A THIRD PILLAR OF THE ALTAIC HYPOTHESIS*

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The much-mooted hypothesis, original with Ramstedt (1912) and later refined by Poppe (1960), to the effect that a number of Altaic etymological sets in which certain Mongol intervocalic velars appear to correspond directly to Turkic intervocalic labials are to be explained in historical-phonological terms by postulating the earlier existence in the original language of a suprasegmental conditioning factor, probably a movable feature of pitch, is reinvestigated in the light of the Middle Korean written records; these texts preserve overt evidence for the inheritance of this same conditioning factor in their lexically significant tonic accent notations.

Key words: Altaic reconstruction, Mongol–Turkic comparison, historical phonology.

The flurry of disbelief and abuse that greeted the publication of Poppe (1960) is too well known and too fully documented elsewhere to require recapitulation. Suffice it to say that the thorough-going hostility that almost immediately surfaced in the literature concerning Poppe's reworking of Proto-Altaic phonology soon discouraged him from continuing with the publication of the important series in which his 1960 *Lautlehre* was to be only the first of several volumes.

Most of the negative criticism directed against Poppe (1960) was of a general nature, only rarely focusing upon specific points in his reconstructions. One exception, however, was his attempt to account for a set of what were essentially Mongol–Turkic comparative etymologies (although cognate forms from other languages as well frequently played a part); in these a voiced velar of one variety or other in Mongol appeared to correspond either to a voiced or to a voiceless labial stop in Turkic. Many of these etymologies had been commonplaces in the Altaistic linguistic literature for decades; but what was novel about Poppe's treatment of these materials – and what now in particular drew down upon his head the wrath of most of his reviewers – was his proposal to account for these *-γ- / -g- :: -p- / -b-* etymologies by postulating

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the existence, in the earliest stage of Proto-Altaic, of a suprasegmental feature of pitch or tone.

According to Poppe, even though this feature had subsequently been lost in all the languages that he compared it could still be identified, traced, and indeed reconstructed on the basis of these velar *vs.* labial correspondences. In Poppe's system the occurrence or non-occurrence of this suprasegmental feature before or after an original voiced or voiceless labial stop was the conditioning factor responsible for the different inheritances of this stop, sometimes as a labial, sometimes as a velar, in the various branches of Altaic; thus it also followed that once the identity and location of the suprasegmental had been correctly reconstructed, despite their apparent juxtaposition of velars in one branch of Altaic with labials in another, the reflexes in the cognates were *ipso facto* regular (1960, pp. 42–49).

At least two reasons may be identified for the generally negative reception accorded this postulation. One, perhaps the more significant, had to do with the frequently ambiguous and sometimes less-than-clear descriptive terminology that Poppe employed in several passages of his *Lautlehre* where he dealt with this problem. There can be no doubt that Poppe himself had a precise programmatic description in mind when he wrote of these matters; nevertheless, it is not always easy to follow either his description or his argumentation.

Several elements conspired together to result in this lack of clarity, entirely uncharacteristic of the bulk of Poppe's prose. Probably the most important was his reluctance clearly to separate the criterion of 'stress' (his '*Druck*') from that of 'pitch' (his '*Ton*' or sometimes '*Hochton*'). His own specific descriptive statements concerning Mongol in particular make it clear that the former must be treated as a purely phonetic, i.e., a non-phonological phenomenon in the later languages, and hence relegated to a non-significant role in the reconstruction of the original language. But this Poppe did not always do.

Nearly equal in importance was his hesitation to isolate 'quantity', i.e., vowel-length from the criterion of 'pitch' – and since 'pitch' was frequently less-than-satisfactorily isolated in his postulation from 'stress', this in turn unfortunately meant that the *Lautlehre* frequently discusses all three elements, 'pitch', 'stress', and 'quantity', in a somewhat ambiguous fashion.

Throughout his long scholarly career, Poppe was always reluctant to encounter, much less to encourage, polemic; and as a rule he was equally unwilling to propose descriptions or historical solutions that ran counter to received views, especially when such descriptions or solutions would have made it necessary to employ terminology unfamiliar to most other European orientalists. He also, in large measure because of this same reluctance to depart too far from received views, tended to be uncomfortable when dealing with historical reconstructions that were not closely parallel to specific features in attested, ideally in living languages. This in turn, and not without the involvement of a certain amount of circularity, led him to more than one unfortunate conflation of 'quantity', 'stress', and 'pitch' in his descriptive as well as in his historical statements.

The result was that the Poppe (1960) account of these three phenomena in the Altaic languages – together of course with the account of his hypothesis concerning the Mongol–Turkic velar *vs.* labial consonantal correspondences – more than once shifts without overt warning from one level of historical-linguistic discourse to another, mingling non-phonemic elements, particularly but not entirely limited to 'stress', with essentially phonological factors, notably 'quantity' and 'pitch'.

Nevertheless, in his treatment of these critical velar *vs.* labial correspondences, Poppe finally settled (to rephrase his statements in our terms) upon the reconstruction of a suprasegmental conditioning factor that in the original language immediately followed the original phoneme in question; and this original phoneme he reconstructed as a labial voiced stop *-b-, itself the result of the falling-together in this position of an earlier *-p-, *-b- contrast. But about the phonological, not to mention the phonetic, identity of this conditioning factor he was consistently ambiguous, generally (but not always) reconstructing it as earlier vowel-length that in turn derived from still earlier tonic pitch on the vowel in question.

In setting forth this hypothesis concerning the postulated earlier existence of a phonologically significant suprasegmental conditioning element or factor in Proto-Altaic – an element not, so far as he knew, documented for any of the later languages but evidence for which he believed could be identified in correlations on the segmental level within the consonantal inventories of the later languages – Poppe wrote in what we may now recognise as carefully chosen terms, as if he were always aware (as surely he was) that this idea would meet with a cold if not hostile reception in many quarters, and being as always concerned to avoid controversy and polemic whenever and wherever possible. Unfortunately it was this very attempt at an irenic presentation of his hypothesis that led to unintentionally ambiguous presentation and descriptive remarks in more than one passage in his *Lautlehre*. Ironically, these passages have not helped to clarify his views, while at the same time they have provided grist for the mills of those determined to oppose his hypothesis, not to mention the entire concept of an original Altaic linguistic unity, no matter what the terms in which these were presented might have been.

For our purposes, it is best to recast Poppe's presentation of his hypothesis in the following terms:

Poppe (1960) proposed that the Mongol–Turkic intervocalic velar *vs.* labial correspondences documented in his etymological examples represent the reflexes in the later languages of these two branches of Altaic of original Altaic *-p-, *-b- when found immediately before a long vowel, in which position these two phonemes had still earlier fallen together into a unitary *-b-. This, he further argued, was in significant contrast to the reflexes of this same Mongol–Turkic consonantal correspondence when it was found before a short vowel, where the two original intervocalic labials of the proto-language did not fall together, and hence maintained their separate identities in the later languages. Finally, he sketched a historical-phonological and historical-phonetic scenario describing what he believed to have been the most probable course of events, involving at various stages both phonological oppositions in phonemes and phonetic differences in pronunciation, to help bridge the obvious ar-

ticulatory gap between labials and velars involved in the Mongol–Turkic correspond-ences at issue. In this connection he suggested that once Altaic *-p-, *-b- had fallen together as secondary *-b-, the pronunciation of this *-b- when immediately before a long vowel was spirantised to [w] or [β], and further that either or both of these phones was soon thereafter delabialised to yield Mo. [γ] "shortly before the introduc-tion of the Mongol orthography".

Over and above these problems in the presentation of his hypothesis in his 1960 *Lautlehre*, a second reason for the negative response that it received in the Al-taistic literature must be described, if only briefly, since it too played an important role in the hostile reception of the book, and eventually of Poppe's hypothesis. This had to do with the fact that few Altaicists then (or now?) were sufficiently familiar with details of other early linguistic reconstructions. As a consequence they did not realise that the confrontation of velars in one branch of a language family with labials in another was no more than a problem that had already been confronted and success-fully surmounted in more than one non-Altaic linguistic situation. Most relevant, of course, is Indo-European, where the reconstruction of a series of labio-velars ac-counts for such cognates as Grk. τίς, τιοῦ, Lat. *quis*, *quod*, Hit. *kwis*, Skt. *kas*; Grk. βοῦς, Skt. *gaus*, OE *cū*; Grk. βίος, OIr. *beo*, OHG *quek*.[1] It is significant to note that E. D. Polivanov, one of the pioneer students of the relationship of Korean and Japa-nese to the so-called "inner" Altaic languages, early devoted considerable attention to the phonological assumptions and structural implications of this well-known Indo-European reconstruction praxis, though oddly enough without reference to the spe-cific problem with which we are here concerned (1927; reprt. 1968; trsl. 1974, pp. 71–72). His discussion, which centers upon the somewhat ephemeral concept of the "dif-ficulty of [certain] sounds" in certain languages, hardly advanced the understanding of the problem; nevertheless it is notable not only for its date but also for its vision. Later studies of typological parallels in other language families such as that of Wes-termann (1949) for Twi, and in particular the analysis of the historical implications of these Indo-European correspondences in terms of a so-called "phonological chain reaction" by Allen (1958), have done more to advance our understanding of what here must have "taken place in history".

Poppe of course knew of the reconstruction of the Indo-European labio-velars; nevertheless, he correctly anticipated that his hypothesis about how labials in one branch of a language family might be directly related by reconstruction to velars in another would be greeted with disbelief. This is why he took pains in his *Lautlehre* to

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[1] The survey in Szemerényi ([4]1990, pp. 62–69) of significant contributions from among the enormous bulk of the literature on the I.-E. labio-velars may be consulted with profit. Also useful is Allen (1958), particularly his curt dismissal of critics like J. Whatmough who against all the evi-dence always maintained that the I.-E. labio-velars never existed. These views can only put us in mind of Sir Gerard Clauson, who in publications too numerous to cite consistently maintained that the reconstruction of Proto-Altaic *p-, that earliest and most thoroughly documented Altaic pho-neme, was "*prima facie* unlikely". Perhaps the most significant of Ramstedt's early Altaic com-parative studies was his reconstruction of this *p-; thus it is particularly curious to find this achieve-ment both misunderstood and denigrated as a "minor article" in modern Finland (Halén 1998, pp. 244, 245).

point out, in no uncertain terms, "[d]as ein Labial ein *g* ergeben kann, kann man an Hand des solonischen Materials beobachten", with a citation of his own 1931 study of Tungus Solon (1960, p. 42). But this uncharacteristically blunt statement, not to mention the source-materials on which it was based, mostly went unnoticed.[2]

Nor was this the only passage in the *Lautlehre* to be so treated. Few reviewers of Poppe (1960) took the trouble to read his book with the care it deserved. In most cases they had made up their minds about "Altaic" well in advance and now simply took advantage of its publication to denigrate the overall concept of an original Altaic linguistic unity in general, and Poppe's contribution to the reconstruction of the same in particular. There were exceptions. In a few cases reviewers did focus attention upon this particular feature of Poppe's Proto-Altaic phonology. Doerfer's review (1963, p. 416) cautiously made reference to this "sehr interessante Akzentlehre". But he did not elaborate either upon the doctrine itself or upon his reaction to the important role that Poppe now assigned to it in his overall Altaic phonological panorama; and it soon became clear in his later work that Doerfer did not agree with the proposition of suprasegmentally-determined reflexes implicit in Poppe's analysis. Soon etymologies in which this proposition of Poppe had played a critical role were routinely cited by Doerfer but with other explanations for the velar *vs.* labial juxtapositions of their Mongol–Turkic constituent elements, and with no hint of Poppe's hypothesis. Doerfer, in a word, had found all this "very interesting," but he never took it very seriously.

Others were not even this kind. Meyer's (1966, p. 113) stress upon what appeared to her to be the *ad hoc* nature of Poppe's suprasegmental hypothesis was only a small part of her rigorous criticism of virtually every aspect of the *Lautlehre*. Thomsen (1963, pp. 235–237; 1970, pp. 353–355; 1987, pp. 176–177) at least did Poppe the honour of addressing the question directly and at length, but like too many others who touched upon this question in the literature he too believed that the Mongol velars in question never had been real elements in the phonological inventory of the language. Instead, for him they were merely an orthographic convention, no more than late graphic devices for writing a hiatus that in his view early on had replaced still earlier velar spirants that had been the original and unambiguous reflexes in that branch of Altaic, where they somehow corresponded directly and simply (but in a manner never explicitly explained!) with the Turkic labials that also by then had con-

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[2] This was an allusion to Poppe (1931, p. 103). The importance of that publication for establishing the historical "reality" of these intervocalic labials was pointed out once more with further references to the literature in my 1981 review of Haguenauer, to which now also add (1989b, p. 230). (Those surveys of the relevant literature did not however include Vladimircov [1929, p. 103], who had also early taken note of a K'i-tan cognate.) In that literature, Cleaves and Mostaert several times questioned Menges' tentative etymology for the K'i-tan form (though without citation of Vladimircov, which none of the three apparently had available). In the light of subsequent studies, however, Menges' suggestion that the **caγu* 'troops, soldier' of the texts might be related to Trk. *čab-či-* 'cut, slaughter; mow' now seems not at all unreasonable. Haguenauer's proposal to explain OJ *tuFa* 'id.' as a borrowing from Manchu is of course completely impossible; in fact, the Old Japanese form (> NJ *tsuwa(mono)* 'soldier') may be explained as a completely regular reflex of the Altaic original proposed by Menges, with *-F-* for the problematic Proto-Altaic **-b-*.

veniently been spirantised. Hence there was no problem here to solve, and in particular no need to invoke suprasegmentals.

No matter that this scenario of historical change postulated the phonological-critical existence of "hiatus", i.e., a phonological null and/or a phonetic nothing, as the all-important lynch-pin upon which everything else hinged – even less that it offered no explanation for why this change apparently only took place sometimes, while at other times and in identical environments it did not. With a phonological nothing, the null or zero-phoneme of hiatus, at its centre this scenario was remarkably lacking in explanatory power.[3] But since it superficially appeared to contradict Poppe's rigorously neo-grammarian reconstruction principles it was welcomed by many, and so played a major role in eroding scholarly confidence in his Altaic reconstruction in general, and of course in this particular facet of that same reconstruction in particular.

As one reads the literature that deals with this question it soon becomes unclear whether or not the critics of this particular segment of Poppe's reconstruction ever realised that, like so much else in his work, what he proposed here was far from being entirely original with him. Instead, it consisted of a well-considered, meticulously culled and carefully reworked recasting of an idea that had originally surfaced in a remarkably early publication by Ramstedt (1912).

In the mere six short pages of that contribution, Ramstedt had effectively set forth the essence of a hypothesis that in one form or another would frequently surface in his Altaic work throughout the rest of his scholarly career, and that would also eventually find its final recapitulation and fruition decades later in Poppe's *Lautlehre*. At the same time that one is struck by Ramstedt's insight into this basic problem in the reconstruction of the original Altaic phonology, one cannot overlook the curious fact that, of the many later notices and cautious rephrasings of this proposition that are found in Ramstedt's work, none is as simple and direct – and hence also none as striking and convincing – as his original account of the data relating Mongol to Turkic and Tungus with which he concluded his paper: "In einer vorschriftlichen Periode muß sich dies *w in einigen Fallen aus *b entwickelt haben, vgl. *tábun ~ *tawúlan, *qab-ti ~ qawá-, *tab ~ *tawá u.a. … Nur so erklären sich auch tü. qap- ~ mo.*qawá- … , tü. tap- ~ mo.*tawí- > taĭ-, tü. jap- ~ mo. *dawá- > dā-, tü. *jap- ~ mo. *niwá- > ńā-, tü. tap- ~ mo. *tewé- > tē- u.a." Since Ramstedt's "*w" in this passage represented, *inter alia*, his initial reconstruction for the correspondence of Mongol velars with Turkic and Tungusic labials, it remained only for him to add the significant conditioning factor of a suprasegmental element. This he did in virtual silence, without attempting to identify or describe it further, in the form of the acute-accent mark that he added to his reconstructed forms, e.g., *tábun ~ *tawúlan etc., as

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[3] The theoretical as well as the practical, i.e. orthographic problems involved in recognising a grapheme as a writing for null are explored in Miller (2001a), with particular attention both to the ḫPhags-pa orthography of Middle Mongolian and to the 15th-century peninsular adaptation of ḫPhags-pa for writing Middle Korean texts. Late in his career Poppe (1976, p. 476, note 13) wrote of the Middle Mongolian "hiatus" in terms that might be understood to mean that he had abandoned his position on the phonological reality of the Mongol velar-members of these Mongol–Turkic sets; this typically irenic gesture was later quoted against him (Doerfer 1993, pp. 82–83).

cited immediately *supra*. And with this he was ready to conclude, in a short passage that must rank as one of the truly seminal statements in the entire history of Altaic historical linguistics, as follows:

> Wir können hier einen Akzentwechsel konstatieren, der dieselben phonetischen Wirkungen gehabt hat wie im Germanischen das 'Vernersche Gesetz' und im Finnisch-Ugrischen der 'Stufenwechsel, Setäläs' (1912, p. 187).

Even today, despite the passage of almost a century, it would be difficult to put the matter more simply or more accurately. Surely it was no accident that Poppe, in his obituary notice of Ramstedt (1951, p. 319), paid particular tribute to this otherwise generally overlooked early reference to this problem and its probable solution. For Poppe, Ramstedt's 1912 proposition for relating a Mongolian velar with a Turkic labial in the evidence for the etymon that we shall below discuss under the rubric ENCLOSE,[4] a proposition that Poppe himself followed in 1960 in almost all particulars, represented a significant early high-water mark in the history of Altaic comparative linguistics, as well as an important accomplishment for his Finnish mentor; this was because, as Poppe expressed it, with this etymology Ramstedt, advancing beyond his then-special field of Mongol, had succeeded in "invading the field of Altaic linguistics".

Poppe's principal teacher, the Mongolist V. Ja. Vladimircov, had probably first brought Ramstedt's paper on this topic to his student's attention. More than one passage in the first (and sole) volume of his comparative Mongol grammar (1929) shows that he was not only familiar with Ramstedt's hypothesis but also, in the main, accepted its implications for the history of the relationship of Mongol to the other Altaic languages.[5] Meanwhile, another important contribution also played a signifi-

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[4] Including citations for all cognates proposed or otherwise discussed in connection with the etymologies relevant to the present discussion would have exceeded not only the space available for this paper but also the patience of the reader. Accordingly each etymon, with a few necessary exceptions, has been summed up in an overall semantic gloss in MAJUSCULES. These glosses together with the literature cited make it possible for the reader to verify further details of each etymology as necessary.

[5] The title pages of Poppe's *Lautlehre* identify it as only *Teil 1* of a projected *Vergleichende Grammatik der Altaischen Sprachen*; and the "Vorwort", dated Seattle, 29 I 1959, promised, "[d]er hier erscheinenden vergleichenden Lautlehre soll später eine vergleichende Wortbildungs- und Formenlehre folgen" (1960, p. [xi]). That this did not happen is probably the most concrete evidence we have for the disappointment and discouragement that Poppe experienced as a result of the hostile reception accorded his *Teil 1*. The extent to which Poppe's treatment of the problem here under consideration was influenced by Vladimircov's views remains to be studied in detail; the materials are available but somewhat self-contradictory. Poppe (1933, p. 568), reviewing the original publication of Vladimircov's comparative grammar, wrote approvingly of his teacher's attempt in that contribution to relate phonological change to social developments, "… connect[ing] his phonetical deductions even with the data of social life" (p. 8 of the English abstract appended to the original, but now omitted in the otherwise complete 1989 Moscow reprint). Later Poppe wrote of these same passages as "surprising… [and a] rather phantastic theory that the different developments had been due to the transition of the ancient Mongols from a hunting economy to animal husbandry" (1962, p. 3), especially so since Vladimircov "had accepted these observations of Ramstedt", and citing

cant role in all this, Pelliot (1925). Almost hidden away as a long footnote to that already long paper (p. 248, note 2) was to be found the French orientalist's considered opinion on this historical-phonological problem, couched in cautious terms but also characteristically embodying massive evidence deriving from his magisterial command of the sources.

Pelliot had noticed that contrary to the assumption, then (as now) generally accepted by European orientalists, to the effect that most (but curiously, not all!) cases of WMo. -γ- / -g- were historically nothing more than an attempt to write intervocalic hiatus, and thus in effect were to be understood as writing nothing, the transcriptions of Middle Mongol by the Arab philologists sometimes, though to be sure in only a few words, did not in fact have null in these intervocalic contexts but instead wrote -h-. The question, of course, was why, if the Arab philologists heard nothing, they persisted in writing something. And equally important as Pelliot's acute observation of the data on this point was his inventory of the forms themselves in which he found this to be true: at issue were the etyma STEPPE, BAY-HORSE, and FOAM. But it was precisely in order to accommodate the details of the sound correspondences for these three etyma (among others, to be sure) in Mongolian and Turkic, as well as in a number of forms in Tungus as well, that Poppe, following Ramstedt and Vladimircov in their turn, had in 1960 proposed reconstructing his controversial and widely rejected suprasegmental-conditioned scenario of phonological change in Proto-Altaic.

In spite of the virtually wholesale rejection of Poppe's proposition by the reviewers of his 1960 phonology, his formulation has continued to exercise a ghost-like existence in the literature, carrying in its wake, as it were, traces of Pelliot's findings as well.

Doerfer, who had first remarked that the Poppe reconstruction was "sehr interessant", appears never to have touched upon the basic question of its theoretical keystone, Ramstedt's 1912 postulation of segmental phonological change determined by a suprasegmental feature, i.e., an "Akzentwechsel". Sometimes the phonological details in Doerfer's echoes of Poppe's hypothesis are vague and impressionistic, e.g., his references to "ein schwacher (mit "β" wechselndes) "b", das wahrscheinlich auf *p- zurück geht" (1985, p. 165, note 44); at other times he cites "Middle Mongolian" forms with the all-important -h- that Pelliot had discovered but with no indication of their sources (1985, p. 93: mmo. *kehäli* 'Bauch'; p. 94: mmo. *kehar* 'Steppe'; p. 136: mo. [*sic!*] *ǰihar* 'starker Geruch', *inter alia*), also with no comment upon their significance and no reference to Pelliot or Poppe. Pelliot's list of the -h- words, or at least parts of it, also found its way into the posthumous publication of Ramstedt's *Nachläße*

Ramstedt (1912) in contradiction to Vladimircov (1929, p. 216). But the specific passage that Poppe signalled out here hardly supports his allegation, nor do the several other passages, especially pp. 274–279, in which Vladimircov touched upon the possibility of different suprasegmentals as explanations for Mongolian phonetic developments. Pending a more complete survey of the problem, at the moment it seems fair to suggest that while Vladimircov certainly took Ramstedt (1912) into consideration he hardly can be said to have "accepted it" in the sense of having used it for clarifying this central problem of Altaic historical phonology; that task remained for his student Poppe to accomplish.

(e.g., 1957, pp. 89–91), but here again only in an unfortunately truncated fashion that supplies no information about the details of its source, and no guidance concerning its potential for the larger understanding of Altaic comparative phonology.

These incomplete and indeed half-hearted echoes of Poppe's hypothesis that have surfaced time and time again in the literature since 1960 have, if anything, done more to discredit Poppe's approach to the problem at issue than any of the many negative reviews of his *Lautlehre*. They have left the impression that Poppe dealt in theories involving vague, "careless" mispronunciations of early and/or reconstructed phonemes; they suggest that in solving critical problems in the historical-phonological scenario of Altaic he considered it sufficient to have recourse to some variety of "weak" articulation of "indistinct" phonemes; and they dismiss out of hand his essential neogrammarian position, namely that the first task of historical phonology is to identify the specific conditioning factors or elements that may be correlated with the later and apparently diverse surface realisations of what must be assumed to have been single, or at least discrete, phonological elements in the earlier system.

To date, Starostin (1991) remains the sole contribution to the literature to have met this challenge. He too rejected Poppe's hypothesis, as well as his reconstructions for the original forms involving the Mongol–Turkic velar *vs.* labial correspondences. However, he expressed this disagreement not in the usual general terms of vague scepticism but in a concrete attempt to refute Poppe, reinforcing the reconstructed Altaic phonological system with an additional set of consonantal correspondences that might account for the data without having recourse to the postulation of suprasegmentals as an essential conditioning factor. In the process, it scarcely need be pointed out, he not only departed from Poppe's position but also effectively abandoned Ramstedt's 1912 postulation of an "Akzentwechsel" to be identified at the heart of the entire problem.

Starostin's discussion is the only such episode in the Altaic literature to date to deal directly with the data concerned. All the other critics of Poppe's position have contented themselves with attacking the results of his reconstruction and the conclusions that he derived therefrom, rather than themselves attempting to account for the data at issue in some other fashion, e.g., by improvements in his reconstructions. Starostin's alternative proposal represents a by-no-means trivial advance in the conduct of comparative Altaic studies; one can only speculate why such reviewers as Comrie (1993) passed over it in total silence.

Unfortunately, and despite the great credit due Starostin for his independent and responsible approach to this question, his results do not upon closer examination represent a significant advance over Poppe's solution; as a consequence we must also conclude that abandoning Ramstedt's "Akzentwechsel" on the basis of Starostin (1991) would be premature.

Focusing his attention quite properly upon the most easily identified weakness of Poppe's formulation, i.e., the postulation of a contrast between short *vs.* long vowels, resp., tonic *vs.* atonic syllables, immediately following the original consonant(s) in question, as the suprasegmental conditioning factor in the developments observed in the data and documented in the cognate forms, Starostin has sought entirely to

remove the problem both from the phonological realm of vowel-length and also from any putatively contingent suprasegmental factor. Instead he would reorder all the data relating to these velar-labial consonantal correspondences into an expanded triple-contrasting system of original Altaic stops.

In other words, instead of working like Poppe with Altaic *-p- and *-b- as the two sources of the reflexes in question, Starostin attempts to restate the problem in terms of three labial stops, his *-p'-, *-p-, and *-b-, a three-tier consonantal recon-struction proposal that is initially set forth as part of Starostin's overall treatment of what he dubbs the "phonetic" [*sic! 'fonetičeskije'*] correspondences among Turkic, Mongol, Tungus-Manchu and Korean" (1991, pp. 5 ff; pp. 14–15) (hereafter: *Introd.*).[6] He argues that redistributing the data for the lexical correspondences to be observed among these, his three Altaic labials, rather than among Poppe's two labials obviates the necessity for Poppe's suprasegmental hypothesis with its consequent "strong" and "weak" positions as phonological conditioning factors; he then procedes to illus-trate this postulation of an original three-tier labial system with two etyma illustrating *-p'-, and three each for *-p- and *-b-.

This initial brief statement of Starostin's system is partially amplified by a fair number of etyma scattered throughout the remainder of his 1991 study; these may by located by means of his list of 595 Altaic etymologies (1991, pp. 274–297) (here-after: *List*).[7] From this list it is in turn possible to glean a total of 27 etyma that pur-port to document Starostin's three-tier system for this critical segment of the Altaic phonology. By way of comparison, it is interesting and perhaps even important to note that Poppe's original formulation (1960, pp. 42 ff.) had 6 etyma with his *-p- and 10 etyma with his *-b- in what he called the "strong" position, i.e., immediately be-fore a vowel with a suprasegmental conditioning factor and/or length resulting from the same, along with 18 etyma with his *-p- and 18 etyma with his *-b- in his "weak" position, i.e, the absence of the same – in other words, a total of 52 etyma, or roughly twice the total of Starostin's etymological data.

Studying the data represented by these etyma reveals that Starostin's system by no means represents a final solution to the question of these much-mooted corre-spondences. The principal but by no means only unsolved problem involves the strik-ingly unequal distribution of the data in his three-tier medial-consonant phonological structure. At the most generous accounting (and always keeping in mind the practical

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[6] The advantages and drawbacks of Starostin's three-tier system of Altaic phonology are discussed in Miller (1994 [1995], pp. 71–73), with special attention to the work of others (Illič-Svi-tyč, Cincius, Menges) who had earlier published in a similar vein, and a short comment (p. 100) upon Starostin's approach to the problem here under consideration, already suggesting the correla-tion of the Middle Korean circumflex tonic accent with Poppe's hypothesis. Of course it goes without saying that Starostin's consonantal system owes as much, if not more, to the Nostratic school and its concern with typological considerations than it does to Altaics; again, a detailed dis-cussion of those issues would take us too far afield.

[7] But located, it must be added, only with considerable difficulty and persistence, because what Starostin has given us is indeed a list only and not a proper index, nor is it arranged according to any discernible order, thus always leaving open the possibility of missing this or that important etymon somewhere along the way.

difficulties posed by his arrangement of the materials), his *-*p*- is represented by only 3 etymologies, while *-*p'*- has 15 and *-*b*- has 9. And even apart from the problems hinted at by the imbalance of these numbers Starostin's etymological evidence for his *-*p*- postulation also does not completely pass muster. In his *Introd.* Starostin illustrated his correspondences with three partial etyma, STRAW, STEPPE, and BEAUTIFUL (1991, p. 15). But in his *List* STRAW, no. 138, is reconstructed as *gabV… , with *-*b*- rather than with the expected *-*p*-; STEPPE and BEAUTIFUL appear nowhere in the *List*; and neither of the other two additional examples of *-*p*- in the *List*, MOUTH, no. 62 and COVERED, no. 274, displays the relevant Mongol velar *vs.* Turkic labial correspondence that is at the heart of the problem. Furthermore, and adding to the problem, it must be pointed out that STRAW, STEPPE, and BEAUTIFUL all appeared earlier to illustrate Poppe's *-*b*- in his "weak" position (1960, pp. 48–49).

In other words, etymological evidence for the second of Starostin's three tiers of medial consonantal correspondences for the labial stops effectively does not exist. As a consequence, his system actually becomes one of only two tiers, his *-*p'*- and *-*b*-; and as such it is not at all significantly different in its essentials from the system of Poppe (1960) – except that, unlike Poppe's formulation, that of Starostin makes no provision for the necessary conditioning factor that must be either by identified from the etymological materials or postulated in the abstract if we are to account for the original phonological dichotomy represented by the etymological sets that confront certain, but not all, medial Mongol velars with Turkic labials. In other words, Starostin's system does not account for the data.

Nor does this exhaust the problems posted by Starostin's etymological data. Of the 15 etyma that purport to document his *-*p'*-, 12 are entirely irrelevant to the correspondence that they are intended to illustrate. In all these the Mongol reflex is either incorrect or missing or otherwise insecure, with the result that none of these, which constitute the majority of his examples, actually illustrate the point that he is attempting to make. Only his 3 remaining etyma are to the point; but of these only one, ALL, no. 325 is new, original, and relevant, while SKIN, no. 2, is already in Poppe (1960, p. 48), and UNGUIS, no. 87, is taken from Ramstedt (1949, p. 284) and hence hardly either an innovation or an etymological breakthrough.

Much the same is true of Starostin's *-*b*-. His *Introd.* has two etymologies that correspond in his *List* to GO ACROSS, no. 46 and CHEW, no. 111 – but both these were already accounted for in Poppe (1960, pp. 45–46) as examples of his "strong" position – while the third in the *Introd.*, HOUSE, is thereafter missing from the *List*. Four items from the *List*, NEW, no. 121, SHELL, no. 138, EMIT SMOKE, no. 575, and FRONT, no. 585 are original and deserving of further study; but together with three more etyma, ROUND, no. 200, DELICATE, no. 240, and END, no. 520, they are all too fragmentary in their data as well as in the reconstruction of their Altaic prototypes to contribute to the overall solution of the problem at hand.

The issue need not be further explored. Starostin deserves credit for having seriously attempted to counter Poppe's formulation with one of his own, and to attempt to avoid the postulation of a suprasegmental conditioning factor by expanding the linear phonological inventory of the original Altaic language. Unfortunately, his treat-

ment of the question shows itself to have too many etymological loose-ends to carry conviction. If Poppe's solution is either to be accepted or rejected on the basis of evidence – and not as has been the case in most of the literature to date, simply denigrated – we must look elsewhere.

An imporant clue pointing to where such a search may well eventually lead us is provided, as luck would have it, by a chance remark in what is otherwise one of the most negative criticisms of Poppe's hypothesis. Thomsen, in what was no more than a passing aside to his wholesale attack upon Poppe's views, remarked that the theory at issue showed certain similarities to Verner's Law of the Indo-Europeanists, except for the fatal flaw that, unlike Verner's Law, Poppe's theory "nicht verifizieren läßt" (1987, p. 177 with note 20). On the face of the matter Thomsen's point was well taken – better perhaps than he himself realised, since apparently he was unaware that Ramstedt's original 1912 formulation of this hypothesis documented the Finnish pioneer's realisation that what he was suggesting did indeed appear closely to parallel the Indo-Europeanists' Verner's Law.

The critical point upon which Verner's Law differed from Ramstedt's – and later Poppe's – hypothesis, is of course a major issue. Verner had been able to correlate certain reflexes for the Indo-European consonants in the later languages with the position of presumed suprasegmental conditioning elements in the original language in a convincing fashion because he had documentary evidence for the existence of similar and parallel – but of course not identical – suprasegmentals in certain of the later languages, notably Sanskrit and Attic Greek. Ramstedt's 1912 suggestion and Poppe's 1960 refinement of the same both lack precisely that variety of documentary evidence. It is a commonplace of Altaic philology that our written records for the later languages are all late. Particularly when we compare what we have in this field with the high antiquity enjoyed by certain of the Indo-European written records, the prospect for Altaic comparison seems dismal indeed.[8] We must ask ourselves if Thomson's riposte was justified – in other words, is it possible to verify the postulation of an earlier suprasegmental conditioning element in the original language by citing similar or parallel suprasegmental data from documented languages?

The answer to this question must of course be negative, so long as we limit our investigation to the so-called "inner" languages of the Altaic family, i.e., Turkic, Mongol, and Tungus. But if we are willing to extend our horizon of comparison to embrace also what have come to be known as the "outer" languages, i.e., Korean and Japanese, we shall discover not only that documentary materials providing a "verification" of the principal elements in Poppe's hypothesis do exist, but that actually they exist in remarkable abundance. This makes all the more remarkable the fact that they have not yet been placed under contribution in the controversial and all too

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[8] In Indo-European comparative work the familiar Greek tonic accents are always manipulated as though they were of the time and place of the Attic language to which they are attached, but of course they are not; the marks in our texts are all only of Byzantine time. Were such a gap to separate linguistic reality from documentary evidence in our Middle Korean sources it would surely be suggested in some quarters that their tonic accent information was invalid for comparative purposes; fortunately, this is not the case.

frequently polemic literature that has distinguished the treatment of this hypothesis by Altaicists.

Korean in particular is especially rich in documentary evidence that bears directly upon this problem. A detailed account of these historical-linguistic resources has been available since the publication of Rosén (1974); his work makes it unnecessary to do more here than simply sketch the major details of the documentary evidence available concerning suprasegmentals in earlier Korean.

For several decades following the *ca*. 1445 invention and official promulgation of a Korean phonetic script (originally dubbed *ŏnmun* 'vernacular writing', then later *han'kŭl* 'Korean (or, great) script') a substantial corpus of texts was written and printed in this then-new system of orthography. The highly sophisticated system of writing in question ultimately reverted to the so-called hPhags-pa "universal phonetic alphabet" of the Mongol imperium, a system that embodied to a significant measure the phonological as well as the phonetic expertise of the Indic grammarians' tradition; this orthography had been devised in order to provide a script that could be employed for writing a variety of different languages, including but not limited to Chinese, Mongol, and Korean. To this end the hPhags-pa original, as well as its Korean derivative, not only provided specific graphic symbols for distinctive segmental phonemes but also frequently made *ad hoc* provision for writing non-distinctive phonetic entities as well, especially when they were of special articulatory or acoustic prominence. And most remarkably, a peninsular adaption of the hPhags-pa writing system further provided for the overt marking of three varieties of syllables on the basis of their pitch-or tone-articulation, in the special case of Middle Korean.

The texts in which this system was employed include original poetic compositions, translations of Buddhist and secular Chinese originals, and lexicographic compilations; *inter alia* there are also important didactic portions in the corpus that attempt to explain the articulatory characteristics of the syllables to which these pitch- or tone-marks are attached. Needless to say, these explanatory descriptions of the acoustic dimensions of the Middle Korean suprasegmentals are often far from easy to understand. In large measure this is because they frequently become involved with descriptions of or comparisons with similar features in Chinese, leaving the modern reader of these texts with the problem of attempting to solve one unknown in terms of another. As Rosén (1974) has shown, it is nevertheless possible to extract some acoustic information from these accounts; still, for the purposes of comparative Altaic the exact manner in which these Korean suprasegmentals were articulated in the mid-15th century is of little consequence. What does matter is that we have these features recorded in an impressively large body of texts, and that they are found there with strikingly regularity and internal consistency, a tribute to the serious linguistic analysis that undergirded the 15th-century Korean orthographic revolution.

In its bare essentials, the orthography of these 15th-century Middle Korean texts distinguishes three types of syllables on the basis of their tonic accents: (1) syllables pronounced with what they describe as a 'high' tone (also dubbed a 'departing' or 'going' tone, in allusion to traditional Chinese phonological terminology) were marked with a single dot at the upper-left of the segmental spelling; (2) syllables

pronounced with what they describe as a 'rising' or ' first low and then high' tone were marked with two dots along the left of the spelling; (3) syllables with what was probably a low-pitch tone, also described as 'even', were left unmarked, i.e., in these cases the script employed a graphic zero as an overt orthographic index.

For our present purposes syllables, resp. morphemes of type (1) will be considered and dubbed 'tonic'; this is in contrast to syllables of type (3), which we treat as 'atonic' (the same interpretation as that afforded them in the Middle Korean orthography); and syllables of type (3) are called 'circumflex'. Type (1) atonic syllables are here left unmarked (again, following the example of the Middle Korean orthography), thus *mal* 'speak', *kal* 'powder'; type (2) tonic syllables are marked with a single dot (as in the Korean script, except that our dot is on the line, not elevated as in the Korean texts), thus *.nun* 'eye', *.kal* 'reed', *.kal* 'sword'; and type (3) circumflex syllables are marked with the colon (again following the model of the Korean script), thus *:nun* 'snow', *:nil-* 'rise', *:kal* 'pillory'.

The veritable treasury of early lexical evidence for suprasegmental features preserved in the Middle Korean written records has long been available to Altaic scholarship in one form or another. Until recently it was necessary to approach this data through the medium of several useful if obviously limited lexical tools that cited Middle Korean forms along with their suprasegmental markings and brief citations of the original texts in which they were found; notable among these were the dictionaries edited by Nam Kwang'u (1960; 1973) and Yu Changton (1964; [5]1984).[9] But the most important philological advance in the study of Middle Korean written records has been the recent publication of an imposing revision and sweeping enlargement of the Nam dictionary (1997; [3]1999). With this in hand we are finally in a position to consult the full lexicographical resources of the Middle Korean texts, and to explore what if any relevance the forms preserved for us in these documents might prove to have for the further study of a variety of comparative Altaistic linguistic problems, including that with which we are immediately concerned.

Our Middle Korean written records with their meticulous notations of suprasegmentals are, it is well once more to point out, all from the mid-15th century or later – a far chronological cry from the Sanskrit and even from the Attic Greek data of Verner's Law. While they are the oldest records to inform us about the suprasegmentals of any Altaic language, we must keep in mind that in overall chronological terms they might even be considered modern, quite apart from any largely irrelevant comparisons with Indo-European. The time-span that separates us from the Middle Korean corpus is miniscule when compared to the enormous lapse in millennia that divides these texts from the original Altaic language, or even from the earliest stages

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[9] Some of the neglect of the Middle Korean tonic accents by Western, notably American comparativists may be laid to the account of Krippes (1990). This jejune attempt at a review of Yu Changton ([5]1984) totally misrepresented the content of the work (*inter alia*, by identifying it as an "etymological dictionary", which it is not), at the same time giving currency to a wide variety of totally misleading misinformation concerning relevant etymological studies by others. If the Krippes review had been designed specifically to stiffle interest in comparative studies involving Korean with Altaic, it could not have done its work better.

of any of the later languages immediately prior to the break-up (or, break-ups ?) of the Altaic linguistic unity.

We have seen above how even Poppe was not always successful in keeping his enormous store of detailed information concerning the pronunciation-details of the many living Altaic languages with which he was familiar separate from the details of his historical-phonological reconstructions. The temptation to equate elements in our reconstructions with specific attested elements either in living languages or in early written records is always present in the conduct of historical linguistics; we must be especially on guard against it when we utilise the suprasegmental data of the Middle Korean written records. These precious data are old, to be sure, but they are not old enough to be equated with Proto-Korean, any more than Written Mongol or the so-called Pre-Classical Mongol is old enough to be equated with Proto-Altaic, or Orkhon Turkic with Proto-Turkic. Using these written records for what they can tell us about the original language is not the same as substituting them for that original language; this is as true of the Middle Korean texts as it is of any parallel philological resource.

However, when we approach the Middle Korean documents with these cautions in mind, we discover that they provide abundant evidence showing that while Poppe's speculations about the acoustic details of the original language's confrontation of a suprasegmental element with his *-b- require minor revision, or at least restatement, his overall 1960 solution – and for that matter Ramstedt's original 1912 suggestion – nevertheless pointed in precisely the same direction of phonological shift that may be identified and documented in the Middle Korean written records that we have from the mid-15th century.

In Middle Korean, a significant number of morphs, typically verb roots, that appear to be cognate with the etyma that play a major role in Poppe's hypothesis typically have the Korean circumflex tone (our ' : ') when followed by consonant-initial stem-formant suffixes; but these same verb roots become atonic when followed by stem-formant suffixes in vowel-initial, the suffixes themselves then consistently becoming tonic (our ' . '). Morphs with the circumflex tone in the Middle Korean texts uniformly now have a long-vowel in New Korean, and this might be the basis for arguing that the circumflex tone itself represented a long-vowel in Middle Korean; but such facile identifications are historically irrelevant and better avoided.

Contemporary 15th-century Korean descriptions of how the circumflex-tone words sounded suggest that their articulatory contour was "first low and then high", i.e., of a variety that fits well with the 'circumflex' terminology adopted here. But interesting as such contemporary accounts are, they should not be taken entirely at face value. We must keep in mind that such descriptions were written in Chinese, employing the conventional Chinese phonetic terminology of the period. The Korean philologists identified their circumflex tone with the so-called 'going-tone' of Chinese – but of which period of Chinese phonetic and phonological history, it is anything but clear, with the result that such identifications actually tell us next to noth-

ing.[10] From the behaviour of the vocalic nucleus in the circumflex morphs in the stem-formation processes of the Middle Korean verb, it appears more than likely that the vowel in these forms was complex rather than simple, i.e., that it consisted of two discrete phonological entities or nuclei. But whether or not such a vocalic complex should be identified as long or short is fortunately, for our present purposes, a question of no great importance.

What however is of importance is, as we shall see, that the suprasegmental lexical evidence of the Middle Korean texts correlates in more than one detail with the reconstruction proposed by Poppe for those lexical sets in which a Mongol velar appears to correspond to a Turkic labial. In other words, the evidence that they preserve for the existence of a feature of pitch or tone in Middle Korean now provides precisely that "verification" whose absence so troubled Thomsen. In a word, with this we are brought back full circle, and Poppe's 1960 refinement of Ramstedt's 1912 suggestion now looks even more like Verner's Law than it did before. Particularly under these circumstances, a few lines about the curious manner in which this evidence has been neglected to date, despite the long-standing interest of a number of Altaicists in the Korean language and its "origins", may not be out of order.

Korean and Japanese scholars have known of the existence of these orthographic records of early Korean suprasegmentals for decades. In too many cases certain important texts in which these tonic accent markings have been preserved were partially lost as a consequence of the stormy history of the Korean peninsula over the centuries; but others have always been available, and fortunately a number of important once-lost examples have been recovered and in many cases published over the past decades. What is most curious about all this is the fact that while Korean and Japanese scholars have long known about these things, Europeans have not. Particularly poignant is the fact that Ramstedt, widely and correctly acknowledged as the founder (along with Ogura Shinpei) of the historical study of Korean as well as the great pioneer in comparative Altaic, apparently never realised that these documents even exist. As a consequence he never made use of them in his frequent citation of Korean lexical materials during his comparative Altaic research.

The circumstances leading to this unfortunate neglect are not difficult to reconstruct. Ramstedt's interest in Korean was a by-product of his residence in Japan (21 III 1920–24 III 1923; 20 I 1924–14 XI 1929) as a Finnish diplomat. During these years he frequently visited Korea (then part of the Japanese empire), met Japanese scholars with similar interests there and on Honshū, and began his study of Korean with a native-speaker resident in Tokyo (Halén 1998, *passim.*). After his return to Finland, his contacts with the Far East including those with Japanese scholars virtu-

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[10] Rosén (1974, pp. 30–42 and *passim.*) provides useful translations of contemporary Korean accounts of the acoustic properties of the Middle Korean tonic accents elements; but it is well to keep in mind that these are rendered from texts in which the traditional terminology of Chinese phonology was taken over intact for the description of another, unrelated language. This important *caveat* is generally overlooked by other less perceptive students of the problem, who frequently describe the Middle Korean tones as if they themselves had heard them. Thus Lee – Ramsey (2000, pp. 288–289: "…a high pitch…; … a low pitch… ; … long and rising…"); so also Martin (1992, p. 35: "… a long rise going from low to high…"; p. 35: "… an automatic 'sing-song tune…").

ally ceased; all too soon thereafter the tragedies of the war years imposed yet another wall of isolation between Ramstedt and world scholarship in his chosen field. We know from several sources that he regretted the scholarly isolation that he experienced in Helsinki, particularly with respect to the help that native-speakers and others more at home than he in problems of Korean philology might have afforded his work (Poppe in Schwarz (ed.)1983, pp. 209–213; Miller 1984, p. 146, note 10).

At any rate, and whatever the reasons, lexically-significant suprasegmentals of the type so abundantly documented in the Middle Korean text-corpus played no part in Ramstedt's many lexical, etymological, and grammatical publications concerning Korean, even though more than one passage in his posthumous *Einführung* (e.g. 1957, pp. 151–152) suggests that if he had indeed known of these materials he would surely have cited them in support of his reconstructions. It is truly a philological pity that Ramstedt was thus for so many years cut off by his enforced residence in Finland from the sources that might have added so much to his accomplishments; it is difficult to believe that if he had been able to utilise the texts that we now have, he would not have done a great deal with them.

One further historical accident must be mentioned in this connection, because without it the continued neglect of these data by comparativists cannot fully be understood. A bulky study bringing together a large number of putative lexical comparisons involving Korean with "Ural-Altaic", published between June 1914 and October 1916 by the Japanese orientalist Shiratori Kurakichi (1865–1942), was circulated widely not only in Japanese scholarly circles but also among non-Japanese scholars resident in or otherwise in contact with Japan. Though ostensibly written in Japanese and published in a Japanese scholarly journal, the article in question actually consisted almost entirely of lexical citations and glosses in romanisation and European languages; thus it was easily accessible to anyone who obtained a copy, even without a reading-knowledge of Japanese. We now know that Ramstedt drew heavily upon Shiratori's materials throughout his comparative study of Korean, as have a number of other scholars then and now, particularly in Korea (Miller 1984, pp. 148 ff.). But in this study, which became as it were an early basic repertory of Korean comparative lexical evidence, Shiratori had cited only New Korean forms, and included no information about the Middle Korean suprasegmentals. Thus unwittingly he more or less single-handedly determined the future course of almost all comparative work involving Korean down to the present time, and in particular its consistent neglect of the Middle Korean documentation of the tonic accent. Having said that, it still remains difficult to explain why Japanese scholarship took this particular course. Korean scholars until recently did not have adequate access to the texts, many of which had disappeared from the peninsula and few of which had been published. But the two earliest exemplars of the 1527 Chinese–Middle Korean bilingual, available only since 1971 in the facsimile edition of Yi Hŭicŭng and Yi Kimun, had been available to scholarship in Japan for centuries (where the originals still are kept), if anyone there had ever cared to look at them.

Obviously the time has come for us to do what we can to redress this neglect of the available philological materials, recognising that the key-point in the Korean

data from which we must begin if we are to do comparative work with this language is to be found not on the level of lexical comparisons with New Korean alone, such as distinguished the work of Shiratori and to a greater or lesser extent that of all his epigones, but principally within the earlier morphology of the language, specifically within the morphology of the Middle Korean verb. This incidentally provides yet another reason why these data were not placed under contribution earlier, since almost all previous comparison of Korean with other languages, including the Altaic, was content with lexical look-alikes, in the process ignoring the clues that survive to be uncovered on the level of morphology.

In fact, a striking overall symmetry in morphophonemic behaviour obtains between certain Middle Korean verb forms with a morph-final labial-stop phoneme and the Altaic forms underlying Poppe's reconstruction of his medial *-p-, *-b- "in strong position". It is this symmetry that provides the principal clue to the original historical identity of many of the forms involved in all the Altaic languages, including Korean; it is also this symmetry that, once described and illustrated by specific lexical examples, provides the most convincing evidence for the essential accuracy both of Poppe's reconstructions for these details and also for his otherwise "unverifiable" hypothesis for the existence of a suprasegmental conditioning factor in the original language.[11]

In both standard modern Korean ('New Korean', hereafter: NK) and Middle Korean (MK), two clearly demarcated morphophonemic classes exist for verbal roots (and deverbal stems) ending in morphophonemic {-p}. Once having established that this entity is a morphophoneme it is no longer necessary to repeat the point, nor in future to identify it with the special { } notation just employed; it is however important to keep in mind that within the phonological constraints of both NK and MK this morphophoneme may be realised as [p] or [b] when conditioned by various environments; we will also wish to note that on the comparative-historical level this morphophoneme corresponds both to original Altaic *-p- and original Altaic *-b-.

In the first of these two morphophonemic classes, this final labial stop remains intact before all secondary deverbal stem-formant suffixes; in the second class, it remains intact when those suffixes have a stop-consonant initial, but it changes to morphophonemic {-w} when the suffixes have an initial vowel.[12] Examples of the first of these two classes include MK *tŏp-* 'to cover', MK *kup-* 'be bent', and MK *čop-* 'be narrow'. Examples of the second of the two include MK *:kup-* 'cook, roast', MK *:top-* 'be hot', MK *:kop-* 'be beautiful'. (Here and in what follows it is only neces-

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[11] Even though Lewin (1970) is in general designed as a guide to the modern language, it consistently includes references to the "earlier written language" which are by no means without utility for the study of earlier texts. Martin (1992) contains, *inter alia*, an enormous amount of piecemeal information about all documented stages of the language, but its utility is severely compromised by the author's prior assumption that the Korean language had no discernible history prior to the invention of the hPhags-pa-based script.

[12] Lewin (1970, pp. 11–12) has an admirably clear statement of this phenomenon, including important details on the modern Korean orthographic representation of this {-w}. The inventory of forms in Martin (1992, p. 233) is difficult to use, partly because it lists both roots and secondary stem formations.

sary to cite the MK forms, together with their suprasegmental elements, since their NK equivalents are completely regular, except as indicated in rare cases.)

Even with this minimal display of the lexical evidence, it is not difficult to see what must have been happening here over the millennia of historical-linguistic development in which all the Altaic languages, including Korean, were involved. It also becomes immediately evident that in his hypothetical postulation of a suprasegmental conditioning factor for the attested developments of his medial Altaic *-p-, *-b- Poppe was presciently anticipating the evidence for suprasegmental phonemes now available from the Middle Korean written records, evidence of whose existence he was at the time when he framed his hypothesis totally unaware, quite as unaware, of course, as was Ramstedt some six decades earlier.

It will be most instructive to begin with the overt morphophonemic contrast presented by MK *tŏp-* 'to cover' and MK *:tŏp-* 'be hot'. As Altaic cognates for the former, Trk. Chag. *tap-*, Kir. *tep-* 'to cover', *tev-* 'to plant, set, put out', Ma. *tebu-* 'to set out, plant; to place a corpse in a coffin', and perhaps WMo. *teb-či-* 'abandon, leave, reject' may be cited.[13] The etymon did not play a part in Poppe's 1960 set of forms illustrating his hypothesis, but from the evidence it is clear that we have here to deal with one of his cases of original *-b- in his so-called "strong" position, i.e., an original verb-root (or perhaps stem) of the shape *tabá-.[14] The semantics of the etymon are interesting but present no particular problem. The lexical sources make it clear that the 'covering' involved in all the Korean forms is typically that involved in planting or burying something in the ground; thus the semantic link between, e.g., NK 'cover (the root of a tree with earth)' and Ma. 'set out, plant, etc.' poses no particular problem.

For the representative member of the second class, MK *:tŏp-* 'be hot', the comparative evidence is not as abundant as we might wish, being limited to WMo. *teg.sei-* 'to blush' and Ma. *tefe-* 'to burn up', but this is sufficient to show that we are here dealing with a case of Poppe's *-p- in "weak" position, i.e., his Altaic *tepe-*.

From this it is an easy step to demonstrating that the Korean evidence for these two contrasting forms on the one hand documents the role of a suprasegmental conditioning factor in MK – a conditioning factor that moreover, along with its morphological role, was inherited by Korean from Altaic – and on the other hand provides instructive illustrative examples relating to the probable course of the surface phonetic (if not the phonological) developments involved in the evolution of these forms in Korean – and hence also by implication earlier and elsewhere in Altaic.

The role of the conditioning factor in MK hardly need be pointed out in further detail. It is obvious that the circumflex pitch conditioned the alteration of the

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[13] The appearance in this etymology of WMo. *tebči-* may appear somewhat to violate the formation-canons for these forms; but recognising *-či-* as an inherited secondary verb formant < Altaic *-ti-* for "schnelle und effektive Handlung" (Ramstedt 1952, pp. 175–176) makes it equally possible to cite the simple verb root WMo. *teb-*.

[14] NK *tŏp'-* is already attested in late Middle Korean citations. The aspiration that appears appended to the root-final consonant in this form is a feature of which we shall take further note *infra*; in some way not yet completely understood it was a (secondary ?) feature of the operation of the critical suprasegmental feature here studied.

final labial stop in MK *:tŏp-* 'be hot', just as it is clear at the same time that this al-teration of the stop did not take place in MK *tŏp-* 'to cover', where the morpheme in question was atonic; MK lexica have the adnominal *tŏpp'ul* for this verb. Further-more, in the case of MK *:tŏp-* we may cite an instructive set of forms both early and late, providing documentation for the surprisingly rich variety of shapes through which the evidence of our texts shows itself to have evolved.

For the adnominal of this verb, NK has *tŏwun* as in *tŏwun mul* 'hot water' (the [w] survives but is not recognised in NK orthography, which simply writes <tŏ un>). But the now-available MK citations for other various secondary formations on this same verbal root reveal even more about the internal history of this etymon within Korean; at the same time they recapitulate much of earlier Altaic linguistic history to an instructive extent.

In the case of this etymon as well as for virtually all other examples of the MK circumflex-tone verbals, the texts document a clear point of demarcation in phono-logical (and consequently also in phonetic) development taking place ca. l460. In the case of MK *:tŏp-* 'be hot', the earliest text of 1449 and another of 1459 both have *tŏ.βŭn* and parallel related forms with *-β-* in its secondary formations; but all texts after 1461, down to and including the major Chinese–MK bilingual of 1527, uni-formly have *tŏ.Gun* and parallel secondary formations with *-G-* rather than with *-β-* (Nam 1999, p. 398[ab]; Ramsey 1991, p. 222 *et passim*. misses this point, since most of his materials come not from texts but from normative summations of the data in secondary handbooks that generally pass in silence over such "details"). For this bila-bial voiced fricative [β] the hPhags-pa-based MK orthography employed a distinctive graph; the symbol in question fell out of use when the phoneme itself shifted out of acoustic recognition as such. Its eventual phonetic terminus as NK [w] requires little comment, and indeed is of no great historical-linguistic interest; but more attention must be paid to the long intermediate period between the earliest MK texts and the NK period where the descendant of this /β/ was written with the graph that here we transcribe as <G>.

In entirely modern texts this symbol is now no more than a graphic device; it has, in effect, become a necessary part of each of the vowel-symbols. But for most of the history of the language it was instead employed to write "a voiced fricative (velar or laryngeal) or at least a glottal squeeze [*sic!*]" (Martin 1992, p. 54); in other words, it was neither a linguistically meaningless graphic device nor a "hiatus marker". And this fact is particularly significant in the thousands of cases in the 15th-century texts in which this <G> appears shortly after 1460 as the linear development of <β>.

In other words, in these MK texts we not only have documentary evidence for the earlier existence of the missing supersegmental conditioning factor whose lack has been the principle flaw in the Ramstedt–Poppe hypothesis; we also have evi-dence from written records in which the MK morphophoneme {b} when found in conjunction with the circumflex tone was first realised as intervocalic [β] and shortly thereafter as <G>, i.e., [γ], thus precisely recapitulating the developments for Altaic *-b-* in Mongol postulated by Poppe (1960) and in most details as well those first sketched by Ramstedt (1912).

Even though the MK written records thus prove to document phonological-structural shifts parallel to those postulated, independently of the Korean evidence, for the original language, MK itself was of course not "Proto-Altaic". By definition there cannot be written records of a proto-language, nor do we have claim to have any such artifact in the MK texts. But what we have in these documents is of great value, not only for the history of Korean but also for the future refinement of our knowledge of Proto-Altaic. The MK texts, while chronologically late, nevertheless document a reflection of something that "happened in history", i.e., in the course of the millennia of changes that led from the original language to all the later attested languages.

Specifically, in the case of the development of Proto-Mongol out of Proto-Altaic, as well as in the case of the development of Proto-Korean out of the same source, a number of original inherited verbal roots carried a phonologically significant suprasegmental feature. This feature *per se* was lost in all the "inner languages", where however it left its mark in the form of Mongol–Turkic intervocalic velar *vs.* labial correspondences. Nevertheless, it was inherited more or less intact in Korean. There it resulted in MK morphs carrying the circumflex; and this in turn is the feature that we may now identify as the conditioning factor operative in the Ramstedt – Poppe hypothesis.

Above we have seen how a case-by-case inspection of Starostin's attempt to account for the data involved in this question by expanding the received inventory of reconstructed Altaic consonants, and in the process also doing away with the necessity to argue, along with Poppe and following Ramstedt, in terms of a suprasegmental conditioning factor in the original language, falls short of the mark; a similar inspection of Poppe's 1960 exposition of his position, paying particular attention to the MK materials that he did not use, proves to be similarly instructive.

The canonical repertory of Altaic etymologies with which Poppe illustrated his suprasegmental hypothesis is to be found in his *Lautlehre* (1960, pp. 47–49). There he arranged the forms concerned into two major categories: (i) those illustrating the developments in the later languages of original *-p- when occurring immediately before a high-pitch (or sometimes, a long) vowel; (ii) those illustrating the developments of original *-b- in the same environments. Furthermore, in this scheme both these categories were presented with the proviso that although these two labial stops could be kept separate and identified as to their historical origin earlier in the history of the original language, they later "fell together" as *-b- in the circumstances of this suprasegmental environment.

Poppe (*loc. cit.*) documented the details of the members of these two categories with a total of 18 etymologies. The question now is, how far are these etyma, which Poppe selected from among numerous other candidates as providing the most convincing evidence for his hypothesis, supported by the documentation we have available for the Middle Korean pitch?

Of the total of 18 etyma that Poppe lists in documentation of his *-p- "in schwacher Stellung", a subset of 8 must be ruled out of consideration at the outset, either because their putative Turkic cognates do not show a labial consonant that

would correspond to the velar consonant of the Mongol forms (BELLY, CHALK, ROOM), or because the Turkic form that is cited has its required labial in close-juncture with another following consonant (EARTH, BRIDGE, SCISSORS); in such forms the labial in question most likely did not occur in the original language in the intervocalic context required for Poppe's hypothesis. One etymon is on the evidence of its meaning (LYRE) probably the result of early cultural loans, and so hardly a strong candidate for providing evidence concerning the phonology of the original language;[15] another (BULB) must be ruled out because elsewhere Poppe treated several variants of what must have been originally a single etymon in a somewhat self-contradictory fashion (1960, p. 43 *vs.* p. 47).

This leaves us with 10 etyma that must be seriously considered. Of these 4 appear to have been original nouns (FILLEY, WOOL, MUSK, BUNT). The special morphological circumstances that permit us to establish a Korean parallel to Poppe's proposed historical-phonological scenario for his *-b- < *-p-, *-b-* holds true in the Korean materials most plainly for verbs, but is generally somewhat obscured or at least complicated in nouns, so that these 4 etyma cannot serve as primary evidence for our discussion. This means that we have 6 putative Altaic verbal etyma to inspect further, SERVE, GO THROUGH, SOLVE, ADHERE, FOAM, SIEVE. Of these 6, the first 3 have obvious Korean cognates showing the operation in Middle Korean of a suprasegmental conditioning factor strikingly parallel to that postulated by Poppe, even though he was of course without access to the Korean data. For SERVE we may cite MK *:top-* 'assist, aid (as a subordinate officer)'(glossing Chin. 佐 *zuǒ* 'id.'); 'undertake (an office, a post)' (glossing Chin. 承 *chéng* 'id.'); for GO THROUGH, MK *:tŭlp-* 'id.) (cf. note 25 *infra*); and for SOLVE, MK *:tap-* 'investigate thoroughly, probe (to the root)' (glossing Chin. 窮 *qióng* 'id.'). (The reconstruction of this verb root is supported by the allomorphs *ta.βŭ- ~ ta.Gŭ-* , cf. the text citations in Nam [1999, pp. 361[b], 365[a]].) Further, of the 3 etyma remaining in this category, FOAM and SIEVE may also both be traced in Korean in one way or another, and both contribute to our larger understanding of what must have happened here in the history of Altaic (only ADHERE has apparently left no trace in Korean).

In other words, of the critical 6 verbal etyma that Poppe included in his canonical 1960 evidence-list for the development of Altaic *-p-* "in schwacher Stellung", Middle Korean cognates for 3 follow a course of development exactly parallel to that proposed by Poppe for the original language, while the history of 2 more may be further clarified along much the same lines by reference to the Middle Korean materials. In this sense, then, it is no exaggeration to say that virtually all the relevant etyma in Poppe's list are directly supported by the Middle Korean materials.

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[15] Further study of the LYRE etymon (Poppe 1960, p. 48: < *kopúr_2*) may perhaps resolve the conundrum that now obscures it: the meanings appear to point to old loanwords in several directions, but the forms all point to a regular genetic inheritance. The Mongol–Turkic comparison begins with Vladimircov (1929, p. 211); Ligeti (1960, p. 235) brought together additional lexical evidence, notably a form that he cites as "Ty [?] *qubur*"; and MK *kŏ.mun.ko* 'id.' has been studied (Miller 1989a, pp. 129–130) in detail. Despite its phonological shape the Middle Korean form may readily be related to the putative Altaic original, and this is also true, surprisingly enough, of OJ *kötö* 'id.', where the *-t-* is the expected regular Japanese reflex of Altaic *-r_2* in this position.

This also holds true of Poppe's list of forms documenting his Altaic *-b- in the same suprasegmental circumstances (1960, pp. 45–46). Again he presented 18 etyma (the symmetry between his two sets of forms was hardly an accident!); of these we must initially rule 9 out of question (PIT, SHADOW, PLUCK, STEPPE, WING, COAT, REFLEXIVE SUFFIX, YELLOW, LONG FOR) either because (as with the first 4) the necessary Turkic labial reflex is absent or because (as in the remainder) the available evidence for such a reflex is apparently absent or at least ambiguous or sometimes both. Four of the remaining etyma are original nouns (QUARK, STRAW, PRIDE, KNEE), and so must also be set aside for the reasons outlined above, leaving a net total of 5 original verbs (FLAY, COOK, BE BEAUTIFUL, BEG, SLEEP). Again, of these 5 etyma, the critical residue of Poppe's canonical list for our present purposes, 3 have convincing Korean cognates (COOK, BE BEAUTIFUL, SLEEP), while 2 (FLAY, STRAW), although unfortunately involving us in indecisive etymological tangles (somewhat reminiscent of those surrounding ROUND, *supra*), to a certain extent again throw additional light on the overall picture of the Korean developments of these Altaic materials.

In every respect, what is said here must be understood as no more than a preliminary sketch, an attempt to set forth the broad dimensions of a problem with certain suggestions for its possible solution. As always in historical linguistics, the necessary first step, which is all that is attempted here, is one of description, i.e., statement of the situation. This must then be followed by attempts at increasingly precise refinement of solution, of which the proposal made here relevant to the Middle Korean tonic accent is no more than an initial step. This future refinement will surely find it necessary to explore, *inter alia*, additional aspects of the role of what now appears to be an inherited Altaic tonic accent in the Korean lexical materials, perhaps in the process also throwing light upon the still largely obscure Korean–Japanese relationship through the analysis of the congruencies – if indeed any exist – between the Korean tonic accent and that available from Japanese sources.[16]

Also to be anticipated from such future refinement will be informative reworkings of several of the more venerable Korean–Altaic etymologies found today in the comparative literature, many of them ultimately going back to Ramstedt (1912), and repeated and/or expanded and altered in a variety of studies ever since. Each of these has something to contribute to our understanding of Altaic historical phonology, but at the same time a considerable amount of winnowing out of misleading forms and meanings will be necessary if they are to be truly informative.

The most notable example is the etymon ENCLOSE, original with Ramstedt (1912, pp. 183, 187), repeated by Vladimircov (1929, p. 208), and today most familiar from its citation in Poppe's *Lautlehre* (1960, p. 89), where he reconstructed pA

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[16] The attempt of Kortlandt (1993) to recover "the Japanese and Korean accent systems" is a notable exception to the general neglect of the suprasegmentals in Altaic comparative studies, particularly those involving the "outer" languages. Particularly important is his conclusion that in Altaic "there may have been a relation between the pitch accent and the original consonant structure of the morphemes" (p. 65). Indeed, this relation is precisely what Ramstedt and Poppe proposed, and what the present paper attempts to begin to describe in more detail.

*kapá- as the proto-form accounting for WMo. qaγa-, Trk. qap-. For Poppe this etymology was worthy of special notice in the history of Altaic scholarship, and he hailed it as a "breakthrough" in his obituary of Ramstedt (1951, p. 319). But for many others it has instead been only a block-of-stumbling, particularly as it came to be involved with the study of the putative etymology for an early Toba-wei (Taβγač) form for 'doorkeeper, Türhuter' known only in transcription, i.e., through Chinese characters used as phonograms. Despite Pelliot's early explicit assurance (1925, p. 254, note 4) that the intervocalic consonant in question in this form was clearly and without question [p], attempts have frequently been made in the literature to de- lete this overt evidence for the early operation of the labial *vs.* velar correspondence from the record (and of course in the process further to discredit Poppe) simply by assuming that "das Wort [in its Chinese transcription] vielleicht eher als -β- zu lesen ist", and further that "auf keinen Fall ist es tü". (Doerfer 1985, p. 162). As usual, Pelliot was right. The first of Doerfer's speculations, concerning Chinese historical phonology, is without merit.[17] So also is the second. The form in question is, to be sure, "auf keinen Fall" Turkic, but by the same token it is not Mongol either. It is Toba-Wei, and neither "Turkic" nor "Mongol" have any meaning when applied to the lexical materials preserved for us in the Chinese texts that are our sole source for the Taβγač language.[18]

These considerations aside, we must also point out in passing that for this im- portant etymon significant Middle Korean lexical evidence exists, awaiting more de- tailed documentation than may be provided here. Unfortunately missing is the ex- pected text-documentation of the root-form with the circumflex tonic accent *:kap-, as also is a New Korean long-vowel cognate that would also assist in the recovery of such a form; but in a text of 1459 we do find kă.βa- secondary formations that sup- port a circumflex reconstruction.[19] The general sense of the forms containing this

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[17] The initials of the Chinese morphemes associated with the two graphs found in second position in Chinese transcriptions of the Taβγač word in question, Chin. 博 bó, Chin. 薄 bó, var. bò, báo (cf. Miller 1989b, p. 230), belong, resp., to the Tang initial class *p- for the former and *b'- (i.e., / b /) or *p'- for the latter; nor were the initials of the morphemes associated with these graphs ever spirantised or otherwise significantly altered throughout the history of mainstream Chinese phonology. At the same time, from mid-Tang on there were always plenty of Chinese morphemes available with spirantised labials. If this Taβγač word had had such sounds there is no reason why the Chinese would not have used characters associated with them to transcribe the word. But they did not; and that must tell us something.

[18] The point at issue here was entirely clear to Ramstedt as early as ca. 1920. Discussing the efforts of Shiratori "to determine whether the Huns [read: Hsiung-nu?] were Mongols or Turks … [he] stated that this was like asking whether the Romans were Portuguese or Romanians. The ques- tion has been presented the wrong way round" (Halén 1998, p. 217). A decade later O. Franke again summed up the inherent inutility both of such questions and of the answers commonly pro- posed for them: "…mit dem Ausdruck 'Mongolen' ist nichts anzufangen … [d]ie Frage wird nicht vereinfacht durch Hinzuziehung solcher nebelhaften Begriffe wie 'Mongolen' und 'mongolisch'" (1937, pp. 171, 254). But Sinology, along with Altaistics, has remained unwilling to admit that the Hsien-pi spoke Hsien-pi, the Taβγač spoke Taβγač, etc., etc.

[19] The relevant passages in the *Wŏlin sŏkpo*, a lapidary Buddhist pastiche of 1459, are to be found in the 1972 facsimile edition by Sŏgang University of their library's exemplar of a block-

root in this text is 'retain, confine, block off, turn off (esp. a flow of liquid)'; one passage uses it to describe the formation of a miraculous pond of water with blooming lotus that appears as Yaśodharā (wife of Śākyamuni, mother of Rāhula) sets foot on a dry field, in another it refers to the cosmic circle of water on which the earth rests. The Middle Korean forms in question regularly gloss Chin. 溜 *liu 'place under the eaves where water collects' (attested in Chinese since the *Zuǒ zhuàn*, cf. Morohashi 7.153[ab]; the tone of the Chinese form cannot be established since the lexeme has not survived in the modern language); and they are to be compared with NTk. *kapa-* 'to shut off, turn off, cut off (a tap); confine a liquid)'; cf. NTk. *bentle kapa-* 'to dam' (with *bent* < Pers. 'dyke, embankment, reservoir'); perhaps also relevant is WMo. *sigesu qaγa da-* 'retain urine'.

What appears to have been most likely in the history of this etymon is not that the Chinese scribes who recorded the Taβγač word for 'doorkeeper' mismanaged the phonology of their own language and hence mistranscribed the intervocalic labial consonant, but rather that in this ENCLOSE etymon we have here to deal with a far-from-simple semantic cluster of forms, some (perhaps all) with specialised meanings that may only with caution and diligence be established from the texts. It is also most likely that when this refinement of the etymological materials shall have been carried out further than we may take it here, Ramstedt's early insight and Poppe's tribute to the same will both prove to be more than justified.

The same holds true for another venerable etymon in the Altaistic literature, one to which again because of its many complications we may here only direct attention for future study. Ramstedt (1912, p. 182) compared Trk. *jap-* 'manufacture, produce' with WMo. *daγa-*, which he glossed as 'ertragen, können, vollführen, verantwortlich sein, schneiden (vom Messer)'. His 'ertragen, können' was almost surely a misprint for 'ertragen können', but over and above that detail the semantic side of the comparison was further complicated by the glosses provided when the two forms were again confronted by Vladimircov (1925, p. 208). Poppe (1960, p. 208) attempted to salvage the etymon by substituting WMo. *jaγa-* 'zerteilen'. But as noted by Street (1974, p. 14) this did little to rehabilitate the etymon, which in consequence he could only gloss as 'disjoint; seize; make (?)'. Poppe also broke new ground in the Western-language literature by adding NKor. *čap-* 'hold, seize, take' to his lexical constellation; this "outer Altaic" form had first been confronted with Ma. *jafa-* 'grasp, arrest' by Shiratori (1914–1916, rprt. 1970, pp. 195–196), a comparison widely reproduced later without acknowledgement (e.g., Yi Kimun 1958, p. 113). On the Mongol side, the glosses presently in the literature, particularly in Ramstedt and Vladimircov, all obviously derive in some manner or other from the elaborate repertory of five different meanings in Kowalewski (1849, p. 1571[ab]); at best these in turn reduce to three semantic categories, i.e., 'follow' (> 'obey', 'imitate'), 'take as one's own', and 'execute, carry out'; but the modern lexical sources for Mongol (Hangin 1986, p. 153[a]; Bowden 1997, p. 117[a]) do not register the 'take' meaning that is essential for the Ko-

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print original from the year of the text's composition; strophe 16 = orig. A 22ab, ed. pp. 43–44; 118 = A 43a = ed. p. 85.

rean – Manchu portion of the etymology.[20] On the Turkic side of the question, the persistence in the literature of Ramstedt's original suggestion of Trk. *jap-* is difficult to understand. Rather more likely appear to be a number of other forms, notably Chag., Osm. *čap-* 'raid, plunder, strike with a sword; attack' (Clauson 1972, p. 394[b]); and Sir Gerard was probably not far from the mark when he remarked (*loc. cit.*), with his characteristic sly wit, that the root *čap-* has "several meanings … all describ[ing] noisy action".

As far as Korean is concerned, neither the modern language nor the Middle Korean corpus immediately presents us with an obvious cognate. The NK form first suggested by Shiratori "looks alike" to be sure, and its MK cognate typically glosses Chin. 執 *zhí* 'arrest, seize; grasp', but in the earlier texts it is without the circumflex tonic accent that would be necessary for it to be accommodated into the etymology. Another possible and fairly promising candidate for this role does, however, exist, in the form of MK *:čăp-*. This form is today generally understood by Korean scholars of the early language as a suffix for secondary deferential verbs expressing reverence or respectful caution on the part of the actor (*Ergebenheitsausdruck*; thus, Yi Sung-nyŏng [5]1974, p. 305; Yi Kimun 1977, p. 191). But true though this is of somewhat later Middle Korean texts, it does not appear to hold true for the earliest portion of the corpus. In the Yi dynastic panegyric of 1447, the earliest of all our texts, we find this form with its circumflex tonic accent neatly documented in two successive lines of canto 36, in a context in which it is difficult to detect any need for an expression of *Ergebenheit*, since here the text uses MK *:čăp-* as the second element in a compound verb (with *čoč'-* 'to pursue, chase') describing how three bandits, i.e., rebels, pursued the hero of the poem on horseback with the intent of seizing or capturing him – hardly, one suspects, something they would do in a deferential or respectful fashion. In canto 66 of this first Middle Korean text the same MK verb is again attested twice, once in its canonical circumflex root-form *:čăp-*, once in its expected pre-vocalic allomorph MK *că.ßă-*, in both cases as the second member in two compound verbs, one meaning 'to win, capture (the hearts of the people)', the other 'to strengthen, solidify (id.)'.[21] Again, the usual school-grammar interpretation of these forms as "expressions of an attitude of deference on the part of the actor" seems difficult to maintain; at the very least they require restudy with particular attention to their possible Altaic cognates. At any rate, all traces of this circumflex MK *:čăp-* soon disappear from our texts. Canto 87 of the 1447 panegyric already has atonic

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[20] Semantic problems arise even in Mostaert (1952, p. 308), who attempted to explain the use of MMo. *da'a-* (*sic!*) to gloss Chin. 當 *dāng* in the *Secret History* 251 partly on the grounds that WMo. *daγa-* is registered in Kowalewski (1849, p. 1571[a]) as "pouvoir porter, prendre sur soi"; but his citation is not entirely correct.

[21] The relevant passages in the *Yongpi ŏc'ŏn ka* are to be found in the two-volume 1937, 1938 facsimile edition by Keijō teikoku daigaku, Hōbun gakubu of a block-print of 1612 (the oldest complete known examplar of the text), with an informative afterword and collation notes edited by Fujita Ryōsaku; canto 36 = orig. 5.38 recto = ed. l, p. 485; canto 66 = 8.8 verso, ed. 2, p. 250. The translations of these passages by Hoyt (1971, pp. 79, 109) and P. H. Lee (1975, pp. 190, 217) contribute little; Hoyt frequently and Lee generally are more concerned with explaining the panegyric's running Chinese paraphrase than with rendering its original Middle Korean text.

MK *čap-* 'seize, grasp' (a form that clearly identifies itself as a later secondary development with its -a- < -ă-), and thereafter only this atonic version of the Korean root survives.

When these various forms with closely (or, somewhat) related meanings in the different languages are eventually sorted out into plausible sets that appear to accord to probable semantic and phonological development patterns, it will most likely be necessary to make provision for at least three different etyma in the earliest stage of the original language, **dapá-* 'receive, obtain', **čapa-* 'seize, capture', and **ǰapá-* 'disjoint, dismember'. Similarities in sound and sense soon led to back-and-forth contamination between all three, early leading to the complex situation of lexical relationships that are today extremely difficult to unravel. Meanwhile, it remains only to note that despite all this semantic and phonological uncertainty, the etymon has even found its way for approval into the Nostratic canon, where it is alleged to be cognate with I.-E. **sep-* 'to hold, to undertake something,' as well as cognate with Proto-Altaic **ǰapa* [*sic!*] 'to hold, to arrange' (Vovin 1999, p. 264). Obviously, much remains to be done here.

The Middle Korean evidence involved may also yield important evidence concerning the so-called Altaic *Stammverkürzung*, evident in the manner in which the Korean forms discussed *supra* have apparently lost the thematic vowel -a- of the original etymon. This loss of thematic vowels was early noted in the literature (Ramstedt 1957, pp. 152–156; Murayama 1958); these discussions however took no notice of the Middle Korean tonic accent data, which surely is relevant to the survival or loss of the thematic vowels of Altaic.[22]

It is also clear that the absence or presence of an original tonic accent must have been the critical conditioning factor for a number of other characteristic Korean phonological developments. In atonic roots such as MK *mit-* 'believe' and MK *čuk-* 'die' an inherited thematic *-{U}-* was lost (cf. MMo. *butu-* 'trust, have confidence in'; Ma. *čuku-* 'be tired, spent'), while otherwise the root survived fairly intact. When inherited roots of CVC structure carried the tonic accent their Middle Korean developments generated an initial consonant cluster (e.g., MK *.skăy-* 'be awakened, enlightened', cf. WMo. *segere-* 'id.'; MK *spuli-* 'sprinkle', cf. Trk. *suval-* 'irrigate'; MK *.ptă-* 'pick', cf. Ma. *fata-* 'id.')[23] in those cases where the resulting geminate ini-

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[22] An introduction to the reconstruction of the Altaic thematic vowels (Miller 1981a) was designed to illuminate the genetic origins of the Japanese verb classes, and for this reason paid almost no attention to the survivals, resp. conditioned disappearance of these vowels in Korean. That study made only one reference to Korean, NK *kuč-* 'be bad, rotten', cognate with OJ *kutu-* 'decay, rot', Tg. Ew. *kut-* 'id.' (p. 873); in Middle Korean the same morpheme is atonic, which explains its loss of the thematic vowel. Meanwhile, many other examples and further patterns of change in this segment of the phonology remain to be studied.

[23] Ramstedt's predictions concerning the content as well as the sequence of earlier initial consonant clusters in a significant number of etyma may now be shown to have been correct by reference to Middle Korean texts not available to him (2000); the same study makes clear the dominant role of atonic Middle Korean morphs in the generation of these geminates, but also displays evidence for a considerable repertory and variety of other tonic accent patterns resulting in still different developments in this segment of the phonology.

tial was a permitted combination within the Middle Korean phonological repertory; but a tonic root whose consonants could not be accommodated therein remained unaltered except for the loss of its thematic vowel (e.g., MK *.kăl-* 'change, alter', cf. WMo. *qala-*, Ma. *hala-* 'id.'); at the same time the thematic vowel was preserved in Korean in a number of tonic bisyllabic roots (e.g., MK *.pă.la-* 'look toward, forward to', Ma. *foro-* 'id.'). These and a number of other related patterns of phonological development remain to be described in satisfactory detail; all will involve Korean evidence for an inherited Altaic tonic accent.

Categorically distinct from historical permutations of these kinds, all of which in one way or another hinge upon the absence or presence as well as upon the specific variety of the tonic accent, are certain sporadic phenomena of *ad hoc* sound change which took place in the vicinity of the original labial consonant or consonants whose occurrence immediately before the tonic accent is our principal concern. Here major attention will center upon cases of assimilatory vowel labialisation taking place in the immediate vicinity of the original consonant at issue. Illustrative of this phenomenon is BAKE, an etymon already established in Ramstedt (1912, p. 185) on the grounds of Trk. *qavur-*, WMo. *qaγur-* 'id.' To this we may now add MK *:kup-* 'id.',[24] a root that both in Middle Korean and now also in the modern language displays the expected /w/ morphology consonant with its tonic accent; at the same time the labial vowel of this inherited root testifies to the original labial stop *-b-* of the root underlying pA *kabúr-*, itself a secondary stem formation on *kab-*, as for that matter also does the first vowel in the variant WMo. *qaγur-*. This sporadic labial assimilation was first identified by Ramstedt (1915/16, p. 83); further evidence for the same is found in a number of Japanese cognates for relevant etyma. Elaborating upon their details must wait for another opportunity; here we will only mention that the point at issue is excellently illustrated by the sole Japanese cognate suggested in Ramstedt (1912, pp. 183–184), where he tentatively advanced "japanisch *kuwasi* (??)" as possibly cognate with WMo. *γoa* 'hübsch, schön, stattlich'. Today, with Poppe, we would reconstruct this etymon as *gobá*; MK *:kop-* 'id.' is its obvious Korean cognate; and the Japanese cognate suggested long ago by Ramstedt fits in perfectly, since it goes back to OJ *kuFa-si* 'beautiful', where the final *-si* is an adjective-deriving suffix and the intervocalic OJ *-F-* was a voiceless labial spirant, generally believed ultimately to revert to a labial stop in pre-Old Japanese.[25]

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[24] To our late colleague and friend Kim Banghan, who passed away in Seoul on 18 October 2000, is due credit for the seminal etymology associating MK *:kup-* with the Mongol and Turkic cognates of *kabúr-* 'cook, roast, bake' (Kim 1983, p. 179, to Poppe 1960, p. 48).

[25] For OJ *-F-* as the reflex of Altaic *-p-*, *-b-* when immediately followed by the original tonic accent, cf. OJ *töFor-* 'pass through' :: WMo. *tuγul-*, OTrk. *topul-* < *topúl-* (Poppe 1960, p. 47), MK *:tŭlp-* 'id.', an etymon already discussed in the literature (e.g., Miller 1989b, pp. 229–230). Had it not been for the basic antipathy of many to any reconstruction of "Altaic", this etymon alone might have been expected to validate the Ramstedt–Poppe hypothesis. The same correspondence is also observed in nouns. In OJ *tuFa* 'military armor, a warrior' (note 2 *supra*) the correspondence with the Solon cognate *coγá* recorded by Iwanoskij in 1894 is precise even to a high pitch on the final vowel (Miller 1989b, p. 230), as is the correspondence of the initial in OJ *tuFa* with original *č-* before *-u-* (*č-* before *-ü-* would have yielded OJ *y-*, Miller 1971, p. 98). A folk-

Most of our attention has necessarily focused upon problems in verbal roots and stems; but this should not be understood to imply that the phenomenon here studied is without application to etymological problems in other form-classes as well. An important case-in-point is the etymon FOAM. Here, as in so many other etyma, the trail begins in Ramstedt (1912, p. 184), who compared Osm. *köpük* 'Schaum' and WMo. *köge-sün* 'id.' Shiratori (1914–1916, rpt. 1970, p. 74) expanded the Turkic, Mongol and Tungus portions of the etymology, though without reference to Ramstedt, and also added NK *kŏp'um* 'id.', a comparison that first surfaces again in Poppe (1950, p. 575), though there without reference to Shiratori. Thereafter comparison with the Korean word becomes a commonplace in the literature concerning this etymon (e.g., Ramstedt 1952, p. 113; Poppe 1960, pp. 19, 47, 108, 127). Less frequent has been recognition of the curious fact that this NK *kop'um* does not appear to rep-

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etymology for OJ *tuFa* related by Martin (1987, p. 558) is to be dismissed out of hand, so also for his treatment (1987, p. 446) of another important Altaic inheritance in Japanese, OJ *kaFara* 'alluvial plain' (which he glosses incorrectly as 'river bed' and would understand as a "contraction" of *kaFa* 'river' + *Fara* 'plain'). The form goes directly with Altaic **kebér* 'steppe' (Poppe 1960, p. 48) with expected labial vowel assimilation before and after the internal labial. Martin's hint (*loc. cit.*) that the final *-ra* in this word "may be a suffix" is not supported by Akinaga (1977, p. 67), the authority he cites for this view; she is studying a different problem and only in passing suggests the possiblity of a *-ra* suffix here in the most cautious double negative (*kangaerarenai koto wa nai*). (Old, Middle, and New Korean cognates are also recorded for this etymon, but their philology is so involved that discussion must await another opportunity.) Early in the history of the study of the 'steppe' etymon it became confused with another (mostly?) homophonous morph, represented by WMo. *kegere*, MMo. *kihir* 'bay (horse colour)' (Pelliot 1925, p. 249, note 2). This term was first tentatively put together with 'steppe' by Ramstedt (1913, p. 45) in an attempt to explain *käirä* in the Old Turkic runic inscriptions of Sine-usu that he discovered and first published. But nothing in the contexts in which that word was there found (lines 6, 7, 18 of the Selenge text) suggests that it had anything to do with horses of any colouration; there the form is better understood as an Old Turkic form for 'steppe'. Altaic **kebere*, designating horses whose pelts bear a contrastive colouration pattern between body and tails and/or mane, has been treated in the literature since Kowalewski (1849, p. 2497b) first compared WMo. *kegere* 'bay or chestnut (colour of horses)' with Ma. *keire* 'dark brown horse with a black tail and mane'; the etymology was repeated and amplified in Ramstedt (1915/16, p. 77), and again in Poppe (1960, p. 66). Later contributions by Laude-Cirtautas (1961, p. 110 and notes 4–6, also p. 108, note 6) and Uray-Kőhalmi (1966, p. 54) have done little to clarify its history. The former reprints earlier lexical citations of Turkic forms but then goes on to confuse the etymological issue with obviously irrelevant elements; the latter does much the same for a grab-bag of forms from several languages brought together with little regard for inter-Altaic relationships and less than necessary attention to the semantic distinctions among the various reflexes of this etymon. Strikingly missing throughout the literature has been mention of a Japanese cognate attested in texts since 930, late OJ *kaFarage* 'white horse with a black mane' (*-ge* < OJ *kë* 'hair, pelt'). This form displays the same vocalic labial assimilation as does OJ *kaFara* 'alluvial plain', not to mention the same fortuitous homophony that in traditional Japanese lexicography has led to confusion between the two terms, quite similar to the unfortunate cycle of obfuscation begun by Ramstedt's attempt to understand his runic *käirä* 'steppe' as a place-name incorporating this horse-colour designation. Again, as with the 'steppe' etymon, much remains to be said about this particular colour term, whose sense in the various languages thus far documented might for the moment be summed up as 'palomino'; but even without such discussion it is clear that OJ *kaFara* 'alluvial plain' and late OJ *kaFarage* 'white horse with a black mane' both revert to Altaic originals, and that both preserve evidence for Old Japanese *-F-* as the expected reflex for an original labial stop immediately followed by the tonic accent.

resent the older (or, oldest) form for this word on the peninsula. Yi Kimun (1958, p. 110) cited New Korean dialect materials that indicate peripheral survivals of a lexeme *pŏk'um in this same sense. But he did not mention that in the texts all prototypes of NK kŏp'um are fairly late, becoming general only around the time of the Middle Korean–Chinese bilingual lexicon of 1527, when such writings as MK kŏp'ăm, kŏ.p'ŭm, and kop'um apparently supplanted an earlier well-attested MK tŏ.p'ŭm, frequently encountered in Buddhist contexts as a metaphor for 'voidness', typically described as 'foam' or 'a bubble (in the ocean)', and glossing Chin. 漚 òu 'id.'). Such a lexical *embarras des richesses* at the very least makes the etymological association of any single one of these multiple Korean forms with Osm. kopuk and WMo. koge-sun a far less simple matter than it once appeared to be. Probably the safer course at the moment would be to conclude that in Korean we are confronted by a rich repertory of forms originating in sound-symbolism, and hence that all the words cited, even those that seem to be close in form to Turkic and Mongol, are best isolated from normal etymological analysis.[26] It may well be that the sole ultimate utility for future comparative study to be identified in this bewildering FOAM etymon lies in its consistent aspiration of the Korean intervocalic consonant in question; parallel aspiration is to be observed in other Middle Korean nouns as well, in etyma that probably also relate to the same overall problem that we are considering here, e.g., MK kŏp'ŭl 'chaff' (cf. *gabúr-, WMo. gaɣurasun, Osm. qavuz 'Stroh, Hirsespreu', Poppe 1960, p. 48); MK tŏp'ŏl 'shaggy dog, mastiff' (cf. *dapá-, WMo. daɣaki 'snarl, tangle, matted (of hair)', Osm. japaq 'Fließ, unbearbeitete Wolle', Poppe 1960, p. 47).

As we have here seen, many long-standing etymologies in our literature relevant to the problem here under consideration are seriously flawed in one respect or another. At the very least a number of them, including some of the oldest and most frequently cited, require further refinement in many details, particularly in the light of the excellent Middle Korean lexical handbooks now available to us. But if the discussion *supra* makes this fact evident, it also teaches us that we do our studies no service by simply turning our backs on the work of Ramstedt and his followers merely because it contains elements that we now can identify as requiring correction. Progress in this field can only be achieved by starting with the work of the early pioneers in such studies and if possible advancing their findings, not by simply dismissing what they have done out of hand. If we keep this principle in mind, we shall frequently discover that more than one etymological hint in the existing literature that has been singled out for contemptuous abuse, particularly by critics eager to discredit Poppe's *Lautlehre*, actually has something to teach us, particularly in the light of Middle Korean. One example is, fittingly enough, that of the final entry in Poppe's canonical list of forms bearing upon our topic, WMo. nojir < *nobīr 'Schlaf' which he brought together with MTk. javaš 'sanft, mild' (1960, p. 49). Admittedly this is hardly the most impressive etymological constellation in the Altaic repertory, and it

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[26] Doerfer (1985, p. 95) labels the FOAM etymon a "Naturwort" even without the evidence of the three competing Korean lexemes; but in that same category he also (p. 94) includes STEPPE. Does this mean that all *kebe- / *kaba- etyma are *ipso facto* "Naturwörter"?

is easy to understand why it attracted the attention of the critic who dismissed it (and by implication the entire *Lautlehre*) with the remark, "with such a method – the intercalation of two arbitrary forms – almost any etymology can be made to look valid" (Sinor 1963, p. 135). But perhaps Poppe's *nobīr looks somewhat less arbitrary when confronted with MK *:nup-* 'to sleep', with its circumflex tonic accent and expected /-β- ~ -G- / allomorphs, especially when we recall that Poppe's reconstruction was carried out without reference to the Korean data.[27] In a word, these early findings in our field must be restudied and refined, not dismissed out of hand.

It has been a tradition in Korean historical linguistics, both in the Far East and in the West, to assign most morphophonemic consonant alternations at all stages in the history of the language to "lenition", under which term not only the root- and stem-final changes studied here but also a number of (hardly parallel) *-t- ~ -l-* shifts have been subsumed. As traditionally employed, this lenition is, of course, no more than a name or label; it more or less identifies what happened, but it does not tell us why it happened. We are told that this or that form in the history of the language has undergone lenition; but why a given form has been subject to the operation of this phenomenon while another has not is a question scarcely ever touched upon. When lenition is discussed, it is generally in terms that verge upon disparagement of the speakers of the language. Yi Sungnyŏng ([5]1974, pp. 70–72) attempted to approach the question by postulating three different degrees of "articulatory effort" and three also of "memory effort" on the part of speakers of Middle Korean; different levels of each "effort" intersected in different ways to produce different forms; sloppy articulation and poor memory resulted in lenition. Ramsey (1991, pp. 226–227, note 18) has suggested that a partial explanation might be found in how "dimly, if at all [speakers of Korean] are aware of [verbal segmentation]". But neither Yi nor Ramsey could explain why "low effort" or "dim awareness" altered some forms but not others; and in that same study Ramsey at least was finally forced to admit the "fatal weakness of the lenition hypothesis", at least so far as the labial stops are concerned; and with that conclusion, negative though it be, one cannot but agree.

Ramsey's evident frustration with his own failure to identify a viable historical pattern within the mass of Middle Korean tonic accent materials with which he worked is all the more poignant because, as we have seen, the Ramstedt – Poppe hypothesis provides a path out of the *cul de sac* of his materials – but since this path would have involved recognition of documented elements of linguistic history else-

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[27] Recently the study of this etymon has been placed under yet another cloud with the comparison of NK *nup-* (segmented as *nu-p-*!) directly with NJ *neru* 'to sleep' (Kortlandt 1993, p. 63), a result of uncritical reliance upon second-hand sources such as Martin (1987). The New Japanese verb *ne-*, *ne-r-* resulted from restructuring of the verb morphology in the course of the history of OJ *nu-*, *nu-r-* 'id.'; NK *nup-* may no more be directly compared with these new forms than MHG *steic*, *stigen* with NHG *stieg*, *stiegen* (Szemerényi [4]1990, p. 29) and for the same reasons. The OJ *-u-*-vocalism goes with the Altaic root (and with Middle Korean), but the *-e-* of the NJ form goes with an old aorist in *-a+i-*. and while there is no trace of the critical *-b-* in any of the Japanese forms, there is also no reason, either morphological or semantic, to segment off the Korean *-p-*. Had Sinor known of this later jumble still to come he surely would have been even more critical of the entire etymology.

where in the Altaic world predating the mid-15th century Korean adaptation of the hPhags-pa writing system, Ramsey has consistently gone out of his way to overlook it (e.g., 1991, p. 237, note 38).[28] He has gone as far as one can go – or perhaps even further – with purely "internal reconstruction". But thus isolating himself from the comparative materials available has led him to a dead-end. Reluctantly he concludes that "Proto-Korean had no pitch, length, or stress distinctions" (1991, p. 239), which would mean that all the suprasegmentals we have in our Middle Korean texts were spontaneously generated within the language itself. Instead, the comparative materials clearly show that what is at issue here is a Proto-Altaic tonic accent, inherited in one form or another in several of the later language groups, and notably reflected in the tonic accent documented in the Middle Korean texts. Of course this documented Middle Korean tonic accent is not the same thing as the Proto-Altaic tonic accent from which it was inherited, any more than parallel features in Attic Greek or even in Sanskrit were the same as the I.-E. tonic accent. But neither is it something that the Koreans randomly invented. The Korean -t- ~ -l- alternation in verb roots and stems may be completely described in terms of Altaic phonological history, obviating the necessity to treat these shifts as "lenition"(Miller 1997/98); a solution for the so-called "labial lenition" arrived at with reference to comparative materials has had to wait until the present contribution.

Lenition is not the only example of a mere name or label having been employed in the Altaic literature as a substitute for historical explanation. Terms such as "lambdacism", "rhotacism," and the like are still often utilised as ready-made designations carrying with them the implicit denial of the historical-comparative significance of the reconstruction, for Proto-Altaic, of four different, contrasting original "liquid" phonemes (Poppe's *Lateral- und Zitterlaute*), generally symbolised by writing *l, *r alongside *l₂, *r₂. The etymologies behind this set of formulations lie at the heart of the so-called "Altaic Hypothesis". It is impossible to approach the forms at issue according to neo-grammarian principles, i.e., in terms of the assumption of regular sound change, without coming to the conclusion that there once existed a Proto-Altaic original language whose phonemic inventory, at least in this segment of the phonology, was more complicated than that which survived in any of the later changed languages. To say that some forms in some languages underwent "lambdacism" or

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[28] Ramsey (1991, p. 226, note 18) honestly admits defeat in explaining why MK *:kup-* 'cook, bake' and MK *kup-* 'bent' behave differently in the morphology; but this is only because he persists in relying solely upon evidence generated by internal reconstruction. He claims to have been unable to locate "direct evidence (such as historical attestations)" bearing upon this matter, but by this he means only "historical attestations" from within Korean itself. The historical origin of the so-called "non-leniting" MK *kup-* 'bent' are clear from Altaic comparison; the original root (with thematic vowel) was *kübü-, which carried no tonic-accent following the *-b- and so was inherited fairly intact as -b- in the various languages, and {-b}, i.e., /p/, in Korean. In the majority of the other languages this root was inherited in a somewhat specialised sense of 'bend, turn over, turn under' as a technical term in sewing (Ma. *kubu-* 'to edge, to hem'; WMo. *köbege* 'a hem, edging, binding'; MTrk. (Kašɣ.) *köbi-*, *köbü-* 'to sew with an overhand, whipped, overcast seam; *überwend-lings nähen*'). Korean does not appear to have this (later?) specialised sense but only the more general (and probably original?) meaning 'be bent, crooked; bend, crouch down'; the root in the Middle Korean texts glosses, *inter alia*, Chin. 曲, 屈 *qū* 'id.'

"rhotacism" while others did not, is to explain nothing; so also with all varieties of the Middle Korean "lenition", which now also must be laid to rest.

Discussions of the classic Ramstedt – Poppe Altaic hypothesis and of their reconstructions upon which it is based have frequently centered upon $*l_2$, $*r_2$ as constituting the two "main pillars of the Altaic theory" (*pro*, Tekin 1986; *contra* Doerfer 1988; other literature in Miller 2001a). In more than one sense that is certainly true. Many, perhaps most, of the lexical "parallels" to be observed between forms in the various Altaic languages now look so much alike that they may often be suspected to have resulted from borrowing back-and-forth in one direction or another. But such borrowing cannot account for correspondences of Trk. *š*, *z* with *l*, *r* in the other "inner languages", or with OKor. *s*, *š*, or with OJ *s*, *t* in the "outer languages". If, as appears to be true, the case for "Altaic" to a significant extent rests upon these "two main pillars", then perhaps it is now time to recognise the existence of a third pillar as well, namely the Ramstedt (1912) – Poppe (1960) hypothesis of "einen Akzentwechsel … der dieselben phonetischen Wirkungen gehabt hat wie in Germanischen das 'Vernersche Gesetz' und in Finnisch-Ugrischen der 'Stuffenwechsel' Setäläs".[29]

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[29] I.e., Eemil Nestor Setälä (1864–1935), Finnish linguist and patriot, honoured as the founder of Finno-Ugrian comparative linguistics, particularly for his description of the Finnish consonant gradation (*astevaihtelu*). This phenomenon involves a set of consonant alternations within noun case-forms, some of which must have seemed to Ramstedt to be strangely parallel to the Mongol–Turkic data with which he was concerned (e.g., *luku* 'number', *luvun* 'id.' [*gen*.]; *kyky* 'ability', *kyvyn* 'id.' [*gen*.]). But Setälä's treatment of these forms was entirely descriptive; he does not appear to have arrived at an explanation on a historical-comparative basis.

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