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THE ḤP'AGS-PA ALPHABET

By GERARD CLAUSON

THE first publication of an inscription in the ḥP'ags-pa alphabet by a European scholar was made about 120 years ago by H. C. von der Gabelentz in the *Zeitschrift für die Kunde des Morgenlandes* (Halle), II, 1, 1839. Books and articles relating to the subject have been appearing intermittently ever since, but finality has not yet been reached on the exact shape and phonetic value of some letters in the alphabet. With the recent appearance of two publications of capital importance in this field the stage has been set for an attempt to establish finally the exact shape of each letter in its earliest and most correct form, and its exact phonetic value, in so far as it is possible in the twentieth century to fix anything as intangible and evanescent as a sound current in the thirteenth century.

So far as the shapes of the letters are concerned, the material available is sufficient to reach absolute certainty regarding all the letters except perhaps one, and so incidentally to correct one or two errors of transcription in even the latest publications.

So far as their phonetic values are concerned, it seems to me possible to fix the phonetic values of all the letters used in Mongolian texts, and those of the consonants used in the Chinese texts. So far as the vocalization of the Chinese texts is concerned, however, I cannot do more than set out the whole of the evidence which is available, leaving it to others more competent than myself in this field to interpret it.

The first of the two publications just referred to is Professor N. Poppe's book *The Mongolian monuments in ḥP'ags-pa script* (Göttinger Asiatische Forschungen, Bd. 8; Wiesbaden, Harrassowitz, 1957). It is a comprehensive edition of almost all the Mongolian texts in this alphabet which have survived, with facsimiles, transcriptions, translations, and a copious introduction, commentary, and list of words. In my frequent references to it I shall quote it as P, followed by a page number, and the texts in it by a roman number for the text, followed by an Arabic number for the line. In the hope that Professor Poppe will ultimately complete this *magnum opus* with a supplement containing copies of the texts not yet included I attach an Appendix to this paper making a few suggestions for amendments in the present volume.

The second publication is Professor L. Ligeti's paper 'Le *Po kia sing* en écriture 'phags-pa' (*Acta Orientalia Hungarica*, Vol. VI, 1956, pp. 1–52). It is an edition, with a facsimile, commentary, and indexes, of a ḥP'ags-pa transcription, character by character, of the well-known list of Chinese family names. I shall quote it as 'Ligeti, op. cit.', followed by a page number; the individual ḥP'ags-pa transcriptions I shall quote as L, followed by the number given in the paper; and the original text as a whole I shall refer to as *PKS*.

Besides these two publications I have also studied the MS in the British

Museum (Or. 6972) of the *Mêng-ku tzŭ-yün*, dated A.D. 1308, which I shall refer to as *MKTY*. This MS, which has now lain in the British Museum for nearly 50 years, contains evidence of major importance not only regarding the ḥP'ags-pa alphabet but also regarding the history of Chinese phonetics. It is a matter of urgency that it should be published in full, or at any rate in summary form, and it is good news that Professor Ligeti (op. cit., p. 37) is now proposing to devote his attention to it.

Many of the problems discussed in this paper have been discussed already by distinguished scholars now deceased like Pozdneev, Dragunow, Pelliot, and Lewicki, and by others still happily with us like Poppe and Ligeti. The fact that I do not quote their views on various points at length does not mean that I have not read their works, or lack respect for their achievements; it merely means that I think that there is advantage in approaching the whole subject *de novo*, on the basis of all the surviving texts of the thirteenth and fourteenth centuries, Mongolian and Chinese alike, and attempting to solve the problems which arise by a process of logical deduction from these documents.

The history of the invention of the ḥP'ags-pa alphabet and its adoption as the official alphabet of the Yüan dynasty is well known. It is set out summarily in P, pp. 3–7. It may be apocryphal on some points of detail, but fundamentally it rings true. It is easy to imagine that Qubilay, the first Mongol ruler with any serious claim to literacy, must have suffered daily from a double feeling of frustration when he ascended the throne. On the one hand the Mongolian official correspondence of his empire was conducted in the old Mongolian Official Alphabet adopted by Chinggis in about A.D. 1204. This was simply a late form of the old Uyğur alphabet, which by that time contained no more than 14 letters, most of them polyphonic and several easy to confuse with one another, especially in the middle and at the end of a word. Incomprehensible and ambiguous words, and misreadings of them, in documents in this alphabet must always have been, and indeed still are, frequent.[1] On the other hand his Chinese official business was carried on in Chinese, a language which his Mongol kinsmen and principal officers might perhaps speak, but could certainly not read. Thus, whichever way he looked at it, what he wanted urgently was a good 'one letter, one sound; one sound, one letter' alphabet, easy to read and suitable for writing both the official languages of his empire. In ḥP'ags-pa Lama, to give him his usual short title (I shall refer to him in future as 'ḥPL' and to the alphabet which he invented as 'ḥP'), a Tibetan monk with a good Buddhist education, with all that that implies in the way of a solid grounding in the niceties of Indian phonetics, and an adequate acquaintance with Chinese culture, he had a man well equipped to give him exactly what he wanted.

[1] A re-examination of this alphabet, with the particular purpose of establishing the phonetic value of the letters at the time when it was adopted for Mongolian is much overdue. I hope to produce a paper on this subject shortly.

Someone, at some time during the Yüan period (A.D. 1280–1368), probably towards the end of it, wrote a brief monograph in Chinese, which I shall refer to in future as 'the monograph', on the origin and nature of this alphabet. It has come down to us in several forms, unhappily all more or less garbled. It is not a very competent document, particularly as regards phonetics, but it is our only authority for the number and order of the letters of the alphabet, and throws some light on the problem of the 'A letters' discussed below. The stemma of transmission of this monograph would be an interesting subject for a piece of literary detective work, but the important thing is to reconstruct its original form. One chain of transmission ends with the section in the *Fa-shu k'ao* reproduced in P, pp. 10–11. An intermediate stage in another chain of transmission was the section in the *Shu-shih hui-yao*, written in A.D. 1376, reproduced in P, pp. 12–13. The section in the latter work was later copied into the *Yüan-shih lei-pien*, also called the *Hsiu-hung chien-lu*, which was the authority used by G. Pauthier in his paper 'Observations sur l'alphabet de P'a-sse-pa, et sur la tentative faite par Khoubilai Khan au XIII^e siècle de notre ère, pour transcrire la langue figurative des chinois au moyen d'une écriture alphabétique', *Journal Asiatique*, V^e Sér., XIX, 1862, pp. 1–47. Better versions of the texts reproduced in P seem to exist in the British Museum and the School of Oriental and African Studies, but even in the best of them imperfections occur, more particularly in the forms of the various letters, which have suffered a progressive deterioration at the hands of successive copyists. A reproduction of the equivalent page in the School's manuscript of the *Shu-shih hui-yao* is attached on p. 321. It will be noticed that in this manuscript the table of letters and transcriptions is complete. Later at some point in this chain of transmission the corner of the page bearing the Chinese phonetic representation of letters No. 6, 12, and 18 was torn off, and these are lacking in the copy reproduced in P, pp. 12–13. On the other hand at some point in the *Fa-shu k'ao* chain the whole document, and especially the final paragraph, was much abbreviated. However, by comparing the various versions, an archetype can be reconstructed which can be translated as follows, passages omitted in the *Fa-shu k'ao* chain being enclosed in (round brackets) and words necessary to complete the sense in [square brackets][1]:

'(Our) Imperial Yüan established its foundations in the North Country, and its [people's] customs were still primitive. They carved wood into tallies, just as [the ancient Chinese] tied knots. Later they made some use of the alphabet of Pei-t'ing [Béş balık, the capital of the later Uyğur dynasty] and wrote on sheep-skin, just as [the ancient Chinese wrote] on bamboo strips. (Now Heaven was about to revolve the ages [i.e. set up a new dynasty] and

[1] This translation is based on those given in P, p. 14, and has been checked by Professor W. Simon. I take this unduly unobtrusive opportunity to express to him my sincere gratitude for his help in this and many other matters, and in particular for introducing me to the *MKTY*.

restore the [good] old times.) Then they possessed all China, (but did not yet have leisure to create [an alphabet].) Then [the Emperor] commanded (the National Preceptor) P'a-ssu-pa to take the Fan [1] writing as a model and create a national alphabet, (which was no mean contribution.) The letters are 41 [2] in all.

Table.

The 41 principal letters of the alphabet (see below), each accompanied by a Chinese transcription.

The [initials of the] Chinese characters appended [to the individual letters] are to be pronounced with a final **-a** [irrespective of their actual finals]. For transcribing Chinese omit three letters, Nos. 25, 35, and [30 or 38, see below], and add four letters, Nos. 37A, 27A, 29A, and 24A. The spelling is mostly based on Fan rules. (Sometimes one [ḤP] letter alone constitutes a [Chinese] word. Sometimes two or three [ḤP] letters joined together constitute a [Chinese] word. For example **t'en** *t'ien* ('heaven'), **di** *ti* ('earth'), **žin** *jên* ('man'), **duŋ** *tung* ('east'), **hi** *hsi* ('west'), **nam** *nan* ('south'), **bué** *pei* ('north'). Note that one and the same [ḤP] scription represents a Chinese word in the level, rising, or falling tone. They do not [differentiate] the entering tone [i.e. they do indicate any final sounds for words in the entering tone]. After all if the entering tone is pronounced lightly it is identical with the level tone.) All edicts, decrees, and memorials are written in this alphabet.'

At first sight the statement that the four 'A letters' are added to the alphabet for transcribing Chinese contradicts the theory that the alphabet was originally devised, *inter alia*, for this purpose, but there is, I suggest, a simple explanation of this apparent contradiction. When ḤPL received his orders, he set about constructing a 'one letter, one sound; one sound, one letter' alphabet based on the Tibetan alphabet with such additional letters as seemed to him, as a phonetician with an Indian background, to be required to represent sounds which he heard in Mongolian and Chinese, but which were different from the sounds represented by the Tibetan letters. As a first approximation, therefore, he added no more than five letters, Nos. 35–39, to the Tibetan original. But later when some person or persons, probably the members of the special academy set up in A.D. 1275 (see P, p. 6), went more deeply into the problem of the scientific transcription of written Chinese, it was found that the phonetic dictionaries currently in use [3] distinguished between certain shades of sound for which separate letters did not exist in

[1] Fan is by origin the Chinese transcription of Brahma; it meant rather vaguely India or Indian religion; it would not be positively wrong to translate it here as 'Tibetan', but it would be unduly precise.

[2] This is the reading of the best texts and is the correct figure.

[3] Professor Ligeti (op. cit., p. 37, footnote) has pointed out that the *MKTY* is in effect a transcription of the *Ku chin yün-hui*, which is a work of this kind.

the basic alphabet. Accordingly 'A forms' of four letters were devised, so that a similar distinction could be made in the hP transcriptions. It is for the experts in the history of Chinese phonetics to determine whether these distinctions represent real phonetic distinctions in thirteenth century Chinese, or whether the 'A forms' were devised merely to create an appearance of symmetry with the Chinese system; but, to anticipate the discussion later in this paper, it is hard to believe that there really were two **y** sounds at this period, even if the possibility of the existence of two **f**'s, two aspirates, and two palatal sibilants is perhaps more plausible. It is probable that the system for transcribing Chinese vowel sounds, which, as will be shown below, is much more complicated than that for transcribing Mongolian vowel sounds, was also devised at this period.

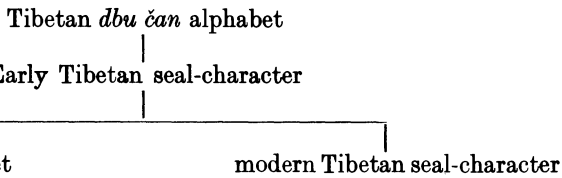
Whether hPL, when he invented this alphabet, contemplated that it would also be used for transcribing Tibetan and Indian texts cannot now be determined, but it was in fact used in the great hexaglott inscription of A.D. 1345 for transcribing a Sanskrit or quasi-Sanskrit *dhāraṇi*, and this may well not have been the first venture of this kind. So far as Tibetan was concerned, the alphabet contained counterparts of all the Tibetan letters, and the only problem which could arise was the one which was from the first inherent in the alphabet, the shift from a horizontal to a vertical arrangement. So far as Sanskrit is concerned, one problem, that of representing long vowels, must have been solved in the original alphabet, since Mongolian too had long vowels (see below). The other problem, that of representing the cerebral sounds, was solved, as it had been in Tibetan, by reversing the corresponding dental letters.

It has always been recognized that the basis of the hP alphabet was the Tibetan alphabet, but the question of the exact form and *ductus* of that alphabet which was chosen has never been considered. The Chinese milieu in which the alphabet was to be used obviously imposed a vertical, as opposed to a horizontal, arrangement, just as it had earlier imposed a similar alteration on the Uyğur alphabet, but the problem of adjustment was a more serious one than it had been in that case. It would have been greatly simplified if there already existed a Tibetan seal character in which the letters were arranged vertically.

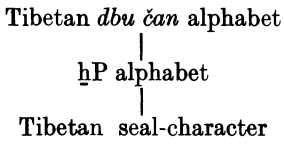
Although some work has been done on the history of Tibetan sphragistics (see, for example, *JRAS*, 1906, p. 476; 1910, p. 1205; 1911, p. 207; 1915, pp. 1, 465; 1929, p. 117; 1957, p. 151, and various articles quoted therein) we do not really know very much about the subject. So far as I am aware, there are no examples of seal impressions on the early (eighth century and following) Tibetan documents from Chinese Turkestan. The earliest Tibetan seal impressions which can be firmly dated seem to be those of the mid-eighteenth century published in *JRAS*, 1915, pp. 466 ff.; but by ancient tradition (*JRAS*, 1915, p. 1) the seal character used in them, and arranged vertically, was called *Hor yig* 'Mongolian script', and the story is that it was invented by the Saskya hierarch Kun dga rgyal mtsan (A.D. 1182–1252), who

presented it to the Mongols. This person seems to be the uncle of ḥPL mentioned in the story of the invention of the ḥP alphabet. As Professor Simon has pointed out to me, it is hardly credible that the Tibetans should have been long in contact with Chinese culture without acquiring the habit of making and using seals; it is very unlikely that they went without a seal character until the middle of the thirteenth century and then invented one solely for the purpose of giving it away. It is much more probable that well before this date they felt the need of seals and, when they did so, followed the Chinese precedent of developing a special form of the alphabet suitable for enclosure in a rectangular frame, and they may well also have followed the Chinese tradition of arranging their seal inscriptions vertically instead of horizontally. It seems very likely that the model which ḥPL followed when he invented his alphabet was a seal character of this kind. This theory is supported by the fact that the script on the Tibetan seals known to us does not seem to be a linear descendant of the classical ḥP script. Some letters (especially **ts**, **ts'**, **dz**, and **w**) have quite different outlines, and the arrangement of letters in syllables does not always follow the orthographic rules of ḥP. Sometimes, it is true, the letters of each syllable are joined together in a cluster, and gaps are left between syllables in the ḥP manner; but sometimes each letter is written separately and syllables are divided from one another by a horizontal bar corresponding to the Tibetan *tseg*, and sometimes each cluster contains more than one syllable. The letters in the copy-book of which the first three pages are reproduced in P, pp. 16–18, conform to the seal character and not to standard ḥP. Only the first 30 letters of the ḥP alphabet, that is those corresponding to the basic Tibetan alphabet, are included; the 31st is the same as the first with a vowel sign added. The book, in fact, seems to be a copy-book for Tibetan seal character, and not ḥP proper, and is therefore hardly relevant to the main purpose of the book.

It is not possible to bring forward a positive proof, but it seems much more probable that the stemma of these alphabets was:



than that it was:



In compiling the table at the end of this paper I have tried to find for each letter the form nearest to the presumed original alphabet produced by

hPL. Most of them are taken from the earlier inscriptions reproduced in Prince Roland Bonaparte's *Documents de l'époque mongole*, Paris, 1895. For letters not found in these inscriptions I have generally taken the form in *MKTY*, since this is older and generally more accurate than Ligeti's copy of the *PKS*, but the latter preserves the better tradition at any rate for No. 33. One or two remarks on certain letters are necessary.

No. 8 is fairly common in *MKTY*, from which the form shown is taken; the only other known example seems to be in L, No. 181.

Nos. 14 and 15 are so much alike that the difference between the two has not hitherto been defined. No. 15 is built up of six straight lines meeting at right angles. In No. 14 the lower horizontal line sags to the right and joins the right-hand vertical line at an acute angle. This is the form in the Chü-yung kuan *dhāraṇi* and occurs once in the *PKS* (L, No. 308). In the *MKTY* the lower line generally sags a little, but the principal difference is that the letter is bulbous rather than rectangular (the second form in the table). Unfortunately the other occurrence of No. 14 in the *PKS* (L, No. 49) is indistinguishable from No. 15, and L, No. 82, which is really No. 15, has a sagging bottom line. It is therefore not surprising that Ligeti read all these letters as **b** and so spoilt the symmetry of his table on p. 47, where the **b** shown against *Fou* should be **p'**. Even in the inscriptions the bottom line of No. 15 sometimes sags if it is written above a curvilinear letter like the lower part of No. 32.

In all known Tibetan alphabets, including the Tibetan seal character already referred to, the prototypes of Nos. 17 to 19 are merely Nos. 5 to 7 with a diacritical mark, a superscribed tick in *dbu-čan*, a vertical line to the right in the seal character. In hP the outlines of the two series are quite different. There is no obvious explanation of this.

No. 20, the original Tibetan prototype of which is shown in the table, is really a combination of Nos. 23 and 40, **h-wa**. The earliest form of the prototype of No. 23, also shown in the table, had a kind of ' ear ' top right. Later the ' ear ' in No. 23 disappeared, but that in No. 20 remained but changed its shape, so that the modern *dbu-čan* letter looks like, and is commonly said to be, a combination of Nos. 26 and 15, **l-ba**. Indeed the seal character form is even more like **l-ba**. The latest discussion of this subject is in Dr. Géza Uray's excellent paper ' On the Tibetan letters BA and WA—contribution to the origin and history of the Tibetan alphabet ', *Acta Orientalia Hungarica*, v, 1–2, 1955.

No. 24 is common to the Mongolian and Chinese texts. No. 24A occurs only in the latter and is distinguishable only in the *MKTY*. No. 24, like its Tibetan prototype, is made up of two components, one with a rounded bottom on the left and one with a pointed bottom on the right. In the *MKTY* versions of No. 24A the right component usually, but not always, has a rounded bottom also, and the vertical line in the middle usually, but not always, has a kink to the right at the top. When the two are entered side by side they can usually

be told apart, but when one only is entered it is often impossible to tell which is meant except by looking at the characters which it transcribes.

No. 27 is common to the Mongolian and Chinese texts, No. 27A is peculiar to the latter. No. 29 has a ' tooth ' pointing left in its tail, while the tail of No. 29A is a smooth curve. Oddly enough it is the latter, not the former, which conforms to the Tibetan prototype, and it has not been realized previously that there is any difference between the two letters. The difference between the two can always be seen in the *MKTY*, and sometimes but not always in the *PKS*.

The forms of Nos. 31 to 34 are those used when they represent initial vowels. For medial vowels the horizontal bar at the top is omitted. In Tibetan the prototypes of Nos. 31, 33, and 34 are superscribed over the letter to which they belong, and that of No. 32 is subscribed under it, but when they are used to represent initial vowels they are attached to the prototype of No. 30. In ḥP all four are subscribed, and they are only very rarely attached to No. 30 to represent an initial vowel.[1] The horizontal bar was an invention of ḥPL, no doubt for the sake of simplicity, but it is odd that he did not adopt the same device for No. 39, the only vowel sign which he invented. The possible phonetic significance of this distinction is discussed below. The vertical line in No. 34 is used only when it is required to attach another letter in the same syllable ; when it is the end of a syllable the line is omitted.

The difference between Nos. 37 and 37A (both used only in Chinese) is the same as that between Nos. 29 and 29A. It is clearly visible in *MKTY*, but it is doubtful whether it can be observed in any other text.

The exact outline of No. 38, which cannot be reconstructed from any known texts of the monograph, is discussed below, and a justification offered for the form suggested.

Generally speaking there is no difficulty in distinguishing between the different letters, except Nos. 24, 27, 29, and 37 and their respective ' A forms ', in the inscriptions, but the same is not true of the MSS and block-prints. In badly written texts Nos. 11 and 12 are liable to be confused with Nos. 39 and 31 respectively ; in well-written texts the down-stroke of No. 11 leaves the top line at a different point from that of No. 39 and the loop of No. 12 is closed while that of No. 31 is not. In the *MKTY* No. 33 has a form indistinguishable from that of No. 40, an acute angled isosceles triangle pointing left, and only the context can decide which letter is meant. It is also sometimes hard to decide whether a particular letter is meant to be No. 39 or 41 or perhaps even 40. There are other examples of misshapen letters and errors in this MS, e.g. Nos. 29/29A used for Nos. 37/37A. In Ligeti's block-print of the *PKS*, which is much superior to the other surviving texts of that work, there is even

[1] There is only one exception in the Mongolian texts. There are a few words in Chinese texts in which the lower part of No. 32 is attached to No. 30 ; in P, XII, 7 the Turkish (ultimately Sanskrit) loan-word **ér-ti-ni** is twice written with initial No. 30 with the lower part of No. 33 beneath it.

greater distortion of some letters. In particular there are several cases where an apparent No. 39 should probably be read as No. 41 and vice versa ; for example L, No. 2 should almost certainly be read as **gya** not **ge** ; the same Chinese character is quite clearly transcribed **gya** in L, No. 197.

Before proceeding to discuss the phonetic values of the individual letters, it will be useful to show which letters are used in Mongolian and which in Chinese texts, particularly since this may throw some light on the statement in the monograph about the basic characters not used in Chinese texts.

In the table below the second column shows how the letters are used in Mongolian texts. M indicates that the letter is used in transcribing Mongolian words, the M being enclosed in (brackets) if this usage is very rare. If these letters, other than those marked (M), are also used in transcribing Chinese and other (Turkish, Sanskrit, etc.) loan-words the fact is not mentioned ; but if the letter is used only, or almost only, in loan-words this is shown by entering C for Chinese and O for other loan-words. The third column shows whether the letter is used in Chinese texts. In this column letters which are used only in the medial but not the initial position are marked C^m.

No.	1.	(M), C, O	C	No.	16.	M	C	No. 29. M C
	2.	M	C		17.	—	C	29A. — C
	3.	M	C		18.	C, O	C	30. M C(?)
	4.	M	C		19.	C, O	C	31. M C^m
	5.	C, O	C		20.	C	C	32. M C
	6.	M	C		21.	C	C	33. M C^m
	7.	M	C		22.	(M), C	C	34. M C
	8.	—	C		23.	M	C	35. M —
	9.	C, O	C		24.	M	C	36. C, O C
	10.	M	C		24A.	—	C	37. C C
	11.	M	C		25.	M	—	37A. — C
	12.	M	C		26.	M	C	38. ? ?
	13.	C, O	C		27.	M	C	39. M C^m
	14.	—	C		27A.	—	C	40. C^m C^m
	15.	M	C		28.	M	C	41. C^m C^m

The point which immediately arises is that the only letters which are not used in Chinese transcriptions are Nos. 25, 35, and another which must, *prima facie*, be No. 38. But all the letters used in the Mongolian texts are accounted for by those marked M in the second column, that is apart from Nos. 25 and 35 there is, *prima facie*, no letter used in Mongolian which is not also used in Chinese texts. Thus apparently No. 38 is not used in either kind of text. None of the copies of the monograph gives this letter a recognizable outline. As will be shown shortly, the sound attributed to it in the monograph is practically identical with the sound attributed to No. 30 ; the main part of the two Chinese characters used is the same in both. Now it so happens that the usage of No. 30 differs in the Mongolian and Chinese transcriptions. In

Mongolian it is used to represent initial **a-** (as in P, VIIb, 2) and also as a ' prop ' for No. 39 in certain contexts. In Chinese transcriptions it is never used to represent initial **a-** but it is used as a ' prop ' for Nos. 39 and 40, and occasionally for the lower part of No. 32. It therefore seems possible that No. 30, like Nos. 31 to 34 in the original alphabet, was regarded purely as representing an initial vowel (and thus as not used in Chinese texts) and that No. 38 was substantially the same letter used only as a ' prop '. If experience in regard to the ' A letters ' is any guide, it must have been practically identical with No. 30 but with a slight variation of form. In that case the third letter mentioned in the monograph as not used in Chinese transcriptions would actually be not No. 38 but 30. This is not a wholly satisfactory solution of the problem, but will have to serve unless and until a more accurate copy of the monograph turns up. The shape given to this letter in the table, a modification of that of No. 30 (for which there is ample evidence) is taken from one or two examples of the letter in *MKTY*.

In the table of the alphabet in the monograph each letter is accompanied by a Chinese character purporting to give its phonetic value. As these equivalents go back to the Yüan period, though probably rather late in it, they are obviously relevant to a discussion of the sounds represented by the individual letters. In the table below I have substituted for these characters their phonetic value in Karlgren's reconstruction of Ancient Chinese (hereafter called AC), as shown in his *Grammata Serica recensa*, Stockholm, 1957 (hereafter called *GSR*), followed by the usual Wade transcription (with the initial *ch-* complex broken down into its three constituent parts, *ch-*, *k-*, and *ts-*) :

No. 1	2	3	4
kat > ko	*k'at* > k'o	*χjwei*(?) > hui [1]	*ngâ* > wo
5	6	7	8
tśi̯a > chê	*tś'i̯a* > ch'ê	*tśi̯a* > chê	*ngiei* > ni/i
9	10	11	12
tât > ta	*t'ât* > t'a	*d'ât* > ta	*nâ* > na
13	14	15	16
puât > po	*pi̯wɔt* > fa	*muât* > mo	*ma* > ma
17	18	19	20
tsân(?) > tsan [2]	*nât* > na [3]	*ńźi̯a* > jo	*b'i̯wak* > fu
21	22	23	24
ńźi̯ak > jo	*sât* > sa	*·â* > o, a	*i̯a* > yeh
25	26	27	28
râ > ro [4]	*lâ* > lo	*śi̯ät* > shê	*ṣa* > sha
29	30		
χâ > ho	*·a* > ya		

[1] The character used is not in *GSR* nor Giles' dictionary ; the transcription is based on the assumption that the ' mouth ' radical is not part of the character, but a sound modifier, cf. No. 25.

[2] A rare word not in *GSR*.

[3] Obviously an error, probably for *ts'âi* < tsai, No. 942d in *GSR*.

[4] *Lâ* < lo, as in No. 26, with a ' mouth ' radical attached, the normal way of representing **r-** in Chinese transcriptions.

31	32	33	34
·*i* > i	·*uo* > wu	·*iei* > i	·*uo* > wu
35	36	37	38
γa > hsia ' with a heavy/ light expiration ' [1]	*γâ* > hsia	*p̥iwɒp* > fa	·*âk/uo* > o/wu
39	40	41	
i̯a > yeh	*k'wâ* > kuo/k'uo	*i̯a* > yeh ' with a light expiration '	

The most cursory scrutiny of this table will show that the transcriptions are hopelessly chaotic. Fortunately we have much better evidence in the *MKTY.*

The table on pp. 5[a, b] of that work, though at first sight it seems to be of the same kind as that in the monograph, is in fact exactly the opposite ; it is a list, with hP transcriptions, of the 36 *tzŭ mu* used in phonetic dictionaries and the like to represent the initial sounds of words, see Karlgren, *Études sur la phonologie chinoise*, Leiden, 1915–26, p. 24, and specifically the 32 *tzŭ mu* listed therein, pp. 100 ff., with the second labial series mentioned in pp. 57 and 553.

The order of these *tzŭ mu*, like that of the letters in the Tibetan, and consequently the hP, alphabets is based on an Indian model but follows a rather different tradition. In the table below I have replaced the *tzŭ mu* in the same way as in the preceding table.

No. 3	2	1	4
1. *kien* > kien	2. *k'iei* > k'i	3. *g'i̯uən* > kün	4. *ngji* > i
11	10	9	12
5. *tuan* > tuan	6. *t'əu* > t'ou	7. *d'ieng* > ting	8. *niei* > ni
7	6	5	8
9. *t'i̯e* > chih	10. *t'i̯ät* > ch'ê	11. *d'i̯əng* > ch'êng	12. *ni̯ang* > niang
15	13	14	16
13. *pwâng* > pang	14. *p'wâng* > p'ang	15. *b'i̯eng* > ping	16. *mi̯wɒng* > ming
37A	37	37A	20
17. *pjwe̯i* > fei	18. *p'i̯u* > fu	19. *b'i̯wong* > fêng	20. *mjwei* > wei
19	18	17	28
21. *tsi̯äng* > tsing	22. *ts'i̯äng* > ts'ing	23. *dz'i̯wong* > ts'ung	24. *si̯əm* > hsin
22	7	6	5
25. *zi̯a* > hsieh	26. *tśi̯äu* > chao	27. *tś'i̯wan* > chu'an	28. *dz'i̯ang* > chuang

[1] In *Fa-shu k'ao* ' heavy ', in *Shu-shih hui yao* ' light ' ; the character for ' expiration ' is miscopied in P, p. 12, but shown correctly in the *Yüan-shih lei-pien* in the British Museum.

27A	27	29	36
29. *śi̯əm* > shên	30. *źi̯ăn* > shan	31. *χieu* > hsiao	32. *γap* > hsia
			29A
23	30	26	21
33. *·i̯ʊng* > ying	34. *i̯u* > yü	35. *lâi* > lai	36. *ńźi̯ĕt* > jih
24	24A		

There is in the margin a list of letters No. 31–34 and 39–41 with a statement that they are used only in combination with other letters, that is not as initials.

This is obviously a much firmer foundation than the table in the monograph for discussion of the phonetic values of the letters of the alphabet, but neither is very helpful regarding the values of the vowel sounds, and vocalization will be discussed separately.

We can reasonably start from the position that as Nos. 1–34 and 40, 41 are reproductions of the equivalent Tibetan letters, they have *prima facie* the same phonetic values as those letters. But of course, and this applies particularly to Nos. 23 and 30, we do not know exactly how Tibetan was pronounced in the thirteenth century, though in most cases we can make a pretty good guess.

We can conveniently start the discussion with the four series of plosives and nasals and the affricates, letters No. 1 to 19, corresponding to *tzŭ mu* Nos. 1 to 16, 21 to 23, and 26 to 28 in the *MKTY*, since these all share the same peculiarities.

The first point which strikes the eye in comparing the two tables is that while the order ' unvoiced unaspirated, unvoiced aspirated, voiced ' is the same in the Tibetan, and consequently the ḥP, alphabets and in the *tzŭ mu*, this order is reversed in the ḥP equivalents in the *MKTY*, so that what corresponds to, for example, *k*-, *k'*-, and *g'*- in the *tzŭ mu* is letters No. 3, 2, 1 not 1, 2, 3. Several scholars have already pointed out that this does not, of course, mean that the ḥP letters should be so transcribed, but merely that, to the trained ears of the compilers of the *MKTY*, *kien* sounded more like *gien* and *g'i̯uən* more like *kün*. It is generally agreed that the initial aspirated plosives like *k'* in modern standard Chinese (*Gwo yeu*) are unvoiced ; but it does not seem to be generally agreed whether the unaspirated plosives can best be described as voiced, half-voiced, or something else. Wade transcribed them as unvoiced, *Gwo yeu* transcribes them as voiced. What emerges from this study is that the compilers of the *MKTY* heard both sounds, but in a transitional stage in which the old (AC) unaspirated unvoiced plosives had become voiced and the old aspirated voiced plosives had become devoiced. The transcriptions in the monograph table show a much more muddled picture. In the first and second columns (unvoiced unaspirated and aspirated) the transcriptions are consistently also unvoiced unaspirated and aspirated, but the third column is a complete muddle, the compiler was obviously quite at sea with voiced sounds. It is interesting to note that in the *MKTY* both what Karlgren calls the palatal plosive (*t'*-, etc.) and what he calls the palatal affricate series (*tś*-, etc.)

are transcribed **č**, **č'**, and **ǰ**, that is that no sufficient difference between the two series still existed to justify the creation of a series of ' A letters '. On the other hand the old single labial series had bifurcated into a plosive (*tzŭ mu* 13 to 16) and a spirant (*tzŭ mu* 17 to 20) series. No problem arises regarding the nasals, letters No. 4, 8, 12, and 16. Accordingly we can confidently write in against letters Nos. 1 to 19 the traditional transcriptions of the equivalent Tibetan letters. It should be noted that in Mongolian texts Nos. 1 to 3 were used only with front vowels, that is to represent post-palatal **k-**, **k'-**, and **g-**; as will appear later, velar sounds were represented differently.

Morphologically Nos. 37 and 37A are combinations of Nos. 29 (and 29A) and 40, that is, broadly speaking, **h-wa**, and in fact in some Chinese transcriptions in *MKTY* and *PKS* a letter indistinguishable morphologically from No. 37 is used to represent **hw-**, but there is no doubt that Nos. 37 and 37A did not have this sound; they represented labial spirants (or fricatives, according to the terminology employed) of some kind. According to Karlgren, *Études*, p. 554, this sound change had probably occurred by the eleventh century. If *tzŭ mu* 17 to 19 corresponded rigidly to the corresponding *tzŭ mu* of the previous series they should represent respectively an unvoiced unaspirated, an unvoiced aspirated, and a voiced aspirated sound, of which the first and third might have changed places by the thirteenth century; but the first and third are both represented by the same hP letter, No. 37A. This means either that No. 37 represented an aspirated and No. 37A an unaspirated sound, or No. 37 an unvoiced and No. 37A a voiced sound. The discussion of the labial series in Karlgren's *Études*, pp. 544 ff., does not show any example of an aspirated spirant but words spelt with the *tzŭ mu* ' Ping ' (p. 549) do begin with *v-* in the modern Wu dialects. Accordingly it would not appear wholly erroneous to transcribe No. 37 as **f** and No. 37A as **v**, with the reservation that in the dialect actually represented by the hP transcriptions these sounds may really have been two **f**'s of a slightly different quality rather than clearly unvoiced and voiced sounds.

As regards letter No. 20, and No. 40, which is merely its subscript form, there is general agreement that the phonetic value both of these and of their Tibetan prototypes was a bilabial semi-vowel, the English (not continental) **w**.

As regards the sibilants (in Karlgren's terminology fricatives) the position is a little more confusing. In the dental series the sibilants **s** and **z** (letters No. 28 and 22 respectively) are still distinguished in Chinese transcriptions but not reversed as the affricates **ts** and **dz** are; that is to say the hP equivalents of Tibetan **s** and **z** correspond to AC *s* and *z*, a distinction still surviving in the Wu dialects, see Karlgren's *Études*, pp. 538 ff. **Z** is not usually regarded as a Mongolian sound, but it is used, oddly enough, in one word **zara** ' a month ' and in that often enough to make it clear that this spelling was deliberate.

In the palatal series the position is complicated by the earlier existence of a nasalized palatal sibilant, *ńź-*, *tzŭ mu* No. 36. This is transcribed with letter No. 21, the Tibetan prototype of which represented a voiced palatal sibilant *ž*;

we can be reasonably confident that the nasalization had disappeared by the thirteenth century and transcribe No. 21 **ž**. What then are we to make of the distinction between Nos. 27 and 27A ? Now it is No. 27 which reproduces the shape of the Tibetan prototype, undoubtedly representing the unvoiced palatal sibilant *š*, and is also the form invariably used in the Mongolian texts where equally it must represent *š*. But awkwardly enough it is No. 27A which corresponds to *tzŭ mu* No. 29 representing AC *ś* and No. 27 to *tzŭ mu* No. 30 representing AC *ź*. Either therefore the unvoiced and voiced variants had changed places as they had in the plosive series, or the two sounds had already converged and the distinction between the two *tzŭ mu* had really disappeared and the distinction between the two letters was a purely conventional one. Of the two alternatives the latter is the more probable, since it is hard to see what sort of intermediate sound can have existed between **ž** (No. 21) and **š**. We can therefore safely transcribe No. 27 **š** (or for greater precision **š**[1]) and No. 27A **š** (or **š**[2]).

Next we can conveniently take letters No. 23, 24 (and 24A), and 30. It will be noted that in the *MKTY* table two alternative transcriptions are provided for *tzŭ mu*'s Nos. 30 and 34, viz. letters No. 23 and 24 and 30 and 24A respectively, the second member of each group obviously being the ' yodicized ' counterpart of the first. Mr. Yoshitake and I discussed the question of the phonetic values of Nos. 23 and 30 at some considerable length in our paper ' On the phonetic value of the Tibetan characters [No. 30] and [No. 23] and the equivalent characters in the ḥP'ags-pa alphabet ', *JRAS*, 1929, pp. 843 ff. This article is now merely of historical significance ; we had much less material at our disposal than is now available ; and Dr. Géza Uray (op. cit.) has pointed out that our ideas of the pre-history of Tibetan No. 23 are probably wrong. Nevertheless I think that one or two of our conclusions still stand. We showed that in Tibetan No. 30 originally represented the glottal stop and No. 23 before a vowel the smooth vocalic ingress (it had other values in other contexts), and also that in the early (eighth to tenth centuries) transcriptions of Chinese in Tibetan characters there was a very pronounced tendency for words which in AC begin with a glottal stop to be spelt with No. 30 and those with a smooth vocalic ingress to be spelt with No. 23. We could not, however, find any evidence for the survival of this distinction in ḥP and it seemed to us that the distinction between the two letters was more a matter of orthography than one of phonetics.

So far as Mongolian is concerned this conclusion still holds good. There is some difference of usage but no phonetic difference. No. 30 (like Nos. 31–34) is used to represent an initial vowel, **a-** ; it is also, as already stated, used as a ' prop ' for No. 39. No. 23 is used in three ways. First it is used, but more rarely, as a ' prop ' for No. 39 and very rarely for the lower half of No. 31, but clearly has no phonetic value, as two words (**ihēn** and **ügeḥü**) are spelt with both initials. Secondly, it is used to represent the inter-vocalic hiatus, as in **üge**[23]**ü** (Classical *ügei*). Finally, as will be shown below, it is used to indicate the presence of a long vowel.

So far as the Chinese transcriptions are concerned, the only two of the five letters (Nos. 30–34) used to represent initial vowels in Mongolian texts which are so used in Chinese texts are Nos. 32 and 34. No. 30 is used only as a ' prop ' for the lower half of 32 (a usage unknown in Mongolian) and also for Nos. 39 and 40. No. 23 is used for initial **a-** (as in L, No. 85) and for other initial vowels with the appropriate vowel signs attached. At first sight there is in these transcriptions, unlike the Mongolian ones, a clear phonetic distinction between the two letters. All words beginning with *tzŭ mu* No. 33 (*·i̯ang* > ying), which Karlgren considers to represent a glottal stop are transcribed with No. 23 (or 24), and all words beginning with *tzŭ mu* No. 34 (*i̯u* > yü), which Karlgren considers to represent a smooth vocalic ingress, are transcribed with No. 30 (or 32, 34, or 24A). It will be observed that this is exactly the opposite procedure to that which Mr. Yoshitake and I discovered in the Tibetan alphabet. On the other hand in the table in the monograph both Nos. 23 and 30 and also Nos. 31–34 and 38 are all transcribed with characters beginning with a · in AC. The question whether both a glottal stop and a smooth vocalic ingress existed in AC is one which has been bitterly debated in recent years; that is a controversy in which I am neither willing nor competent to take part. In order not to prejudice the issue I suggest that we should use for Nos. 23 and 30 the traditional (British) transcriptions of their Tibetan prototypes, viz. **h** and **'** (and **i**, **u**, **é**, and **o** for initial Nos. 31–34) on the understanding that this is a purely graphic convention without phonetic implications. These seem preferable to the transcriptions used by Poppe and Ligeti, which differ from one another, and, in the first case, even lack internal consistency.

As regards Nos. 24 and 24A, if it had not been for the *MKTY* no one would ever have realized that this letter had two forms, and, as already pointed out, even there it is often impossible to decide which form is intended without looking at the characters transcribed. Whether or not there is a real phonetic difference between Nos. 23 and 30, it is hard to believe that initial **y-** can have had two separate sounds, and it is likely that the two forms were devised for no better reason than to create an appearance of symmetry with the *tzŭ mu*. Both alike can safely be transcribed **y** (or $\mathbf{y}^1$ and $\mathbf{y}^2$ if greater precision is required); so too can No. 41, which is merely the same letter in subscript form.

There has never been any doubt that Nos. 25 and 26, like their Tibetan prototypes, should be transcribed **r** and **l** respectively.

This leaves us with only Nos. 29, 29A, 35, and 36, apart from the vowels which will be discussed later. I should like to introduce this difficult discussion by putting forward a few propositions which cannot, I think, be denied:

(1) The whole character of the alphabet requires that each of these letters should have one sound only and that all the four sounds should be at least slightly different.

(2) As No. 29A is merely a graphic variety of No. 29 it must have a sound pretty close to that of that letter.

(3) As No. 36 is the ' straight ' and No. 29A the ' yodicized ' transcription of *tzŭ mu* No. 32, these two letters also must represent sounds pretty close to one another.

(4) As the name Mongol is spelt **Moŋ**[35]**ol** on the official Yüan seal recently published by Professor Simon,[1] and **Moŋ**[36]**ol** in the transcription of the title of the *MKTY*, a purely Chinese work, in which No. 35, a letter used only in Mongolian texts, would not have been understood, these two letters also must have fairly similar sounds.

(5) As No. 35 is used only with back vowels it must represent a velar sound.

This seems the appropriate point at which to mention a particular difficulty which confronts Mongolists in dealing with the ḥP texts. No. 35 is the *only* letter representing velar sounds in these texts; and proposition (1) above denies the possibility that it might be polyphonic. In nearly every known dialect of Mongolian there are *two* velar sounds, one unvoiced, and it is generally agreed originally a plosive, usually transcribed **q**, though now a fricative, usually transcribed **χ**, in most dialects, and one voiced, usually transcribed **γ**, regarding the original quality of which, plosive or fricative, there is less general agreement. (Actually it is rather difficult to pronounce a deep voiced velar without making it a fricative.) Thus it is disconcerting to find apparently only one velar letter in the ḥP alphabet. But there is other evidence that this represents a true state of affairs. Exactly the same position prevails in two other documents representing the Mongolian spoken in China in the Yüan period. Almost immediately after the fall of the dynasty, when there was a sudden outbreak of interest in the Mongolian language in China, a commission of scholars was instructed by the new Emperor to compile a Mongolian-Chinese glossary and to transcribe the whole of the ' Secret history of the Mongols ' into a Chinese transcription.[2] The work was probably carried out between A.D. 1380 and 1390. In these works too there is no trace of more than one velar sound. In the transcription of the ' Secret history ' (see E. Haenisch, *Wörterbuch zu Manghol un Niuca Tobca'an*, Leipzig, 1939, p. 185) what is generally agreed to be a simple aspirate **h-** occurring as an initial before both back and front vowels but never used medially, is represented by about 25 characters, some of them homophonic, the choice of the character to be used depending on the sounds following the **h-**. Nine of these, and 14 others, including homophones, differentiated by a small *chung* ' posterior ' or the like to indicate that the sound is modified, are used to represent a velar sound. The characters (transcribed as before) represent: *γâp* > ho; *χwa* > hua; *γâi* > hai; *χâi* > hai; *γâm* > han; *χân* > han; *k'âng* > k'ang; *χua* > huo; *χuât* > huo; *γuân* > kuan; *χuân* > huan; *γwang* > huang; *mâng* > mang [*sic*]; *χuət* > hu; *k'uət* > k'u; *χuâi* > hui; *kuən* > kun; *γuən* > hun. In the glossary

[1] Walter Simon, ' A ḥPhags-pa seal of 1295 ', *Asia Major*, NS, VI, 2, 1958, p. 203.

[2] See M. Lewicki, *La langue mongole des transcriptions chinoises du XIV^e siècle*, Wroclaw, 1949, pp. 8–9.

produced by the same commission, the *Hua-i i-yü* of A.D. 1389, of which a facsimile was published in Lewicki, op. cit., much the same system of transcription is employed (op. cit., pp. 28 ff.). The differentiated characters are, however, fewer, and not all the same. In addition to *γâp* > ho ; *γâi* > hai ; *γâm* > han ; *χân* > han ; *χuât* > huo ; *χuət* > hu ; *χuâi* > hui ; *γuən* > hun ; and *kuən* > kun, which are used in the ' Secret history ', *kân* > kan ; *kuo* > ku ; *k'âi* > kai ; *k'uat* > k'uo and *·uən* > wên [*sic*] are also employed. It must be emphasized that no correlation can be established between the voiced and unvoiced initials in this list (if indeed the AC difference still survived in the fourteenth century) and supposedly voiced and unvoiced initials in the Mongol words transcribed. The arbitrary way in which the various characters are used shows that they were all regarded as having the same initial sound, that sound, as the attached *chung* indicates, being somewhat different from their normal sound. Thus whatever is finally determined to be the phonetic value of No. 35 some transcriptions which result will look horrible to purists who regard, for example, **γurban** and **γučin** as the only possible spellings for ' three ' and ' thirty ' and **qoyar** and **qan** for ' two ' and ' Khan '.

After this digression we can return to our main theme. Very often some light can be thrown on a problem of this kind by looking at the spelling of foreign loan-words, the sounds of which are beyond dispute. There are in the Mongolian texts one Persian word **bağ** ' a garden ' and one Turkish word **jarlığ** (a dialect form of **yarlığ**) ' a command ', both of which end with a voiced velar fricative, and one Turkish word **burχan** ' Buddha ' (spelt in h̲P with a **p-**), containing an unvoiced velar fricative. These are spelt in h̲P, the first two with No. 35, the last with No. 36. This is not of course conclusive evidence for the value of these two letters ; words are sometimes altered when they are borrowed, though not usually in opposite ways ; but it does constitute a *prima facie* case for transcribing No. 35 **γ**, or better still **ğ**, as this does not imply either plosive or fricative quality, and No. 36 **χ** or, typographically more convenient, **x**. The next step is to consider whether these tentative transcriptions, the first for a solely Mongolian, the second for an almost solely Chinese sound, conform to the general phonetic make-up of the languages concerned.

So far as No. 35 is concerned, a voiced velar sound not only is not inconsistent with the other facts to be taken into account, but is also practically demanded by them. In the first place we have the evidence of the grammatical terminations. Mongolian, being a language in which back and front vowels are rigorously segregated and never occur together in the same word, has two distinct sets of terminations, one containing back vowels and one containing front ones. In three cases the terminations in the second set contain a voiced post-palatal : (*a*) **-gü** ; (*b*) **-tügey** ; (*c*) **-gsen** ; in all these cases the equivalent terminations in the other set contain No. 35.[1] It is incredible that an unvoiced velar sound should correspond to a voiced post-palatal sound in such a context.

[1] Examples are : (*a*) both terminations P, VIIb, 2 ; VIIIb, 2 ; (*b*) front P, I, 18 ; II, 18 and 20 ; back P, I, 8 and 16 ; IX, 5 ; (*c*) front P, I, 8 ; XIII, 3 and 13 ; back, P, XII, 1 and 7.

In the second place there is overwhelming evidence that in the Mongolian of the ḥP texts final plosives were invariably voiced. This is true not only of the labials, as in **eldeb**, where there is no alternative, since **p** is not a Mongolian sound, but also of the dentals, as in **t'erged** and the post-palatals, as in **burk'ig** (for **bürk'ig**). It is incredible that this rule should not have applied also to the velars. The validity of the rule is confirmed by the treatment accorded to Turkish and other loan-words in Mongolian. Loan-words in which the final plosive is voiced, e.g. **čérig**, are taken over unchanged. If the final plosive is unvoiced, the normal practice is to add a vowel at the end; e.g. **k'üčü** from Turkish **küç**, **erke** from Turkish **erk**, **kökö** from Turkish **kök** (the last two words occur in the 'Secret history', but not in the ḥP texts). Less often an unvoiced final plosive is voiced, e.g. **adišdid** from Sanskrit *adhiṣṭhita*, **bodisiwid** from Sanskrit *bodhisattva*, through Sogdian and Turkish *bodısıvıt*. The conclusion that No. 35 was a voiced velar sound is inevitable, but as its quality, plosive or fricative, is uncertain, the transliteration suggested above, **ğ**, seems the most appropriate.

No. 36 must be a fricative and not a plosive (proposition (3) above); it cannot be a voiced fricative, unless recourse be had to the counsel of despair that the distinction between it and No. 35 is between fricative and plosive; moreover in that case there would be difficulty in finding a letter to represent the unvoiced velar fricative, which undoubtedly existed in Chinese. There is no good reason for resisting the conclusion from its use in the equivalent of the Turkish word **burxan**, that it was an unvoiced velar fricative, to be transcribed **χ** or **x**, according to taste. The only apparent objection to this solution is that it is used to transcribe *tzŭ mu* No. 36 and the AC distinction between that *tzŭ mu* and *tzŭ mu* No. 35, which is transcribed with letter No. 29, is that the former represents a *γ-* and the latter a *χ-*. But if No. 36 represented a voiced sound it is hard to explain why its yodicized counter-part is a secondary form of No. 29, which on this assumption would represent an unvoiced sound, and in any case there is ample evidence to show that by the thirteenth century the sounds of the two *tzŭ mu* in question had converged, for example in the indiscriminate use of words with both initials in the transcription system of the 'Secret history' and the *Hua-i i-yü*. Moreover there is no trace in the modern dialects, even of the Wu group, which retains voiced sounds like *z* and *v*, of the survival of a voiced velar fricative (see Karlgren's *Études*, p. 373). There is ample evidence from Tibetan and from the Mongolian texts that No. 29 represents a simple, or fairly simple, aspirate, to be transcribed **h** (or, if necessary to distinguish it from No. 29A, **h**[1]); and the most reasonable explanation is that the difference between the thirteenth century *tzŭ mu*'s Nos. 35 and 36 is between an aspirate, *h*, and a fricative *χ* (or *x*) and that No. 29A represents a sound somewhere between the two, which can be transcribed, for the sake of precision, **h**[2].

We can now proceed to the question of vocalization, and it will be more convenient to discuss Mongolian and Chinese separately. The Tibetan alphabet

made provision for five vowel sounds : **a**, which following the Indian tradition, was regarded as inherent in every consonantal letter and was not written, and **i, o, u,** and **é** (a closed *e* as in French ' été '), for which separate signs were provided. As Tibetan had no long vowels, or at any rate it was not felt necessary to distinguish between them and short vowels, the alphabet had no separate signs for long vowels. But it was found necessary to distinguish the long vowels in Sanskrit words, and for this purpose the device was adopted of subscribing the prototype of No. 23 to the consonant of the syllable containing a long vowel. This device was taken over for the ḫP also. The adoption of a vertical instead of a horizontal arrangement of letters did not affect the situation. Each syllable, instead of being enclosed between dots, as in Tibetan, was written as a single vertical cluster, but the order of letters remained unchanged, the subscribed letter preceding the vowel sign (if any) and the independent letter or letters which were also subscribed. How exactly the system worked can be seen most clearly in the ḫP versions of the two Sanskrit (or quasi-Sanskrit) *dhāraṇi*'s in the hexaglott inscription of Chü-yung kuan, the accompanying Mongolian texts of which are published as P, XII and XIII. (The *dhāraṇi*'s themselves can best be studied in the reproductions in Prince Roland Bonaparte, op. cit.) Thus *swāhā* was written **swḫ-hḫ**, i.e. *swā-hā*, and *bhrūṁ* (in which *ṁ* represents a superscribed *anusvāra*) was written **ṁbhḫru**, i.e. **bhrūṁ**.

This device proved useful in dealing with Mongolian which also had at least two long vowels. The Mongolian vowels were :

Back **a** (and **ā**), **o, u**
Front **e** (and **ē**), **é, ö, ü**
Neutral **i**

It has been suggested that in an earlier stage of the language there had been a back **i** (in Turkish orthography **ı**) and a front **i** and that these later converged in neutral **i**. Be that as it may, they had certainly converged, if they ever had a separate existence, before the thirteenth century, since the device used for writing something like a back **i** in the Chinese texts is not used in the Mongolian ones. But provision did have to be made for writing the open **e** and the two rounded front vowels. The first was made by inventing a new letter, No. 39. As regards the second, the problem had arisen centuries earlier in regard to Turkish. In the Turkish texts in Brahmi characters the front vowels are written with the back vowels preceded by **y**, i.e. **ö** and **ü** were written **yo** and **yu**. In the Uyğur alphabet, probably in imitation of that device, they were written **oy** and **uy**, but only in the first syllable, it being assumed that, if the vowel in that syllable was a front one, all the rest would be. None of these devices (except that of writing front vowels only in the first syllable) were possible in ḫP, since this would have caused confusion in the Chinese transcriptions. As an alternative **ö** and **ü** were written **eo** and **eu**.[1]

[1] If a word contained a post-palatal sound it necessarily contained front vowels, and in such words the **-e-** was usually omitted. It was also sometimes omitted in words beginning with labials.

The difference between the Tibetan and the ḥP system of writing initial vowels has already been mentioned. Separate letters are provided and are habitually used for writing **a-** (**'a-**), **i-**, **u-**, **é**, and **o**. Initial **i-** is normally written with No. 31, as in P, XII, 1 and 3, and XIII, 3, but in II, 2, III, 2, IV, 5, and XIII, 7 with No. 23 and the lower part of No. 31.[1] Initial **ö-** is written **'eo-**, initial **ü-** usually **'eu-**, less often **ḥeu-**. Initial **é-** is relatively common, but initial **e-** is practically unknown; the fact that No. 39 is only in a medial form probably means that ḥPL did not regard it as a possible initial sound (though he might have thought of the representation of **ö-** by **eo-** and **ü-** by **eu-**). In fact it occurs, written with No. 39, in **eldeb** (P, XIII, 5) and in two texts not republished in P (see P, p. 122).

It is important to note the different functions of No. 23 according to the way in which it is used. Initially it is merely a ' prop ' for the vowel attached to it. Attached to a preceding letter it indicates a long vowel, e.g. **ǧān** (spelt **ǧḥn**) ' Khan ' (P, II, 3, etc.); **ǧā-nu** (spelt **ǧḥ-nu**) ' of the Khan ' (P, I, 2, etc.). At the beginning of a medial syllable it represents the inter-vocalic hiatus, e.g. **hi-ru-ḥer** ' benediction ' (P, I, 8, etc.). Mr. Yoshitake and I (op. cit.) proved this nearly 30 years ago; it is a matter for regret that Professor Poppe, while very courteously mentioning this paper (p. 23, n. 4), did not accept its conclusions.

Finally mention should be made of the diphthongs ending with **-y** (**-i**) which occur in Mongolian. This sound is represented by **-yi** if the preceding vowel is **-a-** or **-e-**, e.g. **a-t'u-ǧayi** (P, I, 8, etc.), **é-ḥud-beyi** (P, XII, 5), and in other cases by **é**, e.g. **'a-ḥué** (P, XII, 2). Both these spellings are apparent breaches of the rule that a syllable cluster cannot contain more than one vowel (or vowel sign), but seem reasonable methods of representing the sound concerned.

Chinese vocalization in the thirteenth century was a much more complicated matter, poised precariously between the relatively simple vocalization of to-day and Professor Karlgren's reconstruction of AC, some of the examples of which, for instance *ngjwie*, look more like algebraical formulae than representations of actual sounds which proceeded from human lips.

As I said at the beginning of this paper, I am not competent to interpret the evidence which is available, and I should hate to undertake a task on which Professor Ligeti has already announced that he is engaged, but it may be of interest, particularly to those who are Mongolists and not Sinologists, if as an interim measure I set out in tabular form the full range of vocalization which is found in the *MKTY*, if only to show how complicated it is. In the table below I have adopted a simple letter for letter transliteration.

Pages 7[a, b] of the *MKTY* give a list of 15 *dzuŋ wu* ' final sounds ', comparable to the list of *tzŭ mu* on an earlier page. It contains 15 Chinese characters, each with a ḥP transcription, representing ' rhymes '. They are substantially the

[1] The reason for this was probably the difficulty of distinguishing between No. 31 and No. 12.

same as the 13 finals which form the basis of Karlgren's exposition of AC and are conveniently set out in *Études*, pp. 694 ff., but two of these, *kouo* and *chan*, are each split into two. The rest of the book is made up of 15 chapters, each containing a selection of the Chinese characters with the rhymes concerned arranged in groups under hP transcriptions.

The following table shows the full range of ' rhymes ' listed in the book :

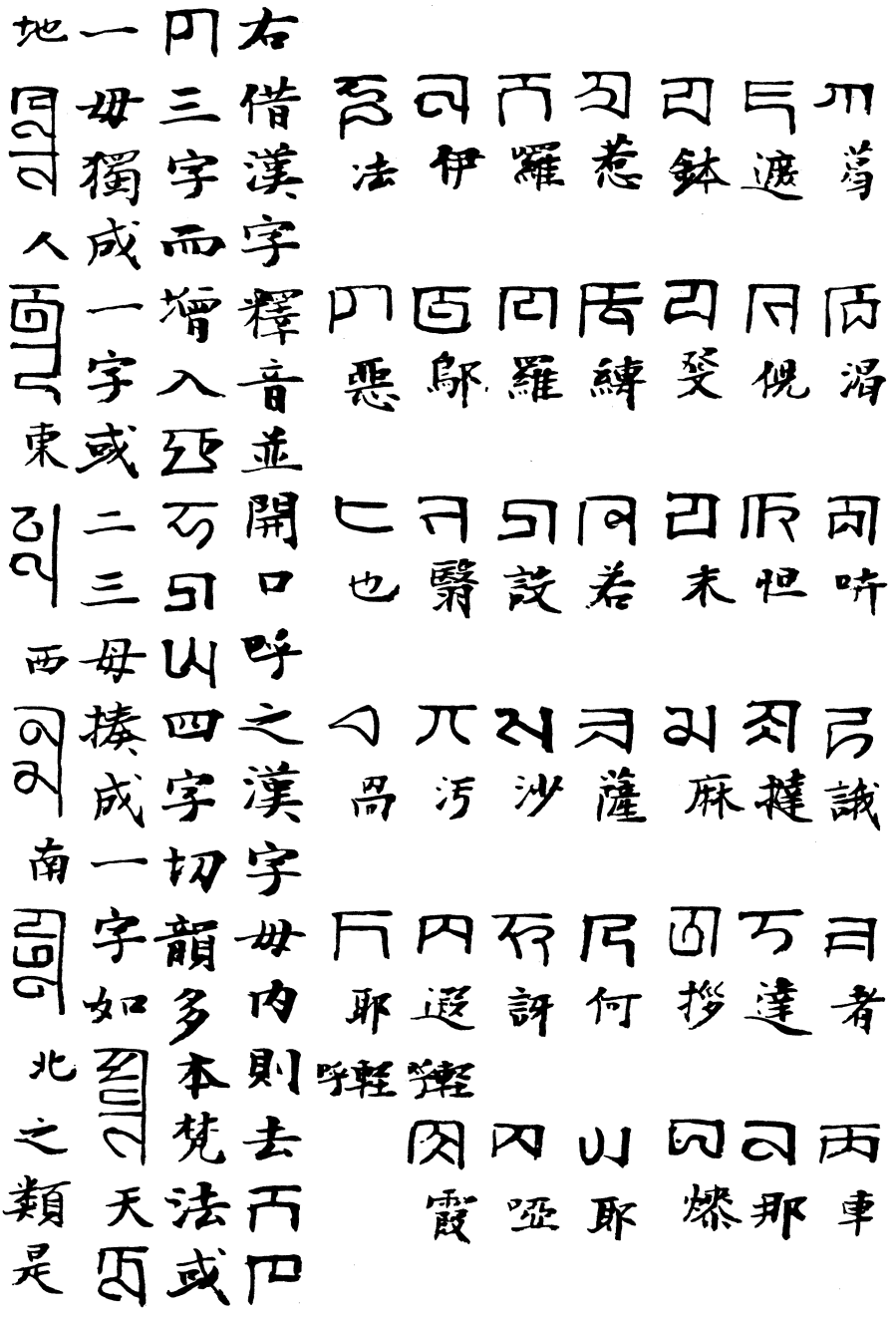
-a		**-wa**	**-ya**	**-e**	**-we**		**-ei**		**-wé**
-am			**-yam**	**-em**		**-yem**		**ém**	
-an		**-wan**		**-en**	**-wen**	**-yen**	**-ein**	**én**	
-aŋ	**-haŋ**	**-waŋ**		**-eŋ**	**-weŋ**		**-eiŋ**		
-aw		**-waw**		**-ew**	**-wew**		**-eiw**	**éw**	
-ay		**-way**	**-yay**						
-i	**-hi**	**-wi**		**-o**	**-ō** **-wo**		**-u**		**-ü**
-im	**-him**								
-in	**-hin**	**-win**		**-on**		**-ön**	**-un**		**-ün**
-iŋ	**-hiŋ**		**-yiŋ**	**-oŋ**			**-uŋ**	**-wuŋ**	**-üŋ**
-iw	**-hiw**			**-ow**			**-uw**		
-iy	**-hiy**						**-ué**		**-üé**

Professor Ligeti (op. cit.) has already pointed out that **-h-** does not represent an aspirate in this context, but modifies the quality of the vowel following ; **-hi** is obviously a back **i**, the sound represented in the Wade transcription system by *-ih* (in such words as *chih*) and *-ŭ* (in such words as *tzŭ*) ; but it is hard to grasp its function in **-haŋ**. The combination **-ei**, with or without a final consonant, occurs only after **k-, k', g-**, and **h-** and represents the sound represented by *ê* (as in *kêng*) in the Wade system. There are one or two words ending in **-a**, e.g. **ba** ' eight ', in the *MKTY*, and several more in the *PKS*, but this whole section was inadvertently omitted by the copyist in copying the *MKTY* ; the fifteenth chapter (*ma*) begins with **-e**. Some of these rhymes are very rare, and one or two are included for one character only. For example **-wuŋ** occurs only in **hwuŋ** ' still deep water ' (*γwɒng* > hung) and **-ō** only in **bō** ' jewel ' (*pâu* > pao). On the other hand one or two rhymes occur twice either in the same chapter (e.g. **-an** and **-un**), or in different chapters (e.g. **-uŋ**), which presumably means that some changes in pronunciation had occurred between the dates at which the *MKTY* and its Chinese prototype were compiled.

Appendix

Suggested minor amendments and additions to Professor Poppe's *The Mongolian monuments in hP'ags-pa script.*

P, 1. The heading in large characters over the inscription seems to read **ğā-nu su-dur** ' by the grandeur of the Khan '.



右借漢字釋音並開口呼之漢字母內則去丂口丌三字而增入亞石𠂤山四字切韻多本梵法或一母獨成一字或二三母揍成一字如𑖀𑖽𑖾𑖿天𑖀地𑖁𑖽𑖾人𑖀東𑖂𑖽𑖾西𑖃𑖽𑖾南𑖄𑖽𑖾北之類是

The ḥP'ags-pa Alphabet

1.	ཀ		k	24.	ཡ		y¹
2.	ཁ		k‘	24A.	ditto		y²
3.	ག		g	25.	ར		r
4.	ང		ŋ	26.	ལ		l
5.	ཅ		č	27.	ཤ		š¹
6.	ཆ		č‘	27A.	ditto		š²
7.	ཇ		ǰ	28.	ས		s
8.	ཉ		ñ	29.	ཧ		h¹
9.	ཏ		t	29A.	ditto		h²
10.	ཐ		t‘	30.	ཨ		’(a)
11.	ད		d	31.	[ི]		i
12.	ན		n	32.	[ུ]		u
13.	པ		p	33.	[ེ]		é
14.	ཕ		p‘	34.	[ོ]		o
15.	བ		b	35.	—		ğ(γ)
16.	མ		m	36.	—		x(X)
17.	ཙ		ts	37.	[ཎ]		f
18.	ཚ		ts‘	37A.	ditto		v
19.	ཛ		dz	38.	—		’ (ʔ)
20.	ཝ[ཧ]		w	39.	—		e
21.	ཞ		ž	40.	◌		-w
22.	ཟ		z	41.	◌		-y
23.	འ[ཨ]		h				

Line 3 must begin at the same height as lines 1 and 2. Comparing the text with that of P, IV, I suggest that it should be read **t'ay xoŋ dzhi ḫan** (*sic*, clearly, not **ŋan**) **si 'waŋ** ' the great Huang-tzŭ, King of An-hsi '.

Line 4. A Turkish parallel to the phrase **yorč'iğun yabuğun élč'ine** appears in a Yarliğ of Mengili Girey Khan of Krim dated A.D. 1467 and published in *Türkiyat Mecmuasi*, Vol. IV, 1934, p. 103, line 3, as **yürür éşür elçi**, which seems to mean ' foot and mounted messengers ', or less probably ' ordinary and express couriers '.

P, IV. The heading in seal character reads **t'ay xoŋ t'ay xiw ḫi ǰi**. It is interesting as being one of the very few surviving specimens of ḫP seal character. Another is the official Yüan seal recently published by Professor Simon, op. cit. Pages 6[a, b] of the *MKTY* give a rather miscellaneous collection of specimens of this script in no particular order, with two or three variants for some letters.

P, V. Everyone who has studied the Mongolian part of this inscription, the Chinese part of which is dated A.D. 1283, has seen that it is a copy of scraps, probably of a rescript on paper, put together in the wrong order and incised on the monument to make it look more impressive. So much has gone that it is impossible to suggest what the original text was, but I can at any rate suggest a date for it. The word before **ǰil** seems to me to be clearly **bars**. This must be A.D. 1278, the last Tiger Year before A.D. 1283. The preceding one, A.D. 1266, would be too early, since ḫP did not become an official alphabet till A.D. 1269.

P, XII. Line 1. The word read **dunda** is clearly **dumda**, as indeed it should be.

Line 5. **Maqaraŋnu·ud** is an error for **mağaračnuḫud**.