Manichaean Elements in the Turkic Brâhmî

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1.0 Introduction

When a script suited to one language is used to write a second, there are often new linguistic features which require some orthographic innovation to be adequately rendered. New signs or devices may be invented outright, old characters and principles may be modified, or features may be borrowed from another already existing orthography.

In the late nineteenth and early twentieth centuries numerous manuscripts were brought to light in Chinese Turkestan (modern Xinjiang) in a script which has been labelled the Slanting Gupta. This is a form of Brâhmî writing which contains a number of unusual features which could not have been derived from Indian practice. It has been generally assumed that these features are all either new inventions or modifications of original Brâhmî elements. In contrast to this view, it will be argued here that some characters and principles in the Slanting Gupta were borrowed from the Manicheaean (Syriac Estrangelo) script.

The traditional view of the origin of the Slanting Gupta is based on two incorrect assumptions. On the one hand it has been thought that Buddhist Indian missionaries introduced the art of Brâhmî writing to this part of Central Asia. On the other hand it has been assumed that the Slanting Gupta was first developed to write Tocharian. There have been efforts to explain the unusual orthographic features as the result of a meeting of Sanskrit orthography and Tocharian phonology.[1] None of these attempts has been recognized as successful.

Recently I demonstrated that the Slanting Gupta was based on another Central Asian Brâhmî script, one of the variants used to write Khotanese (Hitch 1981). At the same time I showed that Old Turkic (Uigur) and not Tocharian was the first language to be written in the new orthography.[2] The discussion involved chiefly the principled relationships among the signs, rather than character morphology. The derivation of the shapes of the new characters (other than that of *wa*) was not discussed. For example, while it was shown that the principle of the dual function of *ra* and *la* in Tocharian and Turkic (representing on the one hand *r* and *l* in Sanskrit texts and loanwords, and on the other Toch. */rä/*, */lä/* and O.Turk. */rï/*, */lï/*) had a Khotanese origin, it was not shown how the new graphs originated. In this work some light will be cast on this problem of the new graphs and on other non-Indic features.

2.0 The New Radicals

2.1 Virâma Specialization

In the Old Turkic Slanting Gupta the new radicals exhibit a function which is unusual for Brâhmî scripts. The principle underly-

ing this function seems to operate as follows: whenever a consonant phoneme is to be written in virâma, a new radical is used if an appropriate one exists. For example, if a word ending in /l/ is written in ligature with the following word, the usual radical *la* is used. But if the words are separated by virâma, then the new radical *la* is written.[3]

This use of different signs in different orthographic positions is reminiscent of a similar practice in Semitic orthographies. In addition to the Brâhmî (and the Orkhon runic script), Old Turkic documents have appeared in three writing systems of the Semitic type. The Sogdian and Uigur alphabets were based on Aramaic writing, and the Manichaean alphabet was developed from Syriac. These systems feature two or three positional allographs for a single sound. I suggested that the principle of virâma specialization in the Turkic Brâhmî arose through the influence of these scripts. This idea can be extended. Since the principle in question involves new signs, the new signs themselves could be derived from the same source, as part of the same package. A comparison of morphologies reveals some significant similarities between Manichaean and Slanting Gupta signs.

2.2 Borrowed Signs

The six clearest examples of borrowed graphs appear in Figure 1. The majority is drawn from the charts in von Gabain 1950 (Man. p.17, Br. p.34). Slanting Gupta *śa* is from Krause-Thomas 1960:41; Manichaean *s* is from Nadelyaev 1969:XVII; Manichaean *z* is from Henning 1977:plate III.

Figure 1

Borrowed Signs

	Manichaean Script	Slanting Gupta	
l			*la*
s			*śa*
š			*ṣa*
t			*da*
z			*za*
g			*ga*

2.3 Mechanical Differences

Manichaean is a linear alphabetic script. That is, the letters follow one another in a line, with coterminous speech sounds being represented by adjacent letters. It is read from right to left. Brâhmî orthographies in contrast are aksara alphabetic. Two kinds of symbols, radicals and diacritics, are arranged in clusters called akṣaras. Although the akṣaras themselves are written in a line, within such a cluster the representation of speech sounds follows a more complicated formula. Basically, the radicals are written in the core of an aksara while the diacritics are placed around the periphery (in this case above, below or to the right). For the present purposes, it is the arrangement of the signs within the core which is of interest. These are written in vertical (rather than horizontal) ligature. The Brâhmî is read from left to right.

There are thus significant differences between these two orthographies in the way in which signs are related on the written page. While Manichaean letters flow in a horizontal line to the left, the Brâhmî radicals are in vertical ligature in rightward running akṣaras. These differences should be reflected when signs are borrowed from one system into the other. That is, some characters will be reversed with the direction of writing and some will have changed attitude to better enter into vertical ligature.

The reversal in direction is best seen with the pair *s-śa*; in the former the larger bump is to the left, in the latter it is to the right. Because some signs like *s-ṣa* have a symmetrical shape, it is not possible to determine whether or not they have been reversed. Others, like *l-la* appear to be written in the same way. The pair *t-da* best shows the change in attitude. Further, a tail has been added to *da* to facilitate the ligature to radicals beneath it. Finally, at least one sign, *z-za*, exhibits both reversal and rotation.[4] These steps are illustrated in Figure 2.

Figure 2

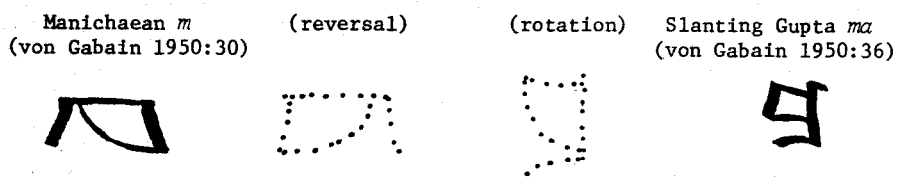
Manichaean *z* - Slanting Gupta *za*

3.0 The Origin of Slanting Gupta *ma*

One usual radical appears also to have been borrowed from the Manichaean script. In what was probably the first palaeographic analysis of the Slanting Gupta, Rudolf Hoernle (1893:4) remarked on the curious form of *ma* . Since he was assuming a direct Indian origin of the orthography he proposed that the parent of the character was to be recognized in , a form rarely attested on gold coins of Samutra Gupta (*ibid.*). But since a Khotanese and not an Indian derivation of the script has to be reckoned with, the unusual morphology of the radical must have had a different origin. It does not seem to have been patterned after the forms of Khotanese *ma* (earlier or Formal script , Leumann 1934:17; later or Cursive script[5] , Asmussen 1961:plates). On the basis of the principles determined above with respect to the borrowed new signs (cf. 2.3), the original of the Slanting Gupta *ma* can be recognized in the Manichaean *m*. That is, the character has reversed and has changed attitude. These effects are illustrated in Figure 3.

Figure 3

Manichaean *m* - Brâhmî *ma*



4.0 The distribution of *ga*

The representation of guttural phonemes in the Turkic Brâhmî is governed by two intersecting rules, one phonological and one orthographic. As in other Old Turkic writing systems the front and back allophones are distinguished by separate signs. But at the same time because of the principle of virâma specialization there is also a difference in the representation of phonemes according to the kind of akṣara, virâma, or nonvirâma in which they are written. Figure 4 outlines the distribution of the guttural signs in the text in Bailey (1939).

Figure 4

Writing Gutturals in the Turkic Brâhmî

		Nonvirâma	Virâma
/g/	[ɣ]	*ha*	*ˋg*
	[g']	*ga*	*ˋg*
/k/	[q]	*qa*	*ˋq*
	[k']	*ka*	*ˋk*

Although there are eight different categories outlined by these rules, it is likely that no more than six different representations (for two phonemes!) were used in any text. In the document in Bailey (1939, Fig. 4) five radicals were in use. Other documents exhibit a further distinction between the nonvirâma and virâma signs for [*q*]. For instance, in document A (von Gabain 1954) there is *qa* in nonvirâma and *ˋhkh* in virama while document C (*ibid.*) has *qa* and *ˋhk*. In these texts there are distinct representations in all four /*k*/ categories, a fact which illustrates the necessity of recognizing both an orthographic and phonological rule.[6]

It is curious that only one virâma specialized sign was used for the allophones of /*g*/ while two seem to have been usual for /*k*/. The explanation for this probably lies with the similarity in the morphology of the signs for [*ɣ*] and [*g'*] in the Manichaean script. As can be seen in Figure 1, *g* and *ɣ* are identical except with respect to their tails. In the former the line turns up forming a small bulb while in the latter a loop is deliberately created. In the Brâhmî, characters are not distinguished by their tails. In fact the situation is somewhat the opposite with several radicals having an identical tail. This feature can be seen in the usual signs *a*, *ka*, *la*, and *ḍa* (Figure 8) as well as in the new graphs *za*, *da*, *ga* (cf. Fig. 1). Thus it seems that when virâma specialized signs were being introduced into the Brâhmî, what may have been two separate Manichaean models gave rise to a single radical: the distinctive difference in the tails was lost. This orthographic merger was acceptable because it did not give rise to polyphonemicity; *ga* always represents the single phoneme /*g*/.[7]

5.0 The Turkic Front Vowels

Clauson (1962) noticed that both the Brâhmî and the Semitic orthographies employed approximately the same principle to render the Turkic front vowels. Roughly speaking, both scripts combine the graphs for the usual back vowels with the graph for the consonant /*y*/. He

further noted that,

> the device of using *jod* [resp. *ya*] in a non-phonetic manner to distinguish the quality of the adjacent vowel letter is unlikely to have been invented twice quite independently, but there is no means of ascertaining in which script, Brâhmî or Sogdian [resp. Manichaean], it was first introduced.
>
> (p. 111)

In actual fact, a close examination of the writing of vowels in these orthographies reveals several relationships which can only be explained if the direction of adaptation was Semitic → Brâhmî. Although the means of writing the Turkic vowels is essentially the same in the Uigur, Sogdian and Manichaean scripts, and thus any of these variants could have provided the model for the Brâhmî, in light of the preceding evidence of character morphology the Manichaean script will be used in the illustrations to follow.

5.1 Turkic Front Vowels in the Brâhmî

In the Turkic Brâhmî the vowels */ü/*, */ö/* and */ä/* are marked by the appending of the radical *ya* to akṣaras containing the graphs for the vowels */u/*, */o/* and */a/*. Although the principle is theoretically the same for all akṣaras, there are noticeably disparate effects. For akṣaras with consonantal value, e.g. *ko /ko/*, the formula for reading the clusters with *ya* attached, e.g. *kyo /kö/* shows *y* preceding *o* (cf. Fig. 5). In contrast, for akṣaras with strictly vocalic value, e.g. *o /o/*, the interpretation formula shows *y* following *o*, e.g. *o͡ya͡ /ö/* (cf. Fig. 5). It would seem that some scribes were uncomfortable with the implication that a vowel *a* was incorporated into this latter kind of akṣara, so they consistently attached a vocalic diacritic of the same value as the radical to nullify the *a*, e.g. *o͡yo͡ /ö/* (cf. Fig. 5).

A further significant feature of the application of this principle concerns the writing of */ä/* in akṣaras with strictly vocalic value. In some manuscripts *ya* is attached to *e*, i.e. *e͡ya͡*, instead of to *a* (cf. Fig. 5). But because just one or the other radical, *a* or *e*, is consistently used as the base of the akṣara in any manuscript, it is clear that this variation is orthographic and not dialectal in nature. It is also interesting that those scribes who felt a need to displace an incorporated *a* and wrote *u͡yu͡ /ü/* and *o͡yo͡ /ö/*, did not attach a further diacritic to *e͡ya͡ /ä/* (e.g., von Gabain 1954 Document I).

Figure 5

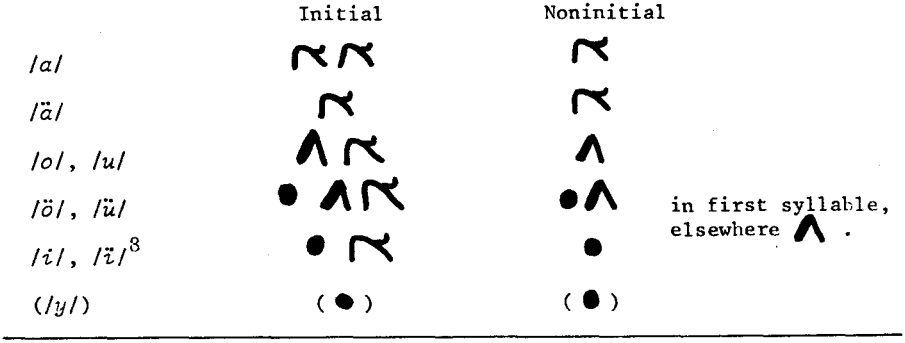
Front Vowel Akṣaras

5.2 Turkic Front Vowels in the Manichaean Script

There are three orthographic units used separately and in combination to represent vowels in Manichaean writing: 𐫀 aleph, 𐫁 yod, and 𐫃 vau. The rather complicated system is illustrated in Figure 6.

Figure 6

Manichaean Turkic Vowels



The Manichaean script is not as effective as the Brâhmî in marking vocalic distinctions. Several points are relevant to the present discussion. One, there is no difference in writing between */o/* and */u/*, and between */ö/* and */ü/*. Two, in second and further syllables, all four rounded phonemes are represented by the single letter vau. Three, while yod distinguishes */ö/*, */ü/* from */o/*, */u/*, it does not distinguish */ä/* from */a/*. Four, yod always follows the usual rounded vowel sign. Five, while yod stands for the consonant */u/*, it is also the most frequent representative of the vowels */i/* and */ī/*.

5.3.0 Direction of Borrowing

The most fundamental indication that the Brâhmî vowel writing was influenced by the Manichaean, and not vice versa, is the fact that the former was a much better tool for writing vowels. If Turkic Manichaean scribes had borrowed the principle of combination with *y* from the Brâhmî, then they probably would have also been inspired to introduce other improvements.

5.3.1

The inability of the Manichaean script to distinguish */o/* from */u/* and */ö/* from */ü/* is an inheritance from its Semitic origin. In the Brâhmî there are radicals and diacritics for both */o/* and */u/*, and combined with the principle of ligature with *ya*, all four Turkic rounded vowels could be, and most often were, distinguished in all positions. However, there were two significant hesitations in this respect, both noted by Clauson (1962). One of these is the frequent writing of *o/ö* in the second and subsequent syllables where *u/ü* is expected. In most Turkic languages, and probably also Old Turkic, the vowels */o/* and */ö/* can occur only in the first syllable. However, Clauson has interpreted the evidence of the Brâhmî writing as indicating that Old Trukic was an exception to the pattern. Yet as variants like *ötrü, ötrö* for */ötrü/* 'then' and *oḫol, ṯgul* for */ogul/* 'son' (von Gabain 1954:94) suggest, these hesitations were probably orthographic in nature. Further, Clauson also noted a confusion between the front round vowels in initial position.

> It seems that some of the scribes had difficulty in distinguishing acoustically between *ö* and *ü*, so that words which were certainly pronounced, say *ö:d* "time" and *öt* "advice" are sometimes written with *ü-* . (p. 94)

Thus, on the one hand Clauson argues that the hesitation in second and subsequent syllables is linguistically significant, but on the other he claims that in first syllables the phenomenon is due to scribal fallibility. It is more consistent to regard both effects as part of the same orthographic tendency. The hesitation probably reflects the lack of distinct markings in the Manichaean script.

5.3.2

In the Brâhmî the relative backness of the round vowels is always marked, while in Manichaean script this is indicated only in the first syllable. This difference is due to the mechanical discrepancies involved. In the linear alphabetic Manichaean script, word boundaries are almost always clearly marked either by specialized initial or final graphs, or by a larger space between the letters, or by both means. Thus when one knows whether the first vowel in a word is front or back, because of vowel harmony one also knows the relative backness of the other vowels in the same word. In the akṣara alphabetic Brâhmî, word boundaries are much less clear, very often occurring within an akṣara and thus without either a specialized graph or a space between vowels.[9] Undoubtedly the frequent use of virâma and the introduction of the virâma specialized signs (cf. 2.1) were meant to compensate for this weakness. But while these devices do aid the reader, not all words are separated, and of course not all spaces between akṣaras correspond to word boundaries.[10] Thus in a sentence like *o la ryȯ gryo ñclyo gya ryu rlyâ* `*r* */olar ögrünčlüg ärürlär/* 'they are joyful' (von Gabain 1954:A8) the akṣaras *ryo* and *gyâ* both contain word boundaries, and none of the spaces between aksaras marks the end of a word. If the relative backness of the vowels was not marked for every syllable, the texts would be much harder to read. In light of these mechanical differences between the two scripts, it is easy to see how the Manichaean principle of marking frontness with *y* would require further development if borrowed into the Brâhmî. At the same time, if the principle were adapted in the reverse direction, one would expect all the front rounded vowels in the Manichaean to be marked with *y*.

5.3.3

The Manichaean script does not distinguish */a/* from */ä/* except in initial position. The Brâhmî, in contrast, always differentiates these two and does so with the same principle as with the round vowels. Thus, if the principle of ligature with *ya* had been adapted from the Slanting Gupta into the Semitic orthographies one would expect that here the low unrounded vowels would also be differentiated by yod. There is further the variation in writing */ä/* in postvirâma (after a space between akṣaras in the Brâhmî which suggests the principle to be secondary here. As previously mentioned (cf. 5.1) some scribes consistently chose the radical *e* and some *a*, as the sign to have its value modified by *ya* (i.e., either *e͡ya* or *a͡ya* stands for */ä/*). If the principle had been invented in the Brâhmî, then it would have been used consistently. Instead, it seems that it was first introduced in its original Manichaean application to just the round vowels, and subsequently extended in different ways by different orthographic schools to include also */ä/*.

In this respect there is another secondary development in the Brahmi which is worth noting. In one short manuscript (von Gabain 1954:K) the principle of ligature with *ya* is used three times in the twelve lines to distinguish also the front */i/* from the back */ï/*: e.g. *kyâ lyi* `*p* for */kälip/* 'come (converb)' (1.12).

5.3.4

In the Manichaean script the yod always follows vau in the representation of the front vowels. In contrast, in the Slanting Gupta the *ya* is read sometimes before and sometimes after the vowel sign (cf. 5.1). This difference in the Brâhmî corresponds to the mechanical differences between radicals and diacritics. Most frequently vowels are represented by diacritics, and in these instances the radical *ya* is read before the vowel, e.g. *yu* /ü/. Less often a vocalic radical is used, and here the *ya* is read after, e.g. *u͡ya* /ü/. But even in this latter case some scribes felt compelled to append to the akṣara a diacritic of the same value as the radical, and then this vowel sign would also be read after *ya*, e.g. *u͡yu* /ü/. If the principle in question had been borrowed into the Manichaean script, then it would be expected that the juxtaposition of '*y*' and the vowel sign would be that most regularly occurring in the Brâhmî model. But this is not the case. On the other hand, if the Manichaean principle were transmitted to the Brâhmî, some modifications would be necessary. With vocalic radicals the order of Brâhmî elements would be the same since the vowel marking and *ya* can be written thus in the same akṣara. But with vocalic diacritics the order of elements has to be reversed, otherwise the radical *ya* would have to be written in the following akṣara. That is, the two graphs representing a single sound would appear in different orthoclusters separated by a space, and they would be awkward to interpret. Thus, the Brâhmî scribes followed the general principle that a single vowel sound is to be written in a single akṣara, and appended *ya* in the same way to both kinds of units, even though this creates a discrepancy in the order in which the elements are to be read. If the principle had been invented by writers of the Brâhmî, this discrepancy might not be expected. That is, instead of vocalic radicals, the radical *ya* with a diacritic would also be used in postvirâma; i.e. **yu* /ü/ instead of *u͡yà* or *u͡yù*.

5.3.5

Manichaean yod not only represents the consonant /*y*/ but also the vowels /*i*/ and /*ĭ*/. It is therefore correct to say that the front round vowels in this script were marked not by a combination of vowel and consonant signs, but by two vowel letters. This is not the case with the Brâhmî. A scribe trying to write [*ü*] with an orthography which previously had no special marking for such a sound would have looked for the most obvious and direct way to represent it. He would have noticed that [*ü*] partly resembled [*i*] and partly [*u*]. And having at his disposal letters for these latter sounds, he would have combined them to show the more or less combined sound. In this way, it is more likely that the principle in question arose in the system in which the front round vowels were marked by vowel signs (Manichaean script) rather than by a combination of vowel and consonant graphs (Brâhmî script).

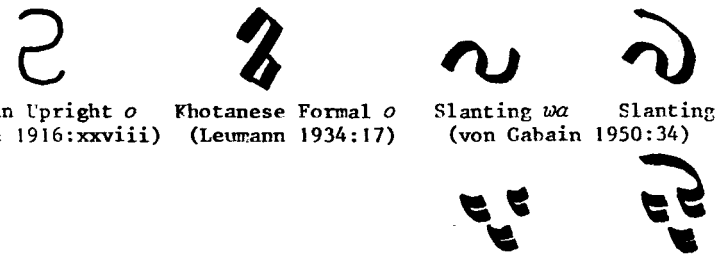
6.0 Slanting Gupta *wa*

As recently demonstrated (Hitch 1981:38–40) the morphology of the new radical *wa* in the Slanting Gupta is to be paleographically

identified with the radical *o* of the Indian and Khotanese scripts (cf. Fig. 7). Also, the morphology of the Slanting Gupta *o* is to be recognized structurally as long *o*. The graphic relationship *wa:o* is the same as *i:î* (cf. Fig. 7) since the second radical in each set possesses the identical additional stroke. Thus it seems that when an original *o* became used as a semivowel, the orthographic slot which it vacated was filled by a sign nearest in value.

Figure 7

Original Radical *o* - Slanting Gupta *wa*



Indian Upright *o* (Hoernle 1916:xxviii)

Khotanese Formal *o* (Leumann 1934:17)

Slanting *wa* (von Gabain 1950:34)

Slanting *o* (von Gabain 1950:34)

Slanting *i*

Slanting *î*

(von Gabain 1950:34)

Three problems with respect to this sign remain to be explained: why the character has changed its attitude; why there was innovation at all when a labial semi-vowel radical *va* was already available; and, why the morphology of *o* was selected instead of the phonetically more appropriate *u*.

6.1 Rotation

The rotation of the character may be associated with the rotation of the new and usual radicals borrowed from the Manichaean script (cf. 2.3, 3.0). While the radical *o* is not written in ligature in Indian and Khotanese practice, both *wa* and *o* are in the Turkic Brâhmî. After being rotated, these latter occupied less vertical space (like *t-da*, cf. Fig. 1) and helped keep the akṣaras from running into the line below.

6.2 *wa - va*

In the Manichaean script used to write Old Turkic there were two letters used for labial semi-vowels. One, vau, not only represented the

round vowels but also stood for a consonant in loan words. The other, a beth modified by the addition of two superscript dots (in Sogdian representing [β] was used for the native labial glide phoneme.

When Brâhmî writing was being adapted to Old Turkic, it was for some reason felt that the single radical *va* was insufficient. Although it is possible that the value of this sign in Khotanese pronunciation did not closely enough approximate the sound of the Turkic phoneme, it is also feasible that the scribes were simply accustomed to having an orthography with two symbols of similar value but distinct functions.

6.3 The Selection of *o*

In order to obtain a second or more appropriate symbol, instead of borrowing the Manichaean graph (or inventing a new one) the principle that a sign could represent both vowel and semi-vowel was borrowed. Since Manichaean vau stood for both */o/* and */u/*, there was in effect a choice available between the Brahmi radicals *o* and *u*. The former was selected probably because its shape was most distinctive. Since the lower part of the radical *u* resembles several other signs (an *u* diacritic, the subscript *r* diacritic, and the new radical *la*) there would have been confusion when this radical was written as the second element in a ligature, and so it was avoided.

7.0 The New Radical *qa*

In the Manichaean script the signs for [*q*] ( , ) are modified from the signs for [*k*] ( , ) by the addition of two superscript dots. The original form of the Brâhmî did not distinguish these sounds. When the Slanting Gupta was being developed, instead of a graph being borrowed or invented the Manichaean principle that *q* is a modified *k* was adopted. The modification of *qa*  from *ka*  by means of a stroke instead of two dots had a two-fold motivation. On the one hand the diaeresis was already in use in the Khotanese Brâhmî as a vowel sign. On the other hand the dots would impede ligature when *qa* was to be written as the second or subsequent element.

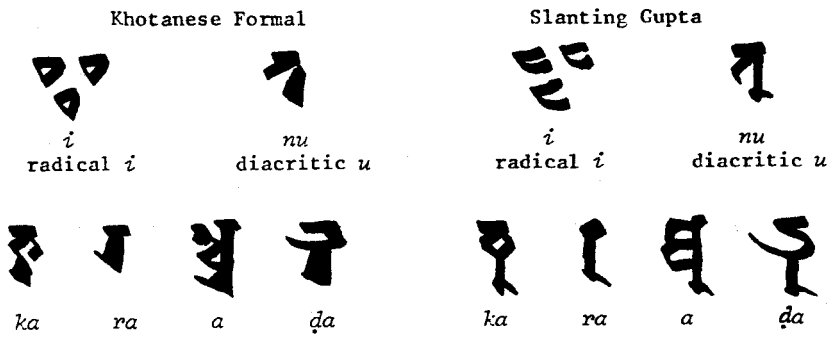
8.0 The Reversal of Usual Graphs

Certain nondistinctive features in the Slanting Gupta exhibit a more or less mirror-image of the Khotanese predecessor. Since these features do not affect the interpretation of the script they can easily go unnoticed. But also because they are nondistinctive they were most susceptible to change at the time of the hybridization of the orthography. These features help to shape the overall appearance (or ductus) of the script. By considering the reversals as the result of Manichaean influence, the original Khotanese ductus is more easily perceived.

Figure 8 shows the characters involved: the radical *i*; the tails of the radicals *ka*, *ra*, *a*, and *ḍa*; and a *u* diacritic (Khotanese aksaras from Leumann (1934:17); Slanting Gupta signs from von Gabain (1950:34-35) except *ḍa* from Krause-Thomas (1961:41)). The Khotanese radical *i* is formed by drawing three clockwise loops, the final narrow closing stroke is to the left. In the Slanting Gupta the loops are drawn counter clockwise and are left open to the right. The Khotanese tails consist of a vertical line downward, a stroke to the left and then a third line up rejoining the first. In the Slanting Gupta, after the vertical line there is an arc to the left.

Figure 8

Graphic Reversals



9.0 The Ductus

The Slanting Gupta was originally named by Rudolph Hoernle who was struck by the 'peculiar angular and slanting form' (1893:4) of the characters. Since the Manichaean script may also be described as 'angular and slanting' it is feasible that it is the source of this general morphological trait. That is, the developers of the Slanting Gupta were used to a particular kind of ductus and retained it in the new script.

10.0 Conclusion

By regarding the Slanting Gupta as a hybrid orthography containing Manichaean as well as Brâhmî elements, a wide variety of phenomena can be explained. These include the principle of virâma specialization, the raison d'être and form of certain new radicals, the unusual morphology of *ma*, the distribution of the Brâhmî Turkic

guttural signs, the method of writing the front vowels as well as the variants on this method, the modification of *wa* from *o* and of *qa* from *ka*, the reversal of the radical *i* and the tails of certain signs, and perhaps even the origin of the slanting ductus itself.

The hybridization evidence stands as independent support of the hypothesis expressed in Hitch (1981) that the Slanting Gupta was first developed to write Old Turkic and only subsequently adapted to Tocharian and Tumshuq Saka. These ideas raise questions about the relationship between Turks and other Central Asian peoples, and about the interaction of Manichaeism and Buddhism in medieval Xinjiang.

Footnotes

[1]These include Reuter (1925), Mironov (1929), and Pedersen (1941).

[2]The rather involved discussions in favour of that perspective will not be summarized here; the evidence presented in these pages can stand as an independent complement to those arguments.

[3]Although a similar phenomenon occurs in Tocharian writing, the Old Turkic principle is different in two significant respects. In Tocharian Brâhmî all the doubles in nonvirâma akṣaras incorporate the vowel /ä/, while in the Old Turkic just the new liquid radicals *la* and *ra* incorporate /ï/ in nonvirâma. Further, in the Old Turkic Brâhmî the new radicals which are not shared by Tocharian (i.e. *qa*, *ġa*, *and za*) also follow the principle. For instance, *asïγ* 'Nutsen' is written *âsi˘ġ* and *âsïh* in the same manuscript (von Gabain (1954: D22 and 18)). It is clear that the Tocharians adopted and modified the Turkic practice and not vice versa.

[4]The rotation of *z-za* made the tail of the character follow the general pattern exhibited in the Slanting Gupta. The usual radicals *a*, *ka*, *ra*, and *ḍa* all possess a similar tail (cf. Fig. 8) and, like *za*, they are written without it when another radical appears in ligature below.

[5]The terms 'Formal' and 'Cursive' are capitalized because it is not clear that the latter is merely a cursive development of the former.

[6]Also in these texts (von Gabain (1954:A and C)) there is a tendency to use *ġa* in place of *ha* as the nonvirâma sign for [γ]. This is probably the result of the paradigmatic pressure caused by the presence of *ġa* in the three other categories of /*g*/ signs.

[7]The usual interpretation of the origin of *ġa* is that it is a modification of the radical *ra* (cf. von Gabain (1941:38) and further Clauson (1962:95-96)). That point of view is not phonetically satisfying, and it cannot explain the use of *ġa* as the virâma representative of both voiced guttural allophones.

[8]Some manuscripts regularly use  (ain yod) for initial /*i*/, /*ï*/ and  (yod yod) for final /*i*/, /*ï*/.

[9]In fact, in writing Sanskrit, word boundaries are not marked in principle—they are rather blurred by the sandhi rules.

[10]Further, sometimes the new devices even break up the morphemes of a single word; e.g. *öyâ ˘ġ di lyâ ˘r* /*ögdilär*/, 'adulations', from the verbal root /*ög-*/ 'to praise' (von Gabain (1954:H8)).

References

Asmussen, Jes Peter. 1961. The Khotanese Bhadracaryâdeśanâ. (Hist. Filos. Medd. Dan. Vid. Selsk. 39, no. 2.) Copenhagen: Ejnar Munksgaard.

Bailey, H. W. 1939. Indo-Turkica. BSO(A)S 9:289-302.

Clauson, Sir Gerard. 1962. Turkish and Mongolian Studies. (Prize Publication Fund vol. XX.) London: Royal Asiatic Society of Great Britain and Ireland.

Hoernle, Dr. A. F. Rudolf. 1893. The Weber MSS. JASB Vol. 62, No. 1: 1-40.

————————. 1916. Manuscript Remain of Buddhist Literature found in Eastern Turkestan, Vol. 1. Oxford: Clarendon Press.

von Gabain, A. 1950. Alttürkische Grammatik. 2nd 3d. (Porta Linguarum Orientalium XXIII) Leipzig: Otto Harrassowitz.

————————. 1954. Türkische Trufantexte VIII. ADAW.

Henning, W. B. 1977. Selected Papers I. (Acta Iranica 14, 2nd series, Vol. 5) Leiden: E. J. Brill.

Hitch, Doug. 1981. Central Asian Brâhmî Palaeography: The Relationships among the Tocharian, Khotanese, and Old Turkic Gupta Scripts. Unpublished M.A. Thesis: The University of Calgary.

Krause, Wolfgang and Werner Thomas. 1960. Tocharisches Elementarbuch, Vol. 1. Heidelberg: Carl Winter.

Leumann, Manu. 1934. Sakische Handscriftproben. Private Publication. Zurich.

Mironov, N. D. 1929. Kuchean Studies I: Indian Loanwords in Kuchean. Rocznik Orjentalistyczny VI:89-168.

Nadelyaev, V. M. *et al.*, eds. 1969. Drevnetyurskiy Slovar'. Leningrad: 'Nauk' publishing House.

Pedersen, Holger. 1941. Tocharisch vom Gesichtspunkt der indoeuropäischen Sprachvergleichung. (Det Kgl. Danske Vid. Selsk., hist.-fil. medd., Vol. 28, No. 1.) Copenhagen: Munksgaard.

Reuter, J. N. 1925. Bemerkungen über die neuen Lautzeichen im Tocharischen. In: Studia Orientalia ed. Commentationes in honorem Knut Tallquist. (Societas Orientalis Fennica I.) Helsinki, 194-237.