ed. H. L. Shorto, 133-39 (London, 1963).