Accented Mandarin of the Early 14th Century as Seen in the Persian Transcription*

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Abstract

In the early 14th century a Chinese medical treatise named *Mai Jue* 脈訣 was translated into Persian in Arabic script. In contrast with phonological works of standard Chinese, such as the *Zhongyuan Yinyun* 中原音韻 and the *Menggu Ziyun* 蒙古字韻 , the information contained in this document reflects the Mandarin pronunciation with obvious non-standard dialectal features. In this article we focus on the following issues regarding the Persian transcriptions of the Chinese language, specifically the reflexes of the *ru* syllables contained in the *Mai Jue* poems. First, the Arabic letters and basic spelling rules of the 14th century Arabic script are briefly discussed. Second, the reflexes of the *ru* syllables in the manuscript are analyzed. The statistics of the MC *ru* syllables with or without stop coda will be presented. Last but not least, the phonological features of the accented Mandarin of the 14th century are discussed. Our findings and analyses suggest that all the transcription of Mandarin Chinese was very likely based on the Mandarin pronunciation of a native speaker of Cantonese. In the process of the translation project, he introduced more dialectal features into his pronunciation of Mandarin.

Keywords

Persian transcription, accented old Mandarin

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* It should be noted that after I finished writing this article Professor Mitsuaki Endō recently published his book on the Persian transcription of the *Mai Jue*: 遠藤光暁 2016. 元代音研究 -《脈訣》ペルシャ語訳による , 青山学院大学経済研究所 研究叢書 8. 東京：汲古書院 . Thus his opinions in his recently work are not included and discussed in this article.

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1. Introduction

In the early 14th century a Chinese medical treatise named *Mai Jue* 脈訣 was translated into Persian in Arabic script. It was collected in a book compiled by Rashīd (Rashīd-al-Dīn Fadlallāh Hamadāni, 1247-1318) entitled *Tanksūqnāma-i Īl-khān dar funūn-i 'ulūm-i Khatāyī*, 'Book of Precious Information of the Īlkhān on the Various Branches of Chinese Sciences'. The nature of phonetic transcription, in general, is spontaneous recording of real pronunciation. This type of material can provide us with a different perspective of the Chinese phonology in the early 14th century. In contrast with phonological works of standard Chinese, such as the *Zhongyuan Yinyun* 中原音韻 (*ZYYY*) and the *Menggu Ziyun* 蒙古字韻 (*MGZY*), the information contained in this document reflects the Mandarin pronunciation with obvious dialectal features. The presence and absence of certain phonological features are invaluable materials to help us understand what was considered the standard for Chinese phonology in the 14th century.

The Chinese transcriptions in this document have been initially studied by former Soviet linguist Alexander Dragunov based on 12 photographs taken from a hand written copy of the manuscript (Dragunov 1931). Japanese linguists Mantaro Hashimoto and Endō Mitsuaki also studied this manuscript. Endō's article (Endō 1997/2001) is an important summary report of this manuscript providing many useful pieces of information about the manuscript, especially the sequential order of the poems in relationship with the Chinese versions of the *Mai Jue*. Because of Endō's study the identification of the Chinese poems became much easier to carry out.

In his study Endō points out an interesting phenomenon, that from page 434 some of the Middle Chinese (MC) *ru* syllables start showing stop codas -p, -t, -k (Endō 1997/2001).[1] As clearly shown in the *MGZY* and the *ZYYY*, in the phonology of Old Mandarin the MC *ru* syllables have already lost their stop codas. But based on the examples Endō provided some of the *ru* syllables clearly show the stop codas. Based on this particular feature Endō concludes that there were two Chinese speakers involved in the Persian transcription, speaker A is a Mandarin speaker from the north and one is

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1 This phenomenon was not mentioned by Dragunov in his article of 1931, due to the material which was available to him.

speaker B is a non-Mandarin speaker from the south. Beside the -p, -t, -k stop codas, the phonological characteristics of speaker B are similar to that of speaker A. Thus, speaker B's pronunciation was in Mandarin as well. In order to better understand this interesting phenomenon, all the MC *ru* syllables in the Persian transliteration of *Mai Jue* (hereafter PMJ) poems will be examined in the current study.

This article we focus on the following issues regarding the Persian transcriptions of the Chinese language, specifically the reflexes of the *ru* syllables contained in the *Mai Jue* poems. First, the Arabic letters and basic spelling rules of the 14th century Arabic script will be briefly discussed. Second, the reflexes of the *ru* syllables in the manuscript will be analyzed. The statistics of the MC *ru* syllables with or without stop coda will be presented. Last but not least, the phonological features of the accented of the 14th century Mandarin will be discussed.

2. The transcription

The Arabic script is written from right to left. As an abjad the letters mainly transcribe consonants. The Arabic letters have contextual variations. Beside the isolated forms, there are the initial, the medial, and the final forms. For the Chinese syllables the initial consonants are in the initial forms, and the ending consonants are in the final forms of the Arabic letters. In the Persian transcription the Chinese on-glide and off-glide, if they are transcribed, are represented by vocalic letters. All the transcriptions in this article are based on the reproduction of the original manuscript dated 1313 published by Tihrān University in 1972.

2.1. The consonants involved in the initial transcription

The Arabic letters which are copied from the original text and their phonetic values in IPA are listed in the chart below.

Arabic Letter, PMJ						*Transcription in IPA*				
Labial	ب	م	ه	ف	ب	b	ph	m	f	v
Alveolar	د	ز	ز		ل	d	th	n		l
	چ	ج		ص,س		dz	tsh		s, ṣ(i)	
Palatal	ج	ج		ش,ش	ت	dʒ	tʃh		ʃ, ʂ	ʒ
Velar	گ	ک	غ	خ,ر		g	kh	ŋ	x, xj	

As pointed out by Dragunov (1931) some letters are specially added for transcribing the Chinese sounds, including the letters for the following consonants, ph, dz, tsh, tʃh, g, hj, ʂ, ʒ, v etc, for the Chinese initials [ph, ts, tsh, tʃh/ tʂh, k, xj(ɕ), ʂ, ɻ, ʋ] respectively.

As mentioned above, the stop codas -p, -t, -k, -m, -n and -ŋ are transcribed in the final forms of the Arabic letters, b, d, g, m, n, and n plus g (ng) respectively. The relevant final forms of the letters are given below with examples.

-p ـب, 入 رِب reb　　-t ـد, 骨 گود gūd　　-k ـگ, 墨 موگ mūg
-m ـم, 噤 گِم gim　　-n ـن, 難 نان nān　　-ŋ ـنگ, 黄 خوانگ hūāŋ

In general the stop codas are transcribed with the letters representing voiced unaspirated stops. However, in few cases the stop codas are transcribed with the letters representing voiceless aspirated stops. Below are some examples with the page number of the original manuscript, the Chinese character, the Persian transcription in Arabic letters, and the IPA. For the *ru* syllables after the Chinese character, the page number and line number are provided as well as the narrow phonetic transcription is provided.

-p	急	430.2	gib	十	480.5	ʃib	甲	488.1	khāb
	入	480.5	reb	入	220.11	rph			
-t	不	502.2	būd	出	491.1	tʃhūd	折	491.3	tʃhed
	殺	506.10	ʃād	日	489.14	rith	吉	513.3	gith
-k	赤	430.3	tʃhig	尅	434.8	khig	直	489.14	dʒeg
	得	434.9	dg	白	481.15	bg	目	480.4	mūg
	得	303.8	dikh						

The explanation of this phenomenon should be that the stop codas in Chinese are voiceless, as they are in modern Cantonese. Since the stops at final position have the closure formed but not released (syllable final stops lack a release burst), they are thus unaspirated. The phonological features of the stop codas are [-voiced, -aspirated, -released]. According to Persian phonology, the voiced stops are unaspirated but the voiceless ones are aspirated. So according to aspiration the voiced ones ([+voiced, -aspirated]) are similar to the stop codas in Chinese.

But in terms of voicing the voiceless stops ([-voiced, +aspirated]) are similar. In transcribing Chinese, the choice made was to use the letters for voiced stops. It is likely that according to the transcribers, the aspiration feature makes voiceless stops unsuitable for transcribing the Chinese voiceless unaspirated stop codas, while the voicing feature of the voiced stops is a less significant difference. This phenomenon is similar to the transcription of the stops at the syllable initial positions but with many more cases in which the voiceless unaspirated stops are transcribed by the letters representing voiceless aspirated stops. That is because at the initial position, the voiced feature was less tolerable.

2.2. The vowels

In the Arabic spellings only long vowels are represented but short vowels are omitted. Readers must recognize the missing vowels based on their own linguistic knowledge. But in the so-called vocalized texts vowels are fully indicated such as the *Qur'ān*, in which both long and short vowels are spelled out. In general the poems in the PMJ are quite consistently spelled with vowel letters and marks, thus a vocalized text (refer to Appendix I). Consonant letters are used to transcribe long vowels, *alef* for ā, *vāv* for ū, *he* for ē, and *ye* for ī. In the PMJ the letter for initial ʒ is used to for high central vowel ɨ (or apical vowel) as well. However the omission of vowel letters and marks is often observed in spellings. Since the vowels are not the main focus of this paper, the letters and marks as well as the spelling rules of vowels will not be further discussed. The vocalic elements, medial, main vowel, and ending, of Chinese syllables are transcribed by the letters representing vowels.

2.3. Tones

Persian is not a tonal language so there are no letters or marks for Chinese tones. However there are a few spellings with reduplicated vowel letters frequently but not exclusively used for the Chinese *shang* tone syllables without a stop coda, e.g. 久 کوٗ khiūū, page 464. Below are some examples with reduplicated ūū.[2]

口	250.10	khūū	母	499.5	mūū	努	449.15	nūū
與	436.14	ūūī	苦	504.10	khūū	語	489.15	ūū

[2] In some syllables with duplicated ūū, there is even a mark indicating a glottal stop

五	488.9	ūū	久	464.14	khiūū	手	237.8	ʃūū
左	220.12	dzūū	柳	375.6	liūū	嘔	469.4	ūū
偶	495.2	ŋūū	取	501.15	tshūū	有	271.3	īūū

Characters listed above are all MC *shang* syllables and remained as *shang* tone syllables in Old Mandarin. Instead of using one letter these spellings with duplicated letters indicate a particular tonal contour, which might be similar to the dipping contour of modern Beijing dialect.

3. The *ru* syllables

Since the retention of the stop coda in the MC *ru* syllables is the focal point for understanding the Chinese language which was the base for the Persian transcription, all the *ru* syllables in the poems are examined. In the Persian translation of the *Mai Jue* (hereafter PMJ) there are 140 Chinese characters which are MC *ru* syllables.[3] Many appeared more than once. The total number of tokens is 1,044. Due to the quality of reproduction many details of the spellings cannot be observed.[4]

3.1. The stop codas of the *ru* syllables

After the examination of all the *ru* syllables in the original manuscript, it is clear that the stop codas start to appear before page 434 as Endō observed (1997/2001). The earliest appearance of stop coda can be found as early as page 220. In the title of poem *Zhenhou Rushi Ge* 診候入式歌 'The Song of the principles of diagnosis' character *ru* 入, which is the tonal label of the *ru* tone, is a *ru* syllable in the MC phonology with the letter representing voiceless aspirated bilabial stop [ph]. Thus, this is a clear example that the pronunciation of character 入 has a coda -p. In the text the *ru* syllables with a stop coda are also found in other pages, for example,

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3 鼻 and 咳 are included. The *ru* readings of these two characters are not listed in the standard rhyme dictionaries of MC. Although the *ru* reflexes are quite commonly found in modern Chinese dialects (*Hanyu Fangyin Zihui* 漢語方音字匯 2003), the *ru* pronunciation is not recorded in the standard rhyming dictionaries until the *Zheng Zi Tong* 正字通 by Zhang Zilie 張自烈 (1598-1637) of the Ming dynasty (1368-1644).

4 The size of the book was reduced. The black and white reproduction cannot distinguish the Chinese transcription, which was originally written in red ink, from the Persian writing.

入 220.11  rph　促 341.11  tshuk　十 363.10  ʃb
尅 369.15 khig

In the poems the first stop coda is found on page 303, in line 8 character 得 is transcribed as **dkh**. In the MC phonology 得 has a -k coda, so the **kh** in the spelling of **dkh** indicates the preservation of coda -k. Character 色 on page 323 and character 尅 on page 359 are MC *ru* syllables with -k coda also. Both are transcribe with a **g** indicating the presence of the -k coda.

得 303.8 dikh　色 323.2  sg　尅 359.13  gig

The next stop coda does not appear until page 430. Page 430 contains the poem *Renfu shanghan Ge* 妊婦傷寒歌 'The Song of maternity pyrexia' of the *Mai Jue*. This poem is the traditional format with 8 lines and 7 syllables in each line. The identification of Chinese characters is based on the Chinese version of *Mai Jue*.[5]

Page.line	*IPA transcription of the Persian letters*							*Chinese characters*
430.1	ʃaŋ	han	tū	thuŋ	līen	**baī**	**dzē**	傷寒頭痛連**百節**
430.2	khī	**gib**	tʃhuŋ	sim	**rāg**	rū	**hjē**	氣**急**沖心**弱(溺)**如**血**
430.3	ʃāŋ	ʂiŋ	b:ān	dem	h(**tʃh**)**ig**	**hg**	ʃī	上生班點**赤黑**時
430.4	tshāŋ	**re**	**bū**	tʃhɨ	dʒī	thāī	**mē**	壯**熱不**止致胎**滅**
430.5	āū	thū	**bū**	tʃhɨ	sim	mun	**rē**	嘔吐**不**止心悶**熱**
430.6	īeū	būī	giū	gīaŋ	nāū	thuŋ	**lē**	腰背俱強腦痛**裂**
430.7	**liū**	**tshī**	**rth**	lāī	**rē**	**fūg**	tʃhūŋ	**六七日**來**熱腹**中
430.8	sīū	phen	**bū**	thuŋ	dāī	phin	**gē**	小便**不**通大便**結**

Above is the poem, which contains the *ru* syllables (in bold face) with stop codas (Appendix I is the original image of this page). There are 20 *ru* syllables in this poem. According to MC 1 syllable is with -p, 14 with -t, and 4 with -k. It is quite interesting

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5 Two versions are referred to (1) the *Jiegu Laoren Zhu Wang Shuhe Mai Jue* 潔古老人註王叔和脈訣 'An annotated version of Wang Shuhe's *Mai Jue* by Elder Jiegu' by Zhang Yuansu 張元素 and published between 1237 and 1282 (Zhang 2002), and (2) the *Mai Jue Kan Wu* 脈訣刊誤 '*The Corrected Mai Jue*' by Dai Tongfu 戴同父 of Yuan published in the early 14th century (四庫全書本).

to note that of these 20 syllables, only some of the syllables which originally have -p, -t and -k codas still retain their codas. Except one, all the syllables which originally have a -t coda do not show any sign of coda -t at all. Codas -p and -k are transcribed by the letter for voiced stops but coda -t is transcribed by the letter for voiceless aspirated stop. The *ru* syllables, the position of the *ru* syllable, and the consonant coda in the MC system and in PMJ are listed below.

		MC/PMJ			*MC/PMJ*			*MC/PMJ*
百	1.6	-t/ -0	熱	4.2	-t/ -0	七	7.2	-t/ -0
節	1.7	-t/ -0	不	4.3	-t/ -0	日	7.3	-t/ -th
急	2.2	-p/ -b	滅	4.7	-t/ -0	熱	7.5	-t/ -0
溺	2.5	-k/ -g	不	5.3	-t/ -0	腹	7.6	-k/ -g
血	2.7	-t/ -0	熱	5.7	-t/ -0	不	8.3	-t/ -0
赤	3.5	-k/ -g	裂	6.7	-t/ -0	結	8.7	-t/ -0
黑	3.6	-k/ -g	六	7.1	-k/ -0			

However from page 436 on stop codas disappear and are not found until page 449. Page 436 is the beginning of *Yangdu Yindu Ge* 陽毒陰毒歌 'The song of the yang toxin and the yin toxin' and page 449 is the beginning of *Zhu Bing Shengsi Mai Ge* 諸病生死脈歌 'The song of the pause of death caused by various diseases'. After page 449 on to the end of the text the stop codas continue to appear in the poems. In the list below the poems that do not contain stop codas are labeled with PMJ-1, and the poems that do contain stop codas are labeled with PMJ-2. In addition, the page numbers, the name of the poem, the chapter number, and presence or absence of the stop coda are also provided.

Pages 220-429				
220-429	All poems within these pages	1-8	have no coda	PMJ-1
Pages 430-434				
430-431	妊婦傷寒歌	10	have coda	PMJ-2
432	小兒生死候歌・小兒乳後歌	10	have coda	PMJ-2
434	診四時虛實脈歌	8	have coda	PMJ-2
Pages 436-448				
436	陽毒候歌	8	have no coda	PMJ-1
437	陰毒候歌 (two lines)	8	have no coda	PMJ-1

441-444	傷寒歌	8	have no coda	PMJ-1
446	診四時虛實脈歌	8	have no coda	PMJ-1
448	陰毒候歌 (six lines)	8	have no coda	PMJ-1
Pages 449-476				
449-476	諸病生死脈歌	8	have coda	PMJ-2
Pages 479-513				
479-489	察色觀病患生死候歌	9	have coda	PMJ-2
490-494	論五臟察色候歌	9	have coda	PMJ-2
494-505	診婦人有妊歌	10	have coda	PMJ-2
509-513	產難生死脈歌	10	have coda	PMJ-2
514-519	小兒外證十五候歌	10	have coda	PMJ-2

Or, part PMJ-1 includes the poems on pages 430-436, and 479-510, and part PMJ-2 includes poems on 430-434, 449-476, and 479-519.

3.2. The consistency of the stop coda in the transcription

Although in the spellings the stop coda of *ru* syllables are frequently found, the *ru* syllables are not always spelled with a stop coda. Also, some *ru* syllables are never transcribed with a coda regardless of how many times they appeared. The Chinese word 脈 is a typical example. In the MC system, 脈 has a -k coda. In the poems of PMJ the transcription for 脈 appears 46 times from page 430 to 518. Except for one mistake on page 474 (as tʃū) 脈 is consistently transcribed as māī with no exception. No coda -k is found in the transcription of all 46 cases. Such uniformity in spelling is quite different from other *ru* syllables which usually show a certain degree of variation in terms of the presence or absence of the stop codas, for example,

急	430.2	gib	432.6	gib	432.10	gib	448.1	gī	464.1	gī	
	469.12	gī	473.5	gī	473.15	gī	508.1	khē	513.2	gīb	
	518.5	kh-	(11)								
忽	431.5	hū	459.2	hū	468.11	hū	469.6	hū	471.5	hū	
	479.3	hū	482.5	hū	513.4	hūd	516.9	hūd	(9)		
腹	430.7	fūg	448.1	fū	449.14	fū	461.6	fū	467.12	fū	
	472.2	fū	508.1	fūg	508.4	fūg	508.14	fūg	510.15	fūg	(10)

In the transcriptions some syllables have a coda and some don't. However in general the stop codas in the transcription are in agreement with that in the MC system. 脈 is one of few characters which shows an invariant transcription with no coda. Thus, it is quite likely that as a frequently used technical term the transcription of 脈 is fixed rather than spontaneously transcribed.

The appearance of stop codas becomes more frequent after page 479, which is the beginning of the *Chase Guanbing Huan Shengsi Hou Ge* 察色觀病患生死候歌 'The song of diagnosing the symptoms of life and death'. PJM-2 is further divided in two parts, PMJ-2a and PMJ-2b. The first part is from 430 to 478 (excluding pages 436-448) and the second part is from 479 to 519. It has been found that the frequency of the occurrences of stop coda is significantly different in PMJ-2a and PMJ-2b. The percentages of the *ru* syllables with stop codas are 13 percent vs. 53 percent respectively, a significant 40 percent difference.

PMJ-2a	430-434, 449-476	Total 24	0.13 (24/188)
PMJ-2b	479-518	Total 135	0.53 (135/253)

According to Endō PJM-2 was produced by one speaker (speaker B). However the difference within the part of PMJ demands further explanation. We need to explain why the occurrence of stop coda is so different in two subparts of PMJ-2, PMJ-2a and PMJ-2b. In order to explain this phenomenon it is necessary to understand the dialect features involved in the transcription.

4. The dialectal features reflected in the transcription

Based on the presence or absence of the stop codas of the MC *ru* syllables Endō suggests that the part which does not show any stop coda of the *ru* syllable represents a the pronunciation of a Mandarin dialect, and the part that shows stop codas of the *ru* syllables also represents Mandarin but with southern accent. However this impression needs to be further examined. The Chinese dialects in the north and in the south differ from each other in many different aspects phonologically. The preservation of the stop coda is just one of them. In order to better understand the dialect of the speaker(s) involved in the Persian transcription, more relevant phonological features should be examined.

It has been an accepted view in the Chinese dialectology that by the time of early Southern Song dynasty (1127-1279) the major southern dialects have been formed (You 1992). For the northern dialects the formation of northern Mandarin can be firmly traced to the Liao dynasty, 907-1125 (Shen 2007). Thus by the time of the Yuan dynasty (1271-1368) the major dialects groups have already developed and the main phonological features of major dialects were also well established. If the informants were the speakers of different dialects their dialects should not be too difficult to identify based on the information of the modern dialects.

In the following sections these two parts of PMJ, PMJ-1 and PMJ-2, are examined separately. In order to identify the dialects, the following diagnostic features are adopted. These features can show a contrast between the northern and southern dialects. The northern dialect is represented by the Beijing dialect, the standard Mandarin and the southern dialect by the Guangzhou dialect, the standard Cantonese.

1 = presence or absence of stop coda of the MC *ru* syllables, e.g. 入 , 十 , 必 , 不 , 得 , 目 . In the modern Mandarin dialects, as well as early in the time of the Liao dynasty (907-1125), the *ru* syllables have lost their stop coda. But the stop codas are systematically preserved in some southern dialects, especially in the Cantonese dialects.

2 = presence of absence of palatal medial in MC division II with guttural initials, e.g. 夏 , 家 , 下 , 覺 , 齩 , 鴉 , 眼 , 甲 , 間 , 江 . The southern dialects usually don't have the palatal medial for division II syllables.

3 = the vowel of MC division III syllables of *ma* 麻 rhyme, e.g. 也 , 者 , 邪 , 且 , 夜 . The main vowel of MC division III syllables of the *ma* 麻 rhyme changed from low vowel to mid vowel, ja > je, in the northern dialects and in Cantonese, but remain as low vowel in many southern dialects.

4 = diphthongized MC *ru* syllables with -k, e.g. 客 , 隔 , 白 , 百 , 澤 , 則 , 得 , 賊 , 塞 , 尅 , 黑 , 脈 , 莫 , 樂 , 惡 , 雀 , 鵲 , 若 , 腳 , 藥 , 色 . As the result of sound change diphthongs are from MC -k syllables. Diphthongization of MC *ru* syllables with -k is a decisive feature for the identity of northern Mandarin.

5 = the -w- medial of the syllables with zhuang group initials in the *dang* 宕 and *jiang* 江 rhyme groups e.g. 壯 , 雙 , 床 , 瘡 , 霜 , 爽 . Unlike the Mandarin dialects, the southern dialects do not have the labial medial for these syllables in the phonology.

6 = phonetic value of the MC *ri* 日 initial, 人 , 熱 , 入 , 若 , 如 , 肉 , 日 . The reflexes of MC *ri* initial are different in the northern and southern dialects. The retroflex r mainly exists in the northern mandarin speaking area including Beijing. In other dialects the reflex is n, l, z, or zero.

In the Yuan dynasty the major dialect groups have already developed and therefore the main phonological features of dialects were also well established. If the informants were speakers of different dialects, their dialects should not be too difficult to identify based on modern dialects.

PMJ-1

1. Absence of stop codas, -p, -t, -k

急	268.11	gī	入	359.11	rū	十	254.7	ʃī
月	361.8	ūē	不	254.2	bū	出	352.5	tʃhū
得	278.12	thī	赤	392.12	tʃhī	欲	289.9	īū

2. Presence of palatal medial

家	264.5	giā	間	415.6	gīan	下	250.7	hjā
覺	414.13	gīeū	眼	284.9	īan			

3. Raised vowel

也	284.10	īē	邪	300.9	sē	且	283.10	tshē
者	421.1	dʒē	夜	325.7	ī			

4. Diphthong reflexes with -j, or -w

百	381.6	baī	色	388.13	ʂaī	客	268.3	khāī
惡	336.15	āū	樂	262.3	laū	覺	414.13	gīeū

5. Status of the -w- medial

壯	424.12	tʃhūāŋ	床	287.3	tʃhāŋ	瘡	390.3	tʃhūāŋ
爽	386.14	ʂūāŋ	狀	324.10	dʒūaŋ	霜	363.1	ʃāŋ

6. Presence of r- initial

人	284.8	rin	熱	253.9	rē	肉	424.12	reū

All these phonological features suggest a Mandarin type of northern dialect and characteristic 4 can further identify this Mandarin dialect is northern Mandarin, very similar to the capital dialect of Yuan, Dadu 大都 . According to the rhyming books of Yuan, the *MGZY* and the *ZYYY*, the MC *ru* syllables with -k coda have undergone

the diphthongization, which is a very specific phonological characteristic of northern Mandarin (Shen 2008, 2011). In the PMJ the diphthong reflexes with -j or -w can be found. Because of this phonological characteristic this dialect can be identified as northern Mandarin. The identification is thus different from what Endō observed and concluded (Endō 1997/2001). (Endō did not find the ru reflexes with -w and thus made his conclusion accordingly. The examples provided clearly show the diphthong forms with -w, in the transcriptions of Chinese characters 惡 , 樂 , 覺 , 若 , 腳 , etc.)

Although the phonological features fit the Mandarin phonology very well, a few transcriptions indicate that the northern Mandarin dialect was not the native dialect of the speaker. As we pointed out above there very few cases of *ru* syllables in the poems that show a stop coda, on page 303 得 is transcribed as tkh with stop coda -k.

PMJ-2

1. Presence of stop codas (the same characters used for PMJ-1)

急	513.2	gīb	入	480.5	reb	十	489.15	ʃīb
月	497.1	ūed	不	508.15	bud	出	490.7	tʃhud
得	434.9	dg	赤	430.3	tʃhig	欲	509.9	īūg

But

甲	434.12	khīā	急	473.5	gī	澀	467.15	ṣī
八	488.2	bā	忽	471.5	hū	滑	469.14	hūa
足	469.5	tshū	實	464.1	ʃī	藥	474.1	īā

2. Presence of palatal medial

夏	446.5	hjā	下	510.13	hjā	齩	517.14	īāū
眼	479.3	īan						

3. Raised vowel

也	485.11	ī	邪	480.14	sē	夜	509.11	ī
者	504.15	dʒē						

4. Presence of coda -k

白	481.15	bag	色	482.5	ṣeg	得	513.3	dig
錯	485.12	tshāg	覺	497.1	gīag	藥	519.8	īāg

But

白	483.9	bāī	莫	431.6	māū	得	464.13	deī

5. Status of the -w- medial

壯 430.4 tshāŋ 雙 498.15 ʃūaŋ 瘡 473.4 tʃhūāŋ

6. Presence of r- initial

人 486.5 rin 熱 494.1 rē 肉 492.1 rū

Below a comparison is made between the modern dialects and the transcriptions of PMJ. For the modern dialects, Beijing and Guangzhou are selected for comparison, for the reason that these two dialects have a closer relationship to the Persian transcription according to the phonological characteristics. Based on the presence of absence of the stop coda the PMJ is divided into PMJ-1 and PMJ-2. The *ZYYY* is also included to represent the Mandarin Chinese of Yuan.

	1, *ru*, -p, -t, -k			2, division II			3, *ma* III	
	十	月	赤	下	眼	齩	邪	夜
BJ	ʂʅ	ye	tʂhʅ	ɕia	iɛn	iɑu	ɕiɛ	iɛ
ZYYY	ʃi	iuɛ	tʃhi	xja	jan	jau	siɛ	iɛ
PMJ-1	ʃī	ūē	tʃhī	hjā	īan	--	sē	ī
PMJ-2	ʃīb	ūed	tʃhig	hjā	īān	īāū	sē	ī
GZ	ʃɐp	jyt	tʃhɪk	ha	ŋan	ŋau	tʃhɛ	jɛ
MX	ʃəp	niat	tshak	ha	nian	ŋau	sia	ia

	4, *ru*, -k			5, *dang/jiang* finals		6, *ri* initial		
	白	覺	得	壯	瘡	人	肉	熱
BJ	pai	tɕiau	tɤ/ tei	tʂuaŋ	tʂuaŋ	zɻən	zɻou	zɻɤ
ZYYY	pai	kiau	tei	dʒuaŋ	tʃhuaŋ	ʒiən	ʒiəu	ʒiɛ
PMJ-1	bē-	gīeū	thī/ deī	tʃhūāŋ	tʃhūāŋ	rin/ ren	rū/ reū	rē
PMJ-2	bag/bāī	gīāg	dig/ deī	tshāŋ	dʒūāŋ	rin/ ren	rū/ rūg	rē
GZ	pak	kɔk	tɐk	tʃɔŋ	tʃhɔŋ	jɐn	jʊk	jit
MX	phak	kɔk	tɛt	tshɔŋ	tshɔŋ	njin	njiuk	njiat

The comparison above can be simplified and listed as what below.

	1	2	3	4	5	6
BJ	-0	-j-	e	-j, -w	-u-	ʐ-(ɻ-)[6]
ZYYY	-0	-j-	ɛ	-j, -w	-u-	ʒ-(ɻ-)
PMJ-1	-0	-j-	e/ i	-j, -w	-u-, -0-	r-
PMJ-2	-0, -C	-j-	e/ i	-j, -w/ -C	-u-, -0-	r-
GZ	-C	-0-	ɛ	-C	-0-	j-

According to the comparison above, PMJ-1 and PMJ-2 differ on two phonological features (1 and 4) but are in agreement on four features (2, 3, 5 and 6).

In comparison with other systems, PMJ-1 is very similar to the Beijing dialect as well as the *ZYYY* in all six diagnostic features examined. For PMJ-2 some features are similar to Cantonese (1, 3, 4 and 5) and some features are similar to Mandarin (2, 3, 5 and 6). Since there is no such dialect which has features 1, 2 and 6 co-exist in the same system, PMJ-2 must be a mixture of different dialects. In PMJ-2 some syllables can be only understood as the result of dialect mixtures. The palatal medial and the -k coda of MC division II *kaikou* syllables can co-occur in the same syllable, e.g. 覺 492.13 khiāg, 497.1 gīag.

In the Yuan dynasty the dialect of capital Dabu 大都 , a variety of northern Mandarin, was the standard Chinese. Thus, PMJ-2 was very possibly a version of Cantonese accented Mandarin spoken by a Cantonese native speaker. It has been shown that the PMJ-2 two sections show very different degrees of the occurrence of stop coda. This difference can be regarded as different degrees of approximation of Mandarin or different degrees of Cantonese accent.

But is PMJ-1 really based on the Mandarin pronounced of a native speaker? Based on the evidence pointed out above in the PMJ-1 part, MC *ru* syllables 得 is clearly transcribed with stop coda -k. These three crucial transcriptions indicate that the speaker of PMJ-1 is not a native Mandarin speaker either. Due to the total loss of stop codas in the Yuan time, no Mandarin speaker would pronounce the *ru* syllables with a stop coda. Thus, the speaker of PMJ-1 must be a Cantonese native speaker as well.

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[6] Although it is often transcribe as voiced retroflex fricative [ʐ], the phonetic value of the reflex of MC *ri* initial should be a retroflex approximant [ɻ]. According to the phonological system of the *ZYYY*, it should be [ɻ] as well in the Yuan time.

On page 288 character 護 is transcribed as fū, a confusion of hw- and f-. This feature also suggests the Cantonese accent. In modern Cantonese 護 is pronounced wu. But 夫 and 呼 are distinguished and both are pronounced as fū. Since 護 's pronunciation is [xu] in Mandarin, regardless of the tonal difference, xu could be pronounced as fū according to Cantonese.

5. Conclusion

The Chinese term for Mandarin is *Guanhua* 官話 , which literally means "the speech of officials". *Guanhua* serves as a koine, or the common dialect of Yuan. The diphthongization of MC syllables with -k coda also unambiguously indicates that the Yuan *Guanhua* is based on the dialect of Dadu 大都 , which was the capital of Yuan. However *Guanhua* is not a particular dialect, even the capital dialect. On one hand *Guanhua* must have its base dialect, and on the other hand *Guanhua* is quite loosely defined. It can contain certain nonstandard features, as far as the basic features of the standard phonology are included. So *Guanhua* can appear differently. Another version of *Guanhua* in Persian transcription can be observed in Rashid al-Din (1247-1318)'s *History of China*, which contains the names of the dynasties, and of kings and emperors from prehistoric legends to the Yuan dynasty. No -p, -t, -k coda is found in the transcription. The phonological features in that material indicate that the underlying phonological system is, in general, northern Mandarin (Shen 2013).

In the PMJ some phonological features indicate that the underlying dialect of the speaker(s) is similar to modern southern dialects, especially Cantonese. All transcriptions of Chinese in the three parts that we divided according to the frequency of the occurrence of the stop coda are based on the pronunciation spoken by native speaker(s) of Cantonese, with different degrees of approximation to the standard Mandarin. The main difference is reflected in the pronunciation of the MC *ru* syllables.

In the transcription of all the poems, PMJ-1 and PMJ-2, two features appear consistently, namely the palatal medial of MC division II *kaikou* syllables -j-, and the approximate reflex of MC *ri* initial r-. These two features clearly indicate that they are the most distinct and basic features of the standard Mandarin phonology. In modern dialects similar phenomena can be observed. The so-called literary layer and the colloquial layer have contrast for these two kinds of syllables. For example, in the Suzhou dialect (SZ), a variety of Wu, the *wendu* 文讀 'literary pronunciation', mainly

shows its contrast with the *baidu* 白讀 'colloquial pronunciation' in these two kinds of syllables (according to *Hanyu Fangyin Zihui* 漢語方音字匯 2003). The Beijing dialect is listed to represent the standard Chinese.

	MC divition II kaikou *syllables*				*MC* ri *initial syllables*			
	家	間	江	覺	日	人	染	戎
Beijing	tɕia	tɕiɛn	tɕiaŋ	tɕye/ tɕiau	ʐɻ	ʐən	ʐan	ʐuŋ
SZ literary	tɕiɒ	tɕiɪ	tɕiɒŋ	tɕioʔ	zʏʔ	zən	zø	zoŋ
SZ colloquial	kɒ	kɛ	kɒŋ	koʔ	niɪʔ	nin	niɪ	nioŋ

The literary pronunciation of Suzhou reflects the phonological features of the standard Chinese and shows the similarity in these two kinds of syllables. It also worth noting that in the PMJ the appearance of the stop coda should not be totally unintentional. The presence of the stop codas suggests that retaining the pronunciation of *ru* tone syllables along with their stop coda was an acceptable practice among the speakers who had the dialectal background and could correctly produce them. In the Yuan dynasty, the *ru* tone as a tonal category was preserved in the standard rhyming books, such as the *MGZY* and the *ZYYY*. The poems of *Mai Jue* are written in the traditional forms. The rhythm and rhyme are based on the MC tonal categories. Thus to produce the *ru* tone syllables in reading traditional poems could be an acceptable practice in the *Guanhua* pronunciation although the *ru* tone was lost in the northern standard dialect.

Based on what have been discussed there are two possible explanations for the accented Chinese pronunciation reflected in the PMJ. One is that different sections, PMJ-1, PMJ-2a, and PMJ-2b, are produced by different Chinese speakers with different degrees of dialect accent in their pronunciation of standard Chinese. An alternative is that the same Chinese speaker, very likely a Cantonese speaker, pronounced the standard Chinese with significantly different degrees of dialectal accent. Since the dialectal features can be traced to Cantonese, the different degrees of occurrence of stop codas as well as other dialectal features can be considered produced by the same speaker. According to the introductory part of the *Tanksūqnāma-i Īl-khān dar funūn-i 'ulūm-i Khatāyī*, ' it is mentioned by its compiler Lashid that he asked a promising young Persian scholar by the name Safīi al-Daula vaal-Dīn to follow Siusa (Siu-

Seh), one of the most eminent Chinese physicians working in Persia (modern Iran) at that time (Wang 2006: 35). Thus, it is very possible that all the Mandarin Chinese was pronounced by Siu-Seh, whose native dialect was Cantonese. In the process of the translation project, he progressively he introduced more dialectal features into his pronunciation of Mandarin.

Thus it can be concluded that the Persian transcription of the *Mai Jue* is a very different kind of phonological record of the Mandarin Chinese of Yuan. It is not a recording of a single dialect, not the standard Mandarin, but rather a version of accented Mandarin. Therefore the Chinese phonology reflected in the Persian transcription is not only differs from what in the Chinese rhyme books, but also different from what in the hP'ags-pa transcription. The phonological information of Chinese in various kinds of the hP'ags-pa transcriptions, such as the *Bai Jian Xing* 百家姓 , stone tablet inscriptions, and official seals, are almost the same as what in the *MGZY*, which is the orthography of the national script of Yuan (Shen 2008). In contrast to the hP'ags-pa transcription, the Persian transcription of the *Mai Jue* provides a real example of accented Mandarin Chinese, or the *Guanhua* 'the official language' of the Yuan dynasty.

Appendix I

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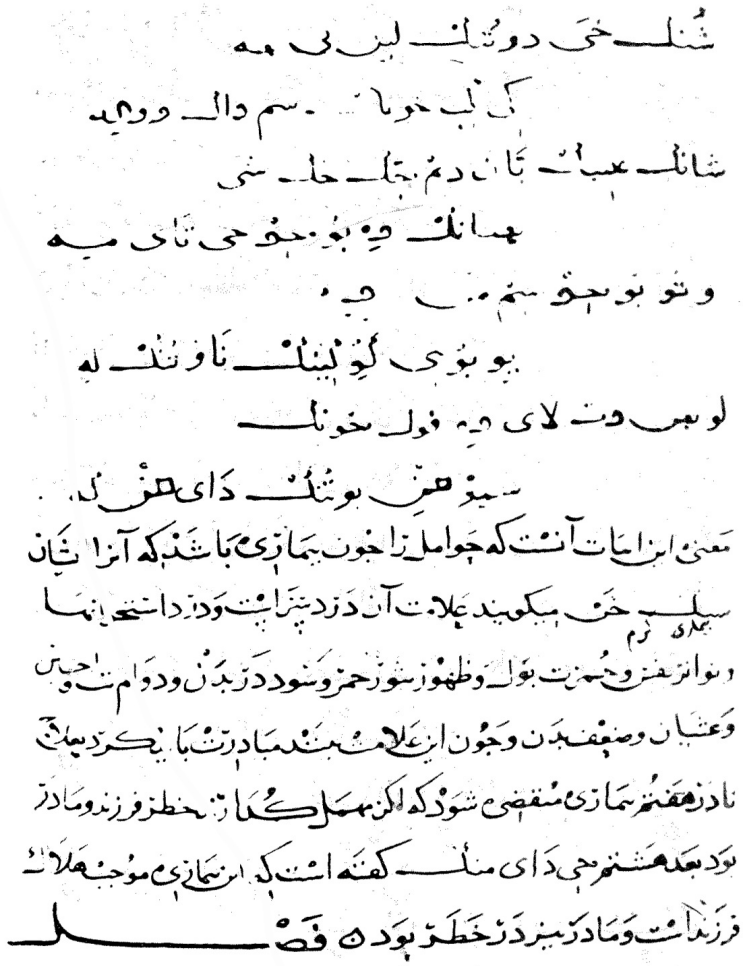

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波斯音譯中所見十四世紀初帶地方口音的官話

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提要

十四世紀初中國醫書《脈訣》用阿拉伯文字翻譯成了波斯語。音譯中所反映出的古官話語音，和同時代的《中原音韻》及《蒙古字韻》相比，帶有明顯的非標準語特徵。以入聲字音譯為重點，本文主要包括下幾個方面的內容：首先是十四世紀的阿拉伯文的字母和拼寫規則的簡單介紹；其次是入聲字語音表現的分析，包括對入聲字韻尾出現頻率的統計；最後是十四世紀初帶有地方口音的官話的語音特徵的探討。研究結果顯示，波斯音譯中反映的古官話可能是當時以粵語為母語的人所說的官話。在音譯過程中，方言特徵在發音人的官話語音中的表現逐漸增強。

關鍵詞

波斯音譯，帶地方口音的古官話