

TONOGENESIS AS AN INDEX OF AREAL RELATIONSHIPS IN EAST ASIA¹

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One of the anonymous publisher's readers of my new book, Middle Chinese, remarked: "The problem of substrata and diffusion is given little weight and internal development is taken for granted where many will see the results of outside influences, especially as regards the Altaic connection in the north and the Tai connection in the south." Since his report was otherwise quite favourable, I can hardly complain about such an expression of opinion. On the other hand, since my book is not concerned with the whole history of the Chinese language but simply with reconstructing the internal development of the phonology of the standard language over a period of several centuries, the point made by my critic, even if true, seems rather irrelevant.

Even if it could be established that some of the momentous changes that took place in northern Chinese during the first millennium and a half of the present era were induced by contact with Altaic speakers, it need not imply irregularity in the actual internal process of sound change. Old English evolved rapidly after the Norman conquest but for the most part the changes in its phonology can be described autonomously without explicit reference to other languages. A complete history of the language is another matter. The massive borrowings from French, and also Scandinavian, obviously have to be recognized. The changed social role of English no doubt also accelerated internal evolution and there may even have been specific foreign influences on the directions of sound change, though this is a much more delicate matter, on

which it is difficult to find much that can count as hard evidence.

In the Chinese case, one can admit for the sake of argument that, since groups of Altaic speakers have been politically dominant over parts of North China and even the whole of China at various times during the past two millennia, there could have been similar influences on the evolution of Chinese. Though it is a question that is relevant to a book I might have written (or somebody else, perhaps my critic, might write) rather than the book I wrote, it is an interesting question on which, I am well aware, much attention has been focused recently in certain quarters. It is even argued that the Altaic influence on northern Chinese has been pervasive since prehistoric times. I must say frankly that I am totally unconvinced.

Even in the comparatively superficial matter of lexical borrowings, the Mongols and Manchus, the two most recent groups of conquerors, have contributed hardly anything to Chinese vocabulary. Typologically Chinese, whether southern or northern, remains exceedingly different both in its phonology and its syntax from any Altaic language, as any beginning learner will soon discover. Tendentious arguments based on highly selective evidence to the contrary notwithstanding, there seems to be no basis whatever for the use of a term like "altaicization" to describe the changes that have affected northern Chinese in the last millennium, let alone the whole three or four millennia of its history as has been argued.

Northern Chinese has certainly evolved more rapidly than more southerly dialects, but this can easily be accounted for by internal factors, such as the greater ease of communications in the northern plains and the internal migrations caused by wars and natural disasters, for which there is ample historical testimony, without appealing to nebulous influences from the northern nomads beyond the frontier. At most one might argue that the

imperfect learning of Chinese by Mongol or Manchu officials accelerated the process of internal change and perhaps deflected it in certain directions, but one needs much more than the vague, impressionistic, arguments that have been offered so far to make one take even such claims very seriously.

What about the other side of the thesis, the claim that southern Chinese has been greatly influenced by a Tai substratum? This is, superficially at least, a more persuasive idea. Typological similarities between Tai and southern Chinese dialects like Cantonese seem obvious. Chinese and Tai speakers have lived side by side in Guangdong and Guangxi for centuries and it is quite likely that many who now identify themselves as Chinese are descended from Tais or from Chinese and Tai intermarriage. Nevertheless the question that must be asked is: what has been the main direction of influence? While there are undoubtedly substratum influences to be found in southern Chinese, there can be little doubt that preponderant movement has been in the other direction. It has been the politically and culturally dominant language, Chinese, that has influenced Tai and other languages within its orbit rather than the other way around.

Specific traces of Tai, or more specifically Zhuang, influence on Cantonese have been discussed by various scholars. Yuan Jiahua (1960:181) points out a handful of colloquial Cantonese words that appear to be of Zhuang origin. He also notes that certain Zhuang words referring to topographical features often appear in place names in Guangdong and Guangxi. Beyond this he suggests that the lateral fricative [ɬ] in Taishan dialect and, more generally, the presence of numerous vocabulary items with initial m-, n- and l- in upper register tones in Cantonese and other Yue dialects may reflect Zhuang influence. These are specific points that one can discuss.

The lateral fricative in Taishan corresponds in a quite regular way to Middle Chinese [s], which remains a sibilant in other Yue dialects. One can therefore treat the change of [s] to [ɬ] as a purely internal sound change. At the same time it is interesting to note that a similar change from [s] to [ɬ], [tʰ] or [ʈ] has also taken place in some Northern and Central Tai dialects (Li 1977:152). We are evidently in the presence of an areal phenomenon that crosses linguistic boundaries. To attribute the Taishan change to a Tai substratum is, however, hardly an adequate explanation, since common Tai *s remains in Siamese and many other dialects, including some in the north. The etiology of the change in both Chinese and Tai remains as difficult to determine as for any other sound change.

The other phenomenon mentioned by Yuan, that of upper register nasals and laterals, is not confined to Yue dialects. Even Mandarin has stray forms that violate the regular rules of phonetic development or have no known etymology. Do we look for Tai influence here also? It may be that the phenomenon is particularly evident in Yue but even here there may be possibilities of appealing to internal development that should not be overlooked. A case in point that I have referred to elsewhere is the Cantonese word *lɔt* (upper register) "slip off", which is undoubtedly cognate to Mandarin *tuō* 脫 "shed, take off", EMC *tʰwat* < ***tʰwat*, compare Tibetan *lhod-pa* "loose", Burmese *hlwat* "free, release" (1973:117). In this case an upper register *l-* in Cantonese may reflect a dialectal survival of an Old Chinese voiceless lateral.

There are no doubt other ways in which Cantonese and other Yue dialects resemble contiguous Tai languages. To what extent such areal features reflect substratum influences as opposed to local innovations that have crossed linguistic boundaries in one direction or the other remains a matter for case by case investigation. The much more sweeping claim that southern Chinese as

a whole has been profoundly altered by a Tai substratum seems to me totally untenable.

In the first place, it is quite unjustified to equate the pre-Chinese population of the whole of south China with the Tais, even if one widens this to include the more remotely related Kadai languages, Dong, Mak, Sui, etc. If my estimate of the prehistoric distribution of language families is correct, the Tais and Tai related groups probably never extended very far north of their present limits. The middle Yangtze drainage basin seems to have been the territory of the Miao-Yao family, while the Yue people along the east coast, who may have extended as far north as Shandong, were almost certainly speakers of Austroasiatic languages, of which Viet-Muong represents a southern remnant (Pulleyblank 1983). The identification of words of Austroasiatic origin in colloquial Min and even in written Chinese of the Shang and Zhou periods is one of the most exciting pieces of linguistic archaeology in recent years (Pulleyblank 1966, 1983a; Mei and Norman 1976). The possibility that an Austroasiatic substratum or adstratum played an influential role in the formative stages of the Chinese language in the preliterate and protoliterate period is of great interest but only future researches will show to what extent it can be turned into a hypothesis that can be seriously tested.

Fascinating as this possibility is, it has little bearing on the later relationship between Chinese and Vietnamese, in which Chinese has rather obviously been the dominant partner. Even before Vietnam, in establishing its national independence, adopted Chinese as its literary language, with a special Sino-Vietnamese system of pronunciation, there was a vast body of loanwords in the Vietnamese language. These have been noted and studied by many scholars from Maspero onward and have proved a fruitful source of information about Early Middle Chinese phonology. The many loanwords of

similar vintage in Miao-Yao and Dong-Tai show that Chinese was playing a similar role as the language of civilization among all the non-Chinese peoples that lay under Chinese domination in the period from Han to Tang (see, for example, Pulleyblank 1982).

This is such a simple and obvious point that it is overlooked by those who are intent on finding something more subtle and mysterious shaping the way in which northern and southern Chinese have diverged from one another over the centuries. Subtlety, and even mystery, do enter the picture, however, when we consider another common feature shared by Vietnamese, Dong-Tai and Miao-Yao, namely the identity between their tonal systems and that of Middle Chinese. This is no doubt one of the most striking cases of areal diffusion between languages of different genetic origin that one can find anywhere in the world. Indeed, it used to be assumed that, just because of their tone systems, these languages must somehow be genetically related. Tai and Chinese were grouped together as one branch of Sino-Tibetan and Vietnamese was thought to be originally a Tai language that had borrowed much vocabulary from Austroasiatic. Our views on the matter have changed since Benedict (1942) showed that the basic vocabulary of Tai was quite different from that of Chinese, perhaps related to Austronesian (though this remains highly controversial), and especially since Haudricourt (1954a) showed that Vietnamese was really an Austroasiatic language which had developed its tonal system in comparatively recent times.

Haudricourt's demonstration that the oblique tones of Vietnamese corresponded in regular ways to final glottal stop and final [h], from earlier [s], in non-tonal Austroasiatic languages introduced the concept of tonogenesis into East Asian linguistics. (The name came later -- Matisoff 1970.) It was not, to be sure, the first time tones had been correlated with

glottal features. It was already recognized that the tones of Middle Chinese had split into upper and lower registers based on the voicing of the initials and that similar register splits had occurred in Vietnamese and Tai. What Haudricourt did was to show that lexical tones could arise from glottal features at the end of syllables as well as at the beginning, and that previously non-tonal languages could become tonal in this way.

Haudricourt (1954b) also threw out the suggestion that the Middle Chinese tonal system had originated in the same way as that of Vietnamese. Though conservative scholars have resisted this idea, or tried to push it into such remote prehistoric times that it can be ignored from the point of view of Chinese studies, evidence has accumulated to show that Haudricourt's hypothesis was quite correct and, moreover, that the period of tonogenesis in Chinese must have been the first half of the first millennium of the present era.

The clearest evidence relates to the departing tone. Purely internal evidence from rhyming and jiajie or xiesheng contacts (the phonetic borrowing of graphs to write near homophones) had led Karlgren to reconstruct a final voiced *-d in many cases in Old Chinese corresponding to Middle Chinese final -i in the departing tone, alone or as the last element in a diphthong. I have been able to show that, over a period of six centuries, from around 100 B.C. to around A.D. 500, such words were regularly used to transcribe foreign words with syllables ending in -s or another sibilant. One of the earliest examples is Jibin 罽賓 EMC kiaj`-pjin < *kās-pīn for *Kaspira, i.e. Kashmir (Hanshu 96) (compare Greek Kaspeiria; the use of -n to represent foreign -r is common in the Han period). The latest are found among transcriptions of Sanskrit in Sanghabara's translation of the Mahāmāyūrī made at Nanking at the beginning of the sixth century (Pulleyblank 1979).

Even South Coblin (1981, 1983), who follows F.K. Li's Old Chinese reconstruction and rejects final *s, recognizes this correlation in his study of early Buddhist transcription made during the second century. Instead of *s, he reconstructs *t-, by which he understands an "allophone" of /t/, phonetically a dental spirant [θ], conditioned by some unknown factor that was responsible for the departing tone. The choice of [θ] in preference to [s] is difficult to understand. It seems to be an ad hoc guess based on no real evidence. In any case, to call it an "allophone" seems to be quite unjustified. The "unknown factor" to which Coblin appeals must have been either a segmental feature, in which case, a segment with this added feature must, by definition, differ phonologically as well as phonetically from /t/, or it must have been a suprasegmental feature such as pitch. As far as I know, no one has ever shown how such a suprasegmental feature can change a final stop allophonically to a spirant.

If we take a more common sense view of the evidence, it seems clear that during the period in question Chinese still had a final segmental sibilant in some of the words that appear in Middle Chinese with the departing tone. What about the departing tone in other Middle Chinese rhyme classes? That it was also ultimately derived, at least in part, from final *s seems assured by the morphological role of the departing tone in syllables of all kinds, which has been discussed by Downer (1956), among others, and correlated with the suffix -s of Old Tibetan by Forrest (1960).² As I suggested in 1962, already by the Han period *ks may have been replaced by a final velar fricative *x, later changing to *h, while *ps had merged much earlier with *ts and both had simplified to *s. After nasals *s was probably already replaced by aspiration. Not surprisingly, final *x or *h, alone or combined with a nasal, have left fewer traces than final *s in transcriptions and are therefore

harder to pin down. What does seem very probable is that in the fifth century A.D., when the "four tones" were first recognized and named by Chinese phonologists, at a time when *s still survived to a limited extent as shown by both rhymes and transcriptions, the common feature of "departing tone" syllables was not simply a matter of pitch but was the presence of syllable final friction, [s] or [h] or an aspirated nasal. The name "departing" was no doubt invented to take account of this, in contrast to "entering", which referred to syllables ending in a stop consonant (Pulleyblank 1973b).³

*The penultimate situation in the disappearance of *s may have been like the situation in modern Cambodian, where orthographic -s is still pronounced in formal reading style but is pronounced like /h/ in normal speech (Huffman 1970:23). Of course, Chinese did not have an alphabetic orthography to put a brake on phonetic change but the same kind of conservative, restraining, role was no doubt played by the formal school reading of classical texts.*

The hypothesis that the Middle Chinese "rising tone" was similarly derived from a final glottal stop is another natural inference from Haudricourt's finding for Vietnamese that I took up in 1962. It was developed further by Mei Tsu-lin (1970), who showed that a final glottal stop is still found in this tonal category in some southern dialects at the present day. Surprisingly, in his studies of Middle Chinese and Early Modern Chinese tone values Mei has assumed that, by the Tang period, this feature had completely disappeared and been replaced by pitch features in northern Chinese. As I have shown elsewhere, the contrary assumption, that glottalization, moving back into the syllable, remained an essential feature of this tonal category is a necessary one if one is to account for later developments. The well known tone shift rule, by which the "rising tone" was replaced by the "departing tone" after voiced obstruents, and the differential way in which

voiced stops and affricates devoiced in Mandarin, becoming voiceless aspirates in level tone and voiceless nonaspirates in oblique tones, is incomprehensible if we think of the tones purely in terms of pitch features but finds a natural explanation, along the lines of Grassmann's Law in Indo-European if we think of it in terms of assimilatory and dissimilatory processes going on between glottal features at the beginnings and ends of syllables (Pulleyblank 1978). If I am right, the creaky voice that is a regular concomitant of Mandarin tone 3 at its lowest point is a surviving relic of the final glottal stop out of which this tone developed in the first place. The tendency to final devoicing for which there is evidence in Mandarin tone 4 may likewise be a relic of *h in the "departing tone" (Pulleyblank 1984:58-59).

The second stage in the process of tonogenesis, by which the original four (including the "entering tone" as a separate category) split into upper and lower registers, can also be dated in Chinese from historical records. There is good evidence that it was going on during the Tang period (7th to 9th centuries) even though it was then still redundantly associated with voicing features of the initials (as it still is in Wu dialects). By the Yuan period (13-14th centuries) the voicing of initial obstruents had been lost, though there may still have been breathy voice associated with the lower level tone, as there is today in the corresponding huyền tone in Vietnamese (Pulleyblank 1978:196ff.).

There are no historical records by which we can directly date the processes of tonogenesis in Vietnamese, Tai or Miao-Yao. The fact, already alluded to, that the strata of early Chinese loanwords in all these languages show such perfect agreement in terms of tonal categories strongly suggests, however, that the evolution of the tonal systems in all four was approximately synchronous. Since there are no non-tonal Tai or Miao-Yao languages left in

the world, we do not, of course, have the same motivation as in the case of Vietnamese for assuming that their tonal systems were not primordial. If that were the case, however, it would be hard to understand how they could have matched the Middle Chinese tonal system so exactly. Moreover there is a good deal of comparative evidence from within Tai dialects that what is usually called Tone C is associated with final glottalization and evidence from the Siamese treatment of Indic words in -ha that Tone B words originally ended in -h (Gedney 1978). I don't know whether one could find the same kind of evidence in Miao-Yao but it is unlikely that this lesser known language group is an exception in this respect.

Assuming that the same process of tonogenesis was going on in all four language groups in the first millennium A.D., where did it start? The fact that Chinese was the language of civilization from which all the others were borrowing lexical items at that same period provides one rather weighty argument suggesting that Chinese was also the source for the crosslinguistic process of tonogenesis. It might still be argued that in the case of a presumably quite unconscious change in habits of speech production, a substratum might be as likely to provide the initial impetus as a superstratum. A further argument that makes it quite improbable, however, that Tai, Vietnamese or Miao-Yao initiated the process, which was then borrowed by Chinese, is that there is internal historical evidence that, in this respect as in others, northern Chinese was the leader in phonological change.

This emerges from the history of final *s in Buddhist transcriptions. As we have seen, the transcriptions of the 2nd century A.D., made in the north at Luoyang, still show abundant evidence that *s was present as a final segment. In the south this was still true in certain finals at the beginning of the

sixth century, as we have noted above. On the other hand, Kumarajiva, working at Chang'an around A.D.400, no longer transcribes Indian sibilants in this way and uses qusheng finals in -i where they could not have had such a value (Pulleyblank 1983:87). From this one can only conclude that the full development of the Middle Chinese "departing tone" occurred earlier in the north than in the south.

That Northern China should have been the leader in tonogenesis between Han and Tang, precisely when that part of the country was overrun by northern nomads more than at any subsequent period, is, of course, a paradox if one believes in the theory of "altaicization". In spite of the military domination of non-Chinese dynasties, there is every reason to believe that the prestige language in government as well as in all cultural activities remained overwhelmingly Chinese, which went on evolving in its own way largely unaffected by the languages of the Xianbei and other tribes.

Clearly it must also have been Northern Chinese that led the way in the second stage of tonogenesis, the register split. The standard language during the Tang period was based on the Chang'an dialect and the historical evidence for the register split at this time, referred to above, refers mainly to the north. By Northern Song the northern standard language had devoiced the Middle Chinese voiced obstruents. It is only south of the Yangtze that dialects still preserve fully or partially voiced obstruents.

What led to the process of tonogenesis in Chinese? This is the kind of question that will probably always remain unanswerable. My own guess, for what it is worth, is that it is an aspect of a long term trend towards monosyllabic compression which also led to the fusing of presyllables into initial clusters and of initial clusters into single segments, to the fusing of suffixes with syllable final consonants, and to the progressive reduction in final consonant types. Such a tendency seems to have been going on

steadily in Chinese throughout recorded history.

A contrary, compensatory, movement towards polysyllabism, through the formation of compounds with neutral tone on the second, unstressed syllable, has emerged in forms of the language in which reduction in monosyllables has been carried to an extreme, but it seems quite possible to account for this also by the internal dynamics of the language without appealing to any nebulous external causation.

A point to which attention must also be drawn, though I shall not elaborate on it at length here, is that the common process of tonogenesis shared by these four genetically unrelated language groups in the first millennium A.D. implies an earlier period of convergence in syllable structure. That is, they must all have been effectively monosyllabic, with the same three way contrast in unstopped syllable finals. Beyond this, there are other striking correspondences between the syllable structure of Early Middle Chinese, as I now reconstruct it, and both Vietnamese and Tai. Thus, I now reconstruct back unrounded /ɤ/, and the corresponding diphthong /ɤa/, in EMC. If I am right, only Chaozhou shows a direct trace of these vowels among modern Chinese dialects, though they are still found in Vietnamese and Tai. According to my analysis, this pattern, with the corresponding front /i/ /ia/ and back-rounded /u/ /ua/, probably emerged in Chinese during the Han period. Like the process of tonogenesis, it probably began spontaneously within Old Chinese and spread as an areal phenomenon to other contiguous languages to the south. Subsequent changes have almost wiped it out in China itself but it survives outside of Chinese on the southern periphery. The arguments for reconstructing EMC in this way are included in my book (1984).

The process of tonogenesis that began in China in the first half of the first millennium and spread to the contiguous languages within the Chinese orbit to the south, has since spread further, affecting, on the one hand, many forms of Tibetan and, on the other hand, Burmese and other Tibeto-Burman languages. That such developments are later than the primary movement of tonogenesis within Chinese territory seems clear both from the historical evidence of Old Tibetan and Old Burmese, which reveal languages that were either nontonal or only incipiently so, and from the fact that they do not show the same detailed correspondence to the Chinese system that we find in Vietnamese, Tai and Miao-Yao. Another ripple of the same phenomenon may be responsible for the development of register distinctions in Mon and Khmer. How such a trend can spread across linguistic boundaries in this way is an intriguing puzzle, on which I shall not venture to make any guesses.

Footnotes

¹This is a revised version of a paper given at the 17th International Conference on Sino-Tibetan Languages and Linguistics in Eugene, Oregon, 7-9 September, 1984.

²It is possible that Old Chinese had a suffix *t, cognate to Tibetan -d, which merged with *s, and that there may also at a remote period have been other final fricatives, such as *x, which, like *s, gave syllable final aspiration resulting ultimately in the "departing tone". Such complications have no bearing on the discussion here.

³Something should be said about L. Sagart's paper, "On the departing tone", also presented at the Eugene conference, which criticizes the assumption, based on Haudricourt's hypothesis, that the departing tone went through a stage in which it was characterized by final aspiration. Sagart

proposes instead that the Middle Chinese departing tone was characterized by "a high degree of glottal constriction throughout the final", in contrast to the rising tone, which was characterized by "clear, modal voice and final glottal stop."

In the first place Sagart's claim that there is no comparative evidence for supposing an -h stage seems rather strange in view of Haudricourt's demonstration that the corresponding tone in Vietnamese often corresponds to -h in other Austroasiatic languages. That a final -s can be replaced by -h is also directly attested synchronically in Cambodian (Huffman 1970). Even the negative claim that no modern Chinese dialect shows a trace of final -h associated with the departing tone may not be true. The perdendosi quality of Tone 4 in Mandarin, which can lead to devoicing of the vowel in a following neutral toned syllable (Chao 1968:37), may be just such a reflection (Pulleyblank 1984:59). Sagart is wrong in claiming that I incorrectly predicted that entering tone words with Middle Chinese voiced [sic -- read: voiced aspirate, or voiced obstruent] initials should have given aspirate initials in Mandarin. I argued that voiced aspiration of initial segments not only assimilated the final glottal stop of the rising tone, changing it to departing tone, but also spread to the final segments of entering tone words, so that the latter ultimately had the same dissimilatory effect on voiced aspirate initials as did the final aspiration of the departing tone (which I further assumed had become voiced [h], i.e. a murmured, or partially voiced, continuant at this stage). Though it is difficult to find direct evidence to test the hypothesis, it accounts for the facts and does not seem to be phonetically impossible. Final, as well as initial, voiced aspirates are found in Indian languages. The representation of Sanskrit visarga by /k/ rather than the departing tone in Tang dynasty transcriptions cannot be

understood without taking into account that the final segments in entering one syllables were almost certainly not pronounced as stops at this period but as some kind of fricatives. If final /k/ was actually [x] ([xh̥] after voiced aspirate initials), it would, presumably, have been felt to be a better equivalent for Sanskrit voiceless [h] than the voiced [h̥] of the departing one.

It should be noted that Gedney's argument for deriving Tone B in Tai, which corresponds to the Chinese departing tone in early loanwords, from a final segment refers only to -h and not to -s. Nor does there appear to be any Tai evidence for glottalization in this tone category.

Sagart's assumption that final -s passed directly to glottalization of the vowel seems phonetically rather implausible. Even if one were to allow it as a possibility for the sake of argument, one must surely admit (a) that a change of -s to -h is at least as possible, being well supported by parallels in other languages and more easily understandable in terms of the features involved -- shift from an alveolar voiceless fricative to a laryngeal voiceless fricative, (b) that replacement of final -h by glottalization of the vowel, which involves no shift in place of articulation but merely the substitution of one kind of laryngeal feature for another, should also be possible. In spite of Sagart's presentation, I still think this is the more likely explanation of the glottalized reflexes of the departing tone in some dialects. Sagart's evolutionary schema also makes it hard to see how the departing tone could have existed as a recognizable category when -s survived in only a small number of departing tone rhymes and had been lost in others. Yet this is the situation that evidently existed in South China in the fifth century at the time when the four tones were recognized and named.

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