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The Shuyang dialect: A study in its historical evolution

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THE SHUYANG DIALECT:
A STUDY IN ITS HISTORICAL EVOLUTION

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

By

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The Ohio State University

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To my father

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PUBLICATIONS

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FIELDS OF STUDY

Major Field: East Asian Languages and Literatures

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LIST OF ABBREVIATIONS

C	syllable initial
DT	Dengyun tables
E	syllable ending
G	guttural
GZ	Gujin Zhongwai Yinyun Tongli (by Hu Yuan, 1866 A.D.)
HJ	Huangji Jingshi Shu (by Shao Yong, 1011-1077 A.D.)
HZ	Hongwu Zhengyun (by Song Lian *et al.*, 1375 A.D.)
LY	Lishi Yinjian (by Li Ruzhen, 1805 A.D.)
M	syllable medial
OCM	Old Central Mandarin
ONM	Old Northern Mandarin
OSM	Old Southern Mandarin
P	labial initial
QZT	Qieyun Zhizhang Tu (1176-1203 A.D. [according to Zhao 1957: 94-107])
SD	Sisheng Dengzi (Northern Song dynasty, 960-1127 A.D.)
SY	Shuyang dialect
V	the nuclear vowel in a syllable
ZY	Zhongyuan Yinyun (by Zhou Deqing, 1324 A.D.)

CHAPTER I

INTRODUCTION

1.1. Statement of goal

One of the challenges Chinese historical linguists are facing is the multitude of dialectal variations in central and north China, which are believed to be derived all from a single source: Proto-Mandarin. We may wonder how these dialects evolved. The goal of this thesis is to explore the evolution of the Shuyang 沭阳 dialect, a Mandarin variety spoken in northern Jiangsu. Two approaches in the study will be made. First, an examination of the change from Proto-Mandarin to modern Shuyang dialect will be made to determine a phonological pattern of change. Secondly, a synchronic description of the sound system of the Shuyang dialect will be presented. After the synchronic description I will try to demonstrate the sound changes in the history of this dialect which occurred from the Dengyun era (about the tenth century) to the present. For most of the sound changes, I will discuss their relative chronology in comparison with the sound changes reflected in the Zhongyuan Yinyun (1324) and the Hongwu Zhengyun (1375). This comparison will let me interpret when and how the particular phonological features of this dialect occurred. With these descriptions I will propose that the historical evolution of a Mandarin dialect can be best explained by an interaction of two or three versions of

Mandarin that prevailed in different historical periods and in different parts of the country.

1.2. Linguistic significance of the Shuyang dialect

The reason for choosing this dialect for a linguistic study is that geographically it is located on the border between an area where Jianghuai Mandarin (or Southern Mandarin) is spoken and an area where Central Mandarin is spoken (see Map 1). It offers some interesting contrasts with other Jianghuai dialects as well as with Central Mandarin. For instance, it has a contrast between retroflex initials and dental sibilant initials, while such a contrast does not exist in other Jianghuai dialects. On the other hand, it has an entering tone while its neighbors in the Central Mandarin area do not.

Moreover, the Shuyang county is the center of an area where a local theatrical art called Huaihai Opera is very popular. This area extends eastward as far as Lianyungang. It includes Siyang and the northern part of Huaiyin in the south, and the eastern part of Suqian in the west. According to Yan & Bao (1988), a book titled Xiju Yinyun 'Opera Rhyme' was compiled and printed in 1965 by a cultural institution in Shuyang. The purpose of the book is to guide local people on the rhyme when they write Huaihai Opera or another folk art called *Huaihai Luogu* 'Huaihai Gong and Drum'. By an analysis of the arrangement of rhymes and the authors' notes, one can obtain a sound system implied in the book. The most interesting phenomenon in that book is a merger of entering tone rhymes with non-entering tone rhymes. It is believed that rhyme categories in that book were based on not only scripts of Huaihai operas, but also the local dialect (Yan & Bao 1988).

However, there is no comprehensive description of the Shuyang dialect. A few fragmentary reports on this dialect all describe it on the synchronic level. The Jiangsusheng he Shanghaishi fangyan gaikuang 'A dialectal survey of Jiangsu Province and Shanghai City' (Jiangsu 1960), so far as I know, contains the earliest report of the Shuyang dialect. Unfortunately the phonological system of Shuyang was not reported, and the twenty dialects selected for its glossary of syllable reading did not include Shuyang either. What one can learn from this report is merely a few characteristics of the Shuyang's initials.

Yan Jingchang's *Shuyang fangyan benzi kao* 'An etymological study of some words in the Shuyang dialect' (1986) is the first article which reports the initials, finals and tones of this dialect. However, Yan only listed them in tables without any explanation.

The *Shuyang fangyan li de rusheng* 'The entering tone in the Shuyang dialect' by Wang Kaiyang *et al.* (1983) is an article that briefly reported the finals with the entering tone. It listed twenty-six entering tone words which changed their former entering tone readings to non-entering tones.

The *Jianghuai fangyan beiyan de rusheng* 'The entering tone in the north edge of the Jianghuai Mandarin area' by Yan Jingchang & Bao Mingwei (1988) reported the phenomenon that in the Shuyang dialect some entering tone syllables can also rhyme with non-entering tone syllables. However, in their analysis they cannot explain why other entering tone syllables do not rhyme with their non-entering tone correspondents.

My publication, *Shuyang yinxi jiqi lishi yanbian* 'The sound system of the Shuyang dialect and its historical evolution' (Shi 1992) is the first article devoted to a description of the sound system of modern Shuyang dialect. However, this article does not discuss entering tone syllables, and its

diachronical description of this dialect is limited only to two sound changes of vowels.

1.3. Methodology and data

Although no direct historical data are available for the evolution of the Shuyang dialect, there are two approaches which allow tracing of the diachronical development of this dialect. First is the study of historical documents. There are various Dengyun rhyme tables and dictionaries in which certain historical aspects of Mandarin dialects were recorded. Second is to make a comparison of modern Mandarin dialects. One has good reason to believe that modern Shuyang dialect is genetically related to Proto-Mandarin. By comparing the Shuyang dialect with modern Beijing dialect, modern Nanjing dialect, and modern Xuzhou dialect, I can obtain a systematic contrast between the Shuyang dialect and those three which are more intimately related to the old versions of Mandarin in different dynastic periods. By combining these two types of sources, I can propose a reasonable explanation for the historical development of the Shuyang dialect.

The methodology of the diachronic study of the Shuyang dialect can be represented by the following four working assumptions:

(1) All phonological features of modern Shuyang dialect were reflected in Proto-Mandarin unless there is a linguistic or sociolinguistic reason to hypothesize a later sound change.

(2) When a historical sound change in Shuyang was reflected in several rhyme dictionaries (or Dengyun tables), the date of the earliest recording will be considered as the possible time when the sound change occurred in Shuyang unless that assumption violates other sound changes.

(3) When a historical sound change in Shuyang was not reflected in any historical records, its relationship with other sound changes will determine its relative chronology. If more than one possibility exists, the more natural or realistic one will be chosen. This means the same or a similar sound change also occurs in other Jianghuai dialects.

(4) All else being equal, the simplest possible analysis will be preferred.

Three kinds of historical materials will be used in this study. First, the phonological system represented by the Dengyun tables of the Yunjing will be taken as the earliest form of Mandarin, i.e., Proto-Mandarin. This proto form later developed into three versions in different areas and different eras. The language reflected in Shao Yong's (1011-1077) Huangji Jingshi Shu and the rhyming practice of some Song poets from the Luoyang area will be considered as Old Central Mandarin, the language in the Hongwu Zhengyun as Old Southern Mandarin, and the language in the Zhongyuan Yinyun as Old Northern Mandarin.

The second kind of materials includes Li Ruzhen's Lishi Yinjian (1805). This rhyme book recorded the dialect of Haizhou which is not only geographically close to Shuyang but also has a phonological system similar to the Shuyang dialect. Hu Yuan's Gujin Zhongwai Yinyun Tongli (1866) which recorded the old Nanjing dialect will also be treated as this kind of material since the old Nanjing dialect is considered a representative of Jianghuai Mandarin.

The third kind of materials consists of various historical records about the movement and the composition of the population in this area.

The Shuyang dialect is my first dialect and I learned it from my family. Most of the data about this dialect come from my own speech with verification by

my father (in his seventies) and a young man (in his twenties), both of whom are from Tangjian, 21 kilometers east of the Shuyang county town (see Map 3).

1.4. Outlines of the thesis

The contents of subsequent chapters are indicated below. In Chapter II, notions of the Mandarin syllable structure are critically reviewed with respect to the four structural constituents which form a syllable in a linear order. Based on a strictly phonemic analysis of the Mandarin syllable structure, a comprehensive description of the sound system of modern Shuyang dialect will be presented.

Chapter III deals with the historical background of Mandarin Chinese, which is related to the evolution of the Shuyang dialect. The nature of the language in the Qieyun and the Dengyun tables will be first reviewed. I will compare the earlier and later Dengyun tables to show that sound changes were reflected in the later tables. The sound systems of the three major old Mandarin dialects, i.e., Old Central Mandarin, Old Southern Mandarin and Old Northern Mandarin will also be reviewed. Among them, the sound system reflected in Shao Yong's Huangji Jingshi Shu will be re-analyzed. I will argue that it reflects Shao Yong's native Northern Mandarin dialect instead of Central Mandarin.

Chapters IV and V center around the historical development of the Shuyang dialect. Non-entering tone syllables will be examined in Chapter IV, and entering tone syllables in Chapter V. During the discussion of these two chapters, I will demonstrate how the Shuyang dialect evolved with interference from the old Mandarin dialects.

A summary of the theoretical basis and the conclusions of this thesis will be given in Chapter VI.

CHAPTER II

THE SOUND SYSTEM OF THE SHUYANG DIALECT

2.0. Mandarin syllable structure

The traditional Chinese view of the Mandarin syllable structure is that a Mandarin syllable consists of five elements: initial (*shengmu* 声母), medial (*yuntou* 韵头), nucleus (*yunfu* 韵腹), ending (*yunwei* 韵尾), and tone (*shengdiao* 声调). A syllable can be divided into an initial and a final (*yunmu* 韵母). The final can be further divided into a medial, a nucleus and an ending. The combination of the nucleus and the ending is called rhyme (*yun* 韵). The structure of the Mandarin syllable can be illustrated as in Table 1.[1]

Table 1. Mandarin syllable structure

	final		
		rhyme	
initial	medial	nucleus	ending

[1] This table is adopted from Cheng Chin-chuan's A Synchronic Phonology of Mandarin Chinese (1973: 11). Two points need to be mentioned. First, tone in Cheng's view is carried by the whole syllable, and is not specified in the table. I will discuss soon that phonemically the nucleus is the tone bearing unit. Second, I will show (in 2.4.1) that Cheng's analysis of Pekingese actually is not consistent with this structure.

By implication, Chinese scholars seemed to know that among these constituents, nucleus and tone are the two essential elements of the syllable. The others may or may not be present (Chang 1975). The tonal domain may indeed spread over initial, medial or ending. Since only the nucleus is obligatory and acoustically most prominent phonemically it is the tone bearing unit. For the four segments, i.e., initial, medial, nucleus, ending, which form a syllable in a linear order, Hsueh (1980b) used the simple formula, (C) (M) V (E), to represent their relationship in a syllable. I will discuss this formula soon.

Unfortunately, description of the nucleus is least clear in Chinese traditional phonology. There was a specification of tones as early as the sixth century (Liang Shu Chap. 13), and the classification of initials appeared no later than the Tang dynasty. Traditional scholars started categorizing medials in the Dengyun phonology. Geng Zhensheng (1992: 62) claimed that Sang Shaoliang's Qingjiao Zazhu (1581) is the first work to clearly specify the four types of medials as modern Chinese scholars do, though Sang did not use the same four terms. Ancient scholars also tried to classify endings as early as the Dengyun era, but did not present a clear picture of the endings until the Qing dynasty. The notion of the ending was first clearly specified by a Qing scholar, Mao Xianshu, who divided Mandarin endings to six types: -ŋ, -y (including vowel [i] with the 'zero' ending), -w (including vowel [u] with the 'zero' ending), -n, -ø (except for vowels [i], [u], [ü] with the 'zero' ending),[2] and -m (Geng 1992: 66-7).

No one had systematically discussed the nucleus of Chinese syllables until the appearance of modern phonology. There is one reason for the lack of study on nucleus in Chinese traditional phonology. The practical purpose of the traditional phonologists was to instruct people how to rhyme. As a result,

[2] I will argue soon that this analysis did not correctly reflect what the 'zero' ending represents.

Chinese traditional phonology was constrained in the term of 'rhyme' (see Table 1) which represents a combination of the nucleus and the ending.[3] Therefore, although the nucleus is the acoustically most prominent unit in Mandarin syllable structure, traditional scholars did not single it out for particular mentioning until very late.

For two reasons I will adopt Hsueh's (1980b, 1986) representation of Mandarin syllable structure. First, the formula (C) (M) V (E) is consistent with modern phonology theory which considers that the 'syllabic' feature characterizes the segment constituting a syllabic peak.[4] This formula categorizes the four segments of a Mandarin syllable: the initial consonant, the medial, the nuclear vowel, and the ending. The nucleus of the syllable is highlighted by the symbol 'V' without parentheses. Although these letters of the formula represent the same categories as in Table 1, the formula has its own implication. For example, Cheng (1973) also used the terms medial, ending, nucleus, but he did not distinguish the vowels in the position of the nucleus from those in the position of the medial or the ending. In the formula (C) (M) V (E), only a vowel appears in the 'V' position. Other 'vocalic' segments which appear in the positions of 'M' and 'E' are only glides. This formula claims that syllabicity is a distinctive feature which differentiates the nucleus from the other segments in a syllable.

The second reason why I adopt this formula is that it can logically explain the Chinese native practice on a theoretical basis. Traditional Chinese phonologists divided syllables into four types: *kaikou, qichi, hekou and cuokou.* These four terms represent different kinds of syllable medials which are

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[3] Hsueh (1980b) used the term *yunji* 韵基 'rhyme base' to replace the term 'rhyme' *yun* 韵 because the latter is polysemous in Chinese.

[4] Chomsky & Halle (1968: 354) agreed with the opinion that 'the feature "vocalic" might be replaced by a feature "syllabic" which would characterize all segments constituting a syllabic peak.'

specified by the letter 'M' in the formula. This means that one can phonemically talk about the syllable medial without referring to the nucleus.[5] By the same token, one can specify the syllable ending without referring to the nucleus.

2.1. The Shuyang dialect

Shuyang county is located in the northern part of Jiangsu province (see Map 2). Shandong province is only 43 kilometers to the north. Xuzhou is 148 kilometers west of Shuyang, and Lianyungang is 70 kilometers northeast of it. In Zhang Zhongwu's Shuyang Xiangtu Zhilüe (1974), Shuyang was divided into three dialectal areas: the central area (including the county town); the northwestern area, which is geographically close to Xuzhou; and the southeast area which is geographically close to Huaiyin. Since Zhang did not give a linguistic description for any of these areas, his division of the Shuyang dialect can only be taken as a proximation.

My two informants, my father and a young man, both come from the area marked by 'X' in Map 3, a district called Tangjian. My young informant more or less confirmed Zhang's division by claiming that three different accents exist in Shuyang: the eastern part (his own accent) such as Tangjian and Wuji (geographically close to Guanyun county); the west and northwestern parts such as Yanji and Zhangwei (geographically close to Xinyi county); and the southern part such as Qianji (geographically close to Huaiyin city). By comparing Zhang's division with my informant's description, three slightly different sub-dialects exist in Shuyang: the central and eastern (including the county town), the western, and the southern. The area of western accent is close to Xinyi and Suqian where Central Mandarin prevails. For example, my

[5] For more discussion, see Hsueh (1986: 13).

father told me that he had a relative from the western part of Shuyang (about 15 kilometers west of the town) who pronounced the word 'wheat' *maizi* 麦子 as [mei tsɿ], instead of my father's way [mə tsɿ]. Such a reading [mei] for 'wheat', a former entering tone word, can be found in Central Mandarin.

The area of southern accent is close to Huaiyin city and Lianshui county. By the linguistic intuition of the county town people, the people in that area speak like little 'southerner' ([mɒ° tsɿ]). My father told me that the people from the south edge of Shuyang pronounced the word *jie* 街 'street' as [kæ], instead of his [tɕiæ]. The [kæ] form of such words as *jie* 街 'street' illustrates that the southern area of Shuyang is linguistically close to Huaiyin, Taizhou, Rugao whose dialects the people of Shuyang regard as southern accent.

In summary, what is called modern Shuyang dialect under this study actually is the eastern version of this dialect. Since the eastern area of the Shuyang county was the birthplace of Huaihai Opera, a folk play of Shuyang, and one of the compilers of the Xiju Yinyun was from this area (the other's home town was unknown), it is reasonable to claim that the eastern variation of this dialect represents the typical form of the Shuyang dialect (see Yan & Bao 1988). An accurate division of the Shuyang dialect will have to wait for further investigation.

2.2. Initial consonants

Altogether twenty initial consonants are found in the Shuyang dialect, as represented in the following table by their approximate phonetic forms.[6]

[6] Yan (1986) did not list the three retroflex initials [tʂ, tʂ', ʂ] and the [ʐ] in Table 2 equals to his [z]. His informant came from Hudong which is 21 kilometers north of my informants' home town.

Table 2. Initials of the Shuyang dialect

Labials	p	p'	f	m
Alveolars	t	t'		l
Dental sibilants	ts	ts'	s	
Retroflex	tʂ	tʂ'	ʂ	ʐ
Gutturals	k	k'	x	
Palatals	tɕ	tɕ'	ɕ	

Among these consonants, the labial nasal [m] is the only one that can be a syllable by itself, [m̩] meaning 'I', 'my' or a classifier for land.

My two informants show the distinction between the retroflex and the dental sibilants, confirming the Jiangsu (1960) report.

The palatals [tɕ, tɕ', ɕ] only combine with the finals which have /y/ medial, while the gutturals [k, k' x] cannot combine with those finals. The dental sibilants [ts, ts', s] (/c, c', s/) as well as the retroflex [tʂ, tʂ', ʂ] (/cr, cr', sr/) cannot combine with those finals either. Therefore, the palatals are in complementary distribution with the guttural, the dental sibilants, and the retroflex. A similar situation exists in the Beijing dialect. Chao (1968: 21) cited two pieces of external evidence for the 'feeling of native' that suggests that the native speakers of the Beijing dialect consider the palatals to be variants of gutturals. First is the fact that the gutturals and palatals alliterate with one another. Second, there is a secret language in this dialect that involves inserting the sequence [aik] between the initial and the final. When this disguising rule is applied to a word whose final is a high front vowel, the impermissible combination of a guttural plus a high front vowel will result. In such cases, [k] mutates to [tɕ].

The phonemicization of the palatals in the Beijing dialect is also applicable to the Shuyang dialect.

2.3. Syllable finals

As argued earlier, syllabicity is a feature of the nucleus only, as is reflected in the formula (C) (M) V (E). Non-syllabic 'vowels' in the positions of medial and ending are thus only glides. There are two glides in the Shuyang dialect, /y/ and /w/, which appear in positions of medial or ending. When they appear in the medial position, they may appear either separately or jointly in the order /yw/ (Hartman 1944, Hsueh 1980b). When they appear in the ending position, they can only appear individually.

I have argued earlier that the formula (C) (M) V (E) can explain the traditional classification of Mandarin syllables on a theoretical basis. Those traditionally called *kaikou* syllables do not have any medials. Those traditionally called *qichi* syllables have a /y/ medial, and the distinctive features of this medial are [+palatal] and [-labial]. Those called *hekou* syllables have a /w/ medial whose distinctive features are [+labial] and [-palatal]. Those called *cuokou* syllables have a compound medial /yw/[7] which has the distinctive features [+palatal] and [+labial] (cf. Hsueh 1980b).

Totally there are forty-three finals in this dialect which are listed below.[8] Entering tone finals are marked by an asterisk (*).

[7] The phonological nature of this medial has been a controversial issue among Chinese phonologists. For the study of historical evolution of Mandarin dialects, it is convenient to simply treat it as a compound.

[8] The IPA symbols (revised, 1979) that I have used are from Pullum & Ladusaw 1986. I have also used some common symbols in the study of Mandarin, such as the two apical vowels, the high front rounded vowel [ü].

ɿ, ʅ, i, u, ü (or [iu]), i*, ʉ*, iʉ*

ieɹ, ĩẽɹ

ei, uei, ə*, iə*, uə*, üə*, ɤɯ, iɤɯ, ɤŋ, iɤŋ, o, io, oŋ, ioŋ

æ, iæ, uæ, æ̃, iæ̃, uæ̃, ɐ*, iɐ*, uɐ*, ɑ, iɑ, uɑ, ɑŋ, iɑŋ, uɑŋ, ɒ°, iɒ°, ɒ̃, iɒ̃

(note: [eɹ] is a raised [e]. [ɒ°] is a kind of diphthong, but the ending [o] is very short.)

2.3.1. The high vowels

There are eight high vowels in this dialect. Two of them are apical. See the following examples.

支	[tʂ ʅ] 'to support'	vs.	资	[tsɿ] 'money'
诗	[ʂ ʅ] 'poem'	vs.	丝	[sɿ] 'silk'

There are three high vowels [i], [u] and [ü] in this dialect which can appear in non-entering tone syllables. The following words are illustrative.

地	[ti] 'field'	vs.	度	[tu] 'degree'
鸡	[tɕi] 'chicken'	vs.	居	[tɕü] 'to reside'
度	[tu] 'degree'	vs.	锯	[tɕü] 'to saw'

Two high vowels [i] and [ʉ] can only appear in entering tone syllables. See examples below.

	entering tone			non-entering tone
笛	[ti] 'bamboo flute'	vs.	低	[ti] 'low'
毒	[tʉ] 'poison'	vs.	都	[tu] 'capital'
玉	[iʉ] 'jade'	vs.	鱼	[ü][9] 'fish'
橘	[tɕiʉ] 'tangerine'	vs.	居	[tɕü] 'to reside'

There is a high back unrounded vowel [ɯ]. It is a nonsyllabic vowel and can only appear in the syllable ending position. It never appears as the nucleus

[9] The final [ü] can also be described as the vowel combination [iu] (see Chao 1968: 23).

of syllables, for example, 头 [tʻɤɯ] and 油 [iɤɯ].

2.3.2. The mid-high vowels

This dialect has two mid-high vowels: [e⊥] and [ẽ⊥]. These two vowels can only appear with the palatal medial. Consider the following pairs.

野	[ie⊥] 'wild'	vs.	椅	[i] 'chair'
姐	[tɕie⊥] 'sister'	vs.	几	[tɕi] 'how many'
肩	[tɕiẽ⊥] 'shoulder'	vs.	间	[tɕiæ̃] a classifier

When the front tense vowel [e⊥] is pronounced, lips are spread wider than for the vowel [i].

2.3.3. The mid vowels

The front mid vowel [e] in Shuyang can only occur with ending [i] (*/y/*). For example,

堤	[tei] 'bank (of river)'	vs.	低	[ti] 'low'
贵	[kuei] 'expensive'	vs.	棍	[koŋ] 'stick'

The back mid unrounded vowel [ɤ] in Shuyang can occur either with ending [ŋ] or with ending [ɯ]. Look at these pairs.

根	[kɤŋ] 'root'	vs.	钢	[kɑŋ] 'steel'
金	[tɕiɤŋ] 'gold'	vs.	军	[tɕioŋ] 'army'
偷	[tʻɤɯ] 'to steal'	vs.	掏	[tʻɒ°] 'to draw out'
六	[liɤɯ] 'six'	vs.	撩	[liɒ°] 'to provoke'

While Yan (1986) used the dental nasal [n] instead of [ŋ] to represent the ending of the word [kɤŋ] 'root', my source of information shows a free variation between the dental nasal [n] and the velar nasal [ŋ] when they are preceded by

a mid back unrounded vowel [ɤ] without medial. I would phonemicize this ending as the velar nasal based on the following considerations. First, in this dialect words with the final [ɤŋ] (or [ɤn]) rhyme with those with the final [iɤŋ]. Here is a proverb.

> *Chun-Qiufen* [fɤŋ] (or [ɤn]) , *zhou-ye ping* [p'iɤŋ].
> 春秋分 昼夜平。
> At Spring Equinox and Autumnal Equinox, daytime and nighttime are of equal length.

This rhyming practice forces me to consider that these two finals share the same rhyme base, i.e., the same nucleus and ending. The second consideration comes from the fact that my informants always use the velar nasal for the final [iɤŋ], such as *xin* 心 'heart' [ɕiɤŋ] and *xing* 星 'star' [ɕiɤŋ]. The fact is that there is no phonological contrast between the velar nasal and the dental nasal when they are preceded by the mid back unrounded vowel [ɤ]. For the reasons given above, I believe the choice of the velar nasal is preferable to the dental nasal.

The Shuyang dialect has a schwa which appears only in entering tone finals like the following pairs (they are all entering tone).

百	[pə] 'hundred'	vs.	笔	[pi] 'pen'
热	[iə] 'hot'	vs.	鸭	[iɐ] 'duck'
盒	[xuə] 'box'	vs.	滑	[xuɐ] 'slippery'
药	[üə] 'medicine'	vs.	玉	[iʉ] 'jade'

The Shuyang dialect has a mid back rounded vowel [o] which can appear after medial [i] or before the velar nasal. It can also appear after a low back rounded vowel [ɒ]. In the latter case, the duration of [o] is much shorter than the one in the nucleus position. Examples are listed below.

我	[o] 'I'	vs.	矮	[æ] 'short of stature'
锅	[ko] 'pot'	vs.	该	[kæ] 'to serve sb. right'
靴	[ɕio] 'boots'	vs.	蟹	[ɕiæ] 'crab'
宫	[koŋ] 'palace'	vs.	官	[kɒ] 'officer'
云	[ioŋ] 'clouds'	vs.	圆	[iɒ] 'round'
袄	[ɒᵒ] 'a short coat'	vs.	呕	[ɤɯ] 'to vomit'

2.3.4. The low vowels

This dialect has six low vowels: [æ], [æ̃], [ɑ], [ɐ], [ɒ] and [ɒ̃]. [æ] is a low front vowel which can appear after medials /y/ or /w/. The nasal vowel [æ̃] has the same distribution as its non-nasal counterpart. Here are some examples.

买	[mæ] 'to buy'	vs.	马	[mɑ] 'horse'
街	[tɕiæ] 'street'	vs.	家	[tɕiɑ] 'home'
怪	[kuæ] 'strange'	vs.	挂	[kuɑ] 'to hang'
三	[sæ̃] 'three'	vs.	桑	[sɑŋ] 'mulberry'
眼	[iæ̃] 'eye'	vs.	养	[iɑŋ] 'to cause to grow'
关	[kuæ̃] 'to shut'	vs.	光	[kuɑŋ] 'bare'

From the above list, one can also find that this dialect has a low back unrounded vowel [ɑ]. Vowel [ɐ] is a kind of low central vowel which only appear in entering tone syllables as below (they are all entering tone).

杀	[ʂɐ] 'to kill'	vs.	食	[ʂə] 'food'
瞎	[ɕiɐ] 'blind'	vs.	折	[ɕiə] 'broken'
刷	[tʂuɐ] 'to brush'	vs.	勺	[ʂuə] 'spoon'

This dialect has two low back rounded vowels [ɒ] and [ɒ̃]. The plain [ɒ] is always followed by a short vowel [o]. The symbol [ɒᵒ] indicates that when it is pronounced, it starts from [ɒ] and ends with an [o]. But this [o] has a very short

duration. The two low back rounded vowels can appear with medial /y/ as in the following pairs.

傲	[ɒ°] 'arrogant'	vs.	饿	[o] 'hungry'
告	[kɒ°] 'to tell'	vs.	过	[ko] ' to pass'
叫	[ʨiɒ°] 'to call'	vs.	旧	[ʨiɤɯ] 'used'
官	[kɒ̃] 'officer'	vs.	关	[kuæ̃] 'to shut'
捐	[ʨiɒ̃] 'to donate'	vs.	间	[ʨiæ̃] a classifier

Altogether there are twenty vowels in the Shuyang dialect which are listed in Table 3.[10]

Table 3. Vowels of the Shuyang dialect

	apical	front	central	back
high	ɿ, ʅ	i / ü	ɨ / ʉ	ɯ / u
mid-high		e⊥, ẽ⊥		
mid		e	ə	ɤ / o
		æ, æ̃	ɐ	
low				ɑ / ɒ, ɒ̃

2.4. Phonemic system of the vowels

In Table 3 there are three nasal vowels. I find that no plain vowel with dental nasal ending exists in this dialect. Based on this observation, it is appropriate to consider a nasalized vowel as a plain vowel plus a dental nasal ending. This nasalization can be formulated on the phonetic level as below.

[10] Among these vowels, [ɯ] cannot appear in the nucleus position. If the final [ü] is regarded as a combination of [iu], the vowel [ü] cannot appear as a syllable nucleus either. Therefore, only eighteen vowels can appear as nucleus in this dialect.

Vowel nasalization

V --> [+nasal] /__ n

2.4.1. The high vowel phoneme

There are five non-entering tone finals in Shuyang which have high vowels as nuclei: [ɿ], [ʅ], [i], [u] and [ü]. The apical vowel [ɿ] only appears after retroflex, such as *zhi* 知 [tʂ ɿ]; [ʅ] only appears after sibilants, such as *zi* 资 [tsʅ]. The vowel [i] appears elsewhere, such as *pi* 皮 [p'i], *ni* 你 [li], *ti* 地 [ti], and *ji* 鸡 [tɕi]. These three vowels are in complementary distribution. One high vowel phoneme /i/ can thus be proposed. However, an important difference exists between the apical vowels [ɿ]/[ʅ] and the high front vowel [i]. The apical vowels [ɿ] and [ʅ] only appear in *kaikou* syllables, while syllables with the vowel [i] are called *qichi* syllables. Some scholars (such as Hartman 1944, Hsueh 1980b) phonemized the finals with apical vowels [ɿ] or [ʅ] as /i/ (Hartman's /ɨ/), and the finals with the high vowel [i] as /yi/. This phonemicization is consistent with the traditional syllable classification of Mandarin, and it reflects the native speakers' rhyming convention which requires that the rhyming syllables share the same rhyme base. Such a phonemicization is also applicable to the Shuyang dialect.

How to phonemicize syllables with the final [ü] (or [iu]) is a controversial issue in Mandarin phonology. Y. R. Chao (1968: 23) used 'iu' to represent this final, but he seemed to agree with the view that [i] and [ü] 'are considered as one general high vowel phoneme with allophones according to the medial.' However, for the practical purpose, Chao wrote it as 'iu'. C. C. Cheng (1973: 13) claimed that 'there is no strong synchronic evidence to show that [ü] derives from an underlying iu,' so he phonemicized this final as /ü/. Hartman (1944) and

Hsueh (1980b) argued that there is only one general high vowel phoneme /i/ (or /i/ in Hartman) for finals with high vowels. The final [ü] was analyzed as /ywi/ (or /ywi/ in Hartman) in their view. These three different views on this final present three different results. Chao's analysis /iu/ cannot explain the native speaker's intuition which is demonstrated in rhyming practice. For instance, words with finals [ɿ] or [ɪ] rhyme with those with the final [ü]. In the Shuyang dialect, one can find many such proverbs.[11]

Tian huang you yu [ü], *ren huang you pi*.

天黄有雨　人黄有痞。

When sky turns yellow, there will be rain, when a person turns yellow, there will be illness.

Man chuang ernü, buru ban chuang fuqi.

满床儿女 不如半床夫妻。

To have a houseful of children is not as good as to have a single spouse.

Qishi-san, bashi-si [sɿ], *Yanwang bu qing ziji qu* [tɕ'ü].

七十三 八十四　阎王不请自己去。

At the age of 73 or 84, even if one is not invited by Yama, one may go to him by oneself.

Also, in Huaihai Opera's rhyming practice, syllables with [ü] as the final do rhyme with those having the [i] final. For examples, *qu* 去 [tɕ'ü] and *qu* 趣 [tɕ'ü] rhyme with *ji* 基 [tɕi] and *yi* 义 [i], *ju* 驹 [tɕü] and *lü* 驴 [lü] rhyme with *xi* 细 [ɕi], *xi* 喜 [ɕi], *li* 理 [li] (Yan & Bao 1988).

Cheng's view on the final [ü] does not reflect this kind of native speaker's intuition either. Although he claimed that a Mandarin syllable can be segmented

[11] Data are from Zhang (1974).

as in Table 1, his analysis does not confirm this structure. For example, when the final [ü] is phonemicized as /ü/, it means that it does not have any medial. Hartman's analysis of the final [ü] as /ywi/ better reflects the native speakers' intuition, in that the syllable is shown to have a specific medial. It also explains why words with the [i] final can rhyme with those with the [ü] final. Moreover, with this view, one can explain why the final [ü] belongs to the *cuokou* category. I have mentioned earlier that a *cuokou* syllable can be analyzed as having [+palatal] and [+labial] features in the medial. The phonemic form /yw̩/ (or /ywi/) of the final [ü] clearly illustrates such phonemic components in the position of the medial.

Syllables with a high back vowel [u] as final are traditionally categorized as *hekou* syllables. Hartman (1944) and Hsueh (1980b) phonemicized the final [u] as /w̩/ (/wi/ in Hartman). There are two reasons to support their analysis. First, since finals [ɿ]/[ʅ], [i], [u] and [ü] form a neat correspondence to the four categories of Mandarin syllables, i.e., *kaikou*, *qichi*, *hekou* and *cuokou*, the labial medial assigned to the final [u] will clearly explain the traditional classification of Mandarin syllables on a theoretical basis. Second, it has just been argued that the final [ü] must be phonemicized as having the nucleus /ɨ/, and the final [ü] should be /yw̩/. If this phonemicization is acceptable, one must also accept the phonemicization of [u] as being /w̩/ because the final [ü] is considered as a combination of [i] and [u] in the native speaker's intuition (see Zhou 1958).

The syllabic [m̩] meaning 'I' or 'my' in the Shuyang dialect is phonemicized as /w̩/. This special syllable is probably derived from the word *wu* 吾. Its historical evolution will be discussed in 4.4.7.

The discussion about non-entering tone finals with high vowels can be summarized in this way:

[ɿ]/[ʅ] /ɨ/ [i] /yi/ [u] /wɨ/[12] [ü] /ywɨ/

The entering tone finals [ɨ], [ʉ] and [iʉ] are correspond with their non-entering tone finals [i], [u] and [iu] (or [ü]), but the vowels in the former case are more to the centre. Therefore, these three entering tone finals can also be analyzed as variants of /ɨ/ which are tonally conditioned.

It is interesting to note that in this dialect entering tone syllables do not have any ending, and the nuclei of these syllables differentiate themselves from those in non-entering tones. I will discuss this later (2.6.2).

2.4.2. The mid vowel phoneme

The final [ie˧] and the final [i] form a contrasting pair (see 2.3.2). The latter has been analyzed as /yi/, therefore, mid-high vowels [e˧] and [ẽ˧] cannot be analyzed as a variant of the high vowel phoneme. A mid vowel phoneme /ə/ is thus proposed for the finals with mid-high vowels. The finals [ie˧] and [iẽ˧] can be phonemicized as /yə/ and /yən/ respectively.

The mid front vowel [e] in finals [ei] and [uei], and the mid back unrounded vowel [ɤ] in finals [ɤɯ], [iɤɯ], [ɤŋ] and [iɤŋ] are in complementary distribution. Moreover, these two vowels are not in contrast with the mid-high vowel [e˧]. Therefore, [e] and [ɤ] can also be phonemicized as /ə/.

Entering tone finals [ə], [iə], [uə], and [üə] have their unique vowel [ə], one can also treat it as a special variant of the mid phoneme /ə/ under the condition

[12] With respect to the fact that syllables with the final [u] does not rhyme with those having finals [i] or [ü], I would say that the acoustic feature of the back rounded vowel [u] is responsible for that. Moreover, for the entering tone syllables, the labial feature in finals /wɨ/ ([ʉ]) and /ywɨ/ ([iʉ]) is so prominent that it makes these two finals acoustically very different from the final /yɨ/ ([ɨ]).

of the entering tone.

The following list summarizes what has just been discussed about the mid-high vowels and the mid vowels.

	[ieʟ] /yə/			
	[iẽʟ] /yən/			
[ɤŋ] /əŋ/	[iɤŋ] /yəŋ/			
[ə] /ə/	[iə] /yə/	[uə] /wə/	[üə] /ywə/	(entering tone)
[ei] /əy/		[uei] /wəy/		
[ɤɯ] /əw/	[iɤɯ] /yəw/			

In this dialect, words with finals [oŋ] and [ioŋ] rhyme with those having finals [iɤŋ] and [ɤŋ]. Look at the following farmer's proverbs:

Dang leng bu leng [lɤŋ], *niu ma bu wen* [oŋ].

当冷不冷　牛马不稳。

When the weather is not as cold as it is supposed to be, it is easy for the livestock to get sick.

Chudi yao qin [ʨʻiɤŋ], *sazhong yao yun* [ioŋ].

锄地要勤　撒种要匀。

Weeds should be hoed up regularly, seed should be broadcast evenly.

I have argued earlier that finals [iɤŋ] and [ɤŋ] can be phonemicized as having the same nucleus /ə/. On the basis of the above rhyming practice, finals [oŋ] and [ioŋ] must also share that nucleus. With an assignment of a mid vowel phoneme /ə/ to these two finals, the question now is what kind of medial these two finals have. Obviously, the 'zero' medial is inappropriate because words *en* 恩 [ɤŋ] and *weng* 温 [oŋ] are not homophonous. The palatal medial is inappropriate also because the final [iɤŋ] has been phonemicized as having the palatal medial in

the form /yəŋ/. The labial medial is the only possibility and it is the only logical consideration. There are several reasons to support it. First, words with the final [oŋ] belong to *hekou* type of syllables. The labial medial for the final [oŋ] reflects the characteristic of *hekou* syllables. Second, words of the final [ioŋ] belong to the *cuokou* type, and they must have the compound medial /yw/. Only with an assignment of a labial medial to [oŋ] one can phonemicize the final [ioŋ] as /ywəŋ/. Third, with the choice of the labial medial for the final [oŋ] can one precisely explain why words with finals [o] and [io] were classified as the *hekou* type and the *cuokou* type respectively by traditional Chinese phonologists. I will discuss this further at a later point.

With an assignment of the mid vowel phoneme to these four rhymed finals [ʏŋ], [iʏŋ], [oŋ] and [ioŋ], I can demonstrate a very neat pattern of the classification of medials:

[ʏŋ] /əŋ/ [iʏŋ] /yəŋ/ [oŋ] /wəŋ/ [ioŋ] /ywəŋ/

As argued earlier, the mid back rounded vowel [o] in finals [oŋ] or [ioŋ] is phonemicized as /wə/, the final [o] should be /wə/, and the final [io] be /ywə/ accordingly.[13] One question may be asked, why words with finals [o] or [io] do not rhyme with words with the final [ieˠ] (/yə/), given that the vowel [o] is /wə/. My interpretation is that the acoustic feature of the rounded back vowel [o] is responsible for this rhyme practice.

2.4.3. The low vowel phonemes

At least two low vowel phonemes are needed to represent these two contrasts in the Shuyang dialect, *jie* 街 [tɕiæ] 'street' versus *jia* 家 [tɕia] 'home',

[13] Another analysis of the final [o] is to phonemicize it as /ə/ without any medial or ending as I did in my previous study (Shi 1992). The disadvantage of that analysis is that it did not reflect the traditional classification of words with finals [o] or [io].

and *wan* 晚 [uæ̃] 'evening' versus *wan* 碗 [ɒ̃] 'bowl'. Vowels [æ] and [æ] can be analyzed as two variants of a low front vowel phoneme /æ/ without question. To make the vowel system look more symmetrical, I would choose the back unrounded vowel [ɑ] as the basic form of the other low vowel phoneme in this dialect.

How to phonemicize the vowel [ɒ̃] warrants discussion. There are two potential ways to analyze the vowel [ɒ̃] under the hypothesis that the nucleus must be /ɑ/. A form /ɑn/ for the vowel [ɒ̃] is a simpler analysis but it is not sufficient. The syllables with this vowel are classified as the *hekou* type ([ɒ̃]) or the *cuokou* type ([iɒ̃]) in the traditional classification. Clearly, the forms /ɑn/ or /iɑn/ cannot explain that. The other possible way is to phonemicize [ɒ̃] as having a labial medial and finals [ɒ̃] and [iɒ̃] will be /wɑn/ and /ywɑn/ respectively. I cannot find any reason to reject this consideration. It reflects the characteristic of the syllables with these two finals perfectly.

The vowel [ɐ] in entering tone finals [ɐ], [iɐ], [uɐ] is not in contrast with the vowel [ɑ] and [ɒ], it can thus be phonemicized as /ɑ/.

With two low vowel phonemes /æ/ and /ɑ/, the finals with mid-low vowels and low vowels in the Shuyang dialect can be summarized in the following list.

[æ] /æ/	[iæ] /yæ/	[uæ] /wæ/	
[æ] /æn/	[iæ] /yæn/	[uæ] /wæn/	
[ɑ] /ɑ/	[iɑ] /yɑ/	[uɑ] /wɑ/	
[ɑŋ] /ɑŋ/	[iɑŋ] /yɑŋ/	[uɑŋ] /wɑŋ/	
[ɐ] /ɑ/	[iɐ] /yɑ/	[uɐ] /wɑ/	(entering tone)
[ɒ°] /ɑw/	[iɒ°] /yɑw/		
		[ɒ̃] /wɑn/	[iɒ̃] /ywɑn/

In summary, the eighteen vowels which can appear in the nucleus position of syllable in Table 3 can be analyzed into four vowel phonemes.

	front	central	back
high		ɨ	
mid		ə	
low	æ		ɑ

The features of these vowels are listed like this.

ɨ	+high, -front
ə	-high, -low, -front
æ	+low, +front
ɑ	+low, -front

With these four vowel phonemes, all phonemic forms of finals in this dialect can be summarized in Table 4.

Table 4. Finals of the Shuyang dialect

E / V / M	-ø				-y	-w		-n			-ŋ	
	i	ə	æ	ɑ	ə	ə	ɑ	ə	æ	ɑ	ə	ɑ
-ø-	i	ə	æ	ɑ	əy	əw	ɑw		æn		əŋ	ɑŋ
-y-	yi	yə	yæ	yɑ		yəw	yɑw	yən	yæn		yəŋ	yɑŋ
-w-	wi	wə	wæ	wɑ	wəy				wæn	wɑn	wəŋ	wɑŋ
-yw-	ywi	ywə								ywɑn	ywəŋ	

The distribution of the medials and endings with the four phonemes can be presented in Table 5.

Table 5. The distribution of medials and endings in the Shuyang dialect

nucleus	medial				ending				
i	ø	y	w	yw	ø	--	--	--	--
ə	ø	y	w	yw	ø	y	w	n	ŋ
ɑ	ø	y	w	yw	ø	--	w	n	ŋ
æ	ø	y	w	--	ø	--	--	n	--

In Table 5 one may observe that the three non-front vowels /i. ə, ɑ/ share a common feature in medial, that is, they can have all three types of medials.

The three non-high vowels /ə, ɑ, æ/ also share a common feature, i.e., they all can be nasalized. The glide endings can only appear with vowels which are non-front and non-high.

2.5. Phonological rules of phonetic realization

It is time to investigate how phonemic forms in Table 4 are phonetically represented. Since the mid vowel phoneme is distributed with most medials and endings, let me examine this phoneme first.

2.5.1. The mid vowel phoneme

All finals with the mid vowel phoneme in Table 4 are listed below.

(1)	/ə/ [ə]	/yə/ [iə]	/wə/ [uə]	/ywə/ [üə]	(entering tone)
(2)		/yə/ [ieꜜ]	/wə/ [o]	/ywə/ [io]	
(3)		/yən/ [iẽꜜ]			
(4)	/əy/ [ei]		/wəy/ [uei]		
(5)	/əw/ [ɤɯ]	/yəw/ [iɤɯ]			
(6)	/əŋ/ [ɤŋ]	/yəŋ/ [iɤŋ]	/wəŋ/ [oŋ]	/ywəŋ/ [ioŋ]	

The phonetic forms in lines (5) and (6) all have back vowels. These finals have endings /w/ or /ŋ/ which have the [+back] feature, while finals in line (4) have the front vowel [e] and the ending /y/ which has the [+front] feature. The final in line (3) has the ending /n/ but this ending is no more than a marker of nasalization of the vowel in this dialect, therefore, this nasal ending does not affect the backness or the height of the vowel. Finals in lines (1) and (2) have no endings (those in line [1] are entering tone finals).

Based on the phonetic forms of vowels [e] and [ɤ] in lines (4), (5) and (6), a regressive assimilation can be proposed as this: the backness of an ending will assimilate the backness of the nucleus. This assimilation can be formulated a rule defined below.

Assimilation rule (1)

$$V \rightarrow \begin{bmatrix} \alpha \text{ back} \\ \beta \text{ front} \end{bmatrix} / \underset{E}{\_\_} \begin{bmatrix} \alpha \text{ back} \\ \beta \text{ front} \end{bmatrix}$$

With this rule one can obtain phonetic forms of vowels [e] and [ɤ]. The palatal ending has the [-back] and [+front] features and it converts /ə/ to [e]. The labial ending has the [+back] feature and it converts /ə/ to [ɤ].

Finals in lines (2) and (3) have only their medials to affect the backness or height of their nuclei. A progressive assimilation rule can thus be proposed like this: the backness of a medial will assimilate the backness of the nucleus. This assimilation is represented as the following rule.

Assimilation rule (2)

$$V \rightarrow \begin{bmatrix} \alpha \text{ back} \\ \beta \text{ front} \end{bmatrix} / \underset{M}{\begin{bmatrix} \alpha \text{ back} \\ \beta \text{ front} \end{bmatrix}} \_\_$$

With this progressive assimilation, the vowel in finals /yə/ and /yən/ converts to [e], while the vowel in finals /wə/ and /ywə/ in line (2) converts to [ɤ]. To explain how the rounded vowel [o] in finals /wə/ and /ywə/ is phoneticized from [ɤ], a vowel rounding rule becomes necessary after the progressive assimilation. I believe that a labial medial /w/ is responsible for this conversion because the same situation is also found in finals /wəŋ/ ([oŋ]), /ywəŋ/ ([ioŋ]) where the back vowel [ɤ] is converted to [o]. A vowel rounding rule for the mid vowels is proposed like this.

Vowel rounding rule (1)

$$\begin{bmatrix} +\text{back} \\ -\text{low} \end{bmatrix}^{V} \text{ --> } [+\text{rounded}]^{M} \text{ / } [+\text{rounded}] \_\_$$

With this vowel rounding rule and the two assimilation rules, we can explain how the rounded vowel [o] is converted from the mid vowel /ə/. For the finals /wəŋ/ ([oŋ]) and /ywəŋ/ ([ioŋ]), the vowel changes to the back vowel [ɤ] first by the regressive assimilation, then the vowel rounding rule changes [ɤ] to [o]. For the finals /wə/ ([o]) and /ywə/ ([io]), the vowel changes to the back vowel [ɤ] by the progressive assimilation, then the vowel rounding rule changes it to [o].

Since many syllables have both medial and ending, the relation between the regressive assimilation and the progressive assimilation must be specified. First, these two assimilation rules are mutually exclusive. Otherwise, the regressive assimilation converts the vowel to the back but the progressive assimilation may convert it to the front. For instance, the vowel in the final /wəy/ is changed to [e] by the regressive rule, but the progressive rule could change this front vowel to the back. Second, the order of these two assimilation rules must be specified. For example, if the progressive rule is applied before the regressive rule, the final /wəy/ would become *[ɯɤi] rather than [uei]. The correct order of these two rules should be the regressive rule prior to the progressive rule.

Next for discussion is the way that the mid-high vowel [eɹ] in finals /yə/ ([ieɹ]) and /yən/ ([iĕɹ]) is phoneticized. Vowel [eɹ] is analyzed as a variant of the mid vowel phoneme /ə/ (see 2.4.2). It is a tense vowel which is produced 'with a deliberate, accurate, maximally distinct gesture that involves considerable muscular effort' (Chomsky & Halle 1968: 324). When the progressive assimilation rule is applied to finals /yə/ and /yən/, the vowel changes to [e]

(including its nasalized form). This front mid vowel then becomes the tense vowel [eɹ] in the context of a palatal medial. A vowel tense rule in the Shuyang dialect is proposed below.[14]

Vowel tense rule

$$\begin{bmatrix} +\text{front} \\ -\text{low} \end{bmatrix}^{V} \rightarrow [+\text{tense}] \; / \; [+\text{palatal}]^{M} \_\_$$

The high back unrounded nonsyllabic vowel [ɯ] in finals [ʏɯ] and [iʏɯ] can be phoneticized by an ending change rule which changes the rounded ending to unrounded if the nucleus is an unrounded vowel. This phonetic realization can be represented as an ending change rule.

Ending change rule

$$[+\text{rounded}]^{E} \rightarrow [-\text{rounded}] \; / \; [-\text{rounded}]^{V} \_\_$$

After the assimilation rules, the labial medial in finals /wə/, /ywə/, /wəŋ/ and /ywəŋ/ which converts the back vowel to rounded becomes redundant. This medial (feature) does not appear in phonetic forms and it should be deleted. The labial medial deletion can be written as a rule.

Labial medial (feature) deletion rule

$$[+\text{rounded}]^{M} \rightarrow \emptyset \; / \_\_\_ \; [+\text{rounded}]^{V}$$

Following the same reasoning, the dental nasal ending is deleted after the nasalized vowel.

/n/ deletion

$$n \rightarrow \emptyset \; / \; [+\text{nasal}]^{V} \_\_$$

[14] The same situation is also found in Beijing Mandarin (see Hsueh 1986: 66-7).

With these rules and their specified order, one can explain all the phonetic realizations of mid vowels except for the one in entering tone syllables. The assimilation rules I have proposed above do not affect the vowel in entering tone syllables.

Consider words *yan* 烟 [iẽ˧] 'smoke', *yong* 拥 [ioŋ] 'to push forward', *tou* 头 [t'ɤɯ] 'head' and *e* 饿 [o] 'hungry' as examples to illustrate how mid vowels are phonetically realized.

烟 [iẽ˧]	yən	underlying form	
	yen	assimilation rule (2)	ə --> e / y __
	yẽn	vowel nasalization	e --> ẽ / __ n
	yẽ	/n/ deletion	n --> ø / ẽ __
	yẽ˧	vowel tense rule	ẽ --> ẽ˧ / y __
	[iẽ˧]	phonetic form	
拥 [ioŋ]	ywəŋ	underlying form	
	ywɤŋ	assimilation rule (1)	ə --> ɤ / __ ŋ
	ywoŋ	vowel rounding rule (1)	ɤ --> o / w __
	yoŋ	medial deletion	w --> ø / __ o
	[ioŋ]	phonetic form	
头 [t'ɤɯ]	t'əw	underlying form	
	t'ɤw	assimilation rule (1)	ə --> ɤ / __ w
	t'ɤɯ	ending change rule	w --> ɯ / ɤ __
	[t'ɤɯ]	phonetic form	

饿 [o]	wə	underlying form	
	wɤ	assimilation rule (2)	ə --> ɤ / w __
	wo	vowel rounding rule (1)	ɤ --> o / w __
	o	medial deletion	w --> ø / __ o
	[o]	phonetic form	

2.5.2. The low vowel phonemes

Finals with the low back vowel phoneme can be listed in this way.

(1)	/ɑw/ [ɒ°]	/yɑw/ [iɒ°]			
(2)			/wɑn/ [ɒ̃]	/ywɑn/ [iɒ̃]	
(3)	/ɑŋ/ [ɑŋ]	/yɑŋ/ [iɑŋ]	/wɑŋ/ [uɑŋ]		
(4)	/ɑ/ [ɑ]	/yɑ/ [iɑ]	/wɑ/ [uɑ]		
(5)	/ɑ/ [ɐ]	/yɑ/ [iɐ]	/wɑ/ [uɐ]		(entering tone)

It is noted that the vowel changes to rounded in the finals of lines (1) and (2). By the vowel rounding rule (1) in 2.5.1, however, the back vowel /ɑ/ would not be converted to the rounded vowel /ɒ/. The rounded low vowel [ɒ] appears in the context of either the rounded ending (as in line [1]) or the rounded medial with the nasalized vowel form (as in line [2]). One more vowel rounding rule is thus proposed as below:

Vowel rounding rule (2)

$$\begin{bmatrix} V \\ +back \\ +low \end{bmatrix} \rightarrow [+rounded] \; / \left\{ \begin{array}{l} \_\_\_\_\_ \; [+rounded] \\ [+rounded] \; \underset{[nasalized]}{\_\_\_\_\_} \end{array} \right\}$$

The rounded nonsyllabic [o] in the finals [ɒ°] and [iɒ°] needs an explanation. I have discussed that the rounded ending /w/ is converted to the

unrounded nonsyllabic [ɯ] in 2.5.1. In the case of the finals [ɒ°] and [iɒ°], the syllable ending still maintains the rounded feature but it is lowered to a mid nonsyllabic [o]. Collapsing these two cases of ending changes into a single rule can be formulated as follows.

Revised ending change rule

$$\begin{bmatrix} +\text{rounded} \\ +\text{back} \end{bmatrix} \rightarrow \begin{bmatrix} \alpha\ \text{rounded} \\ -\beta\ \text{high} \end{bmatrix} \;/\; \begin{bmatrix} \alpha\ \text{rounded} \\ \beta\ \text{low} \end{bmatrix} \_\_$$

(E) (V)

With these two phonological rules and the rules in 2.5.1 one can explain how the finals with the low back vowel phoneme are phonetically realized. Consider *jiao* 叫 [tɕiɒ°] 'to call' and *juan* 捐 [tɕiɒ̃] 'to donate' as examples:

叫 [tɕiɒ°]	kyɑw	underlying form	
	kyɒw	vowel rounding rule (2)	ɑ --> ɒ / __ w
	kyɒo	revised ending change rule	w --> o / ɒ __
	[tɕiɒ°]	phonetic form	
捐 [tɕiɒ̃]	kywɑn	underlying form	
	kywɑ̃n	vowel nasalization	ɑ --> ɑ̃ / __ n
	kywɑ̃	/n/ deletion	n --> ø / ɑ̃ __
	kywɒ̃	vowel rounding rule (2)	ɑ̃ --> ɒ̃ / w __
	kyɒ̃	medial deletion	w --> ø / __ ɒ̃
	[tɕiɒ̃]	phonetic form	

It is noted that the vowel /ɑ/ has to be nasalized first, and then it becomes rounded by the vowel rounding rule (2). Therefore, the order of the nasalization and the vowel rounding rule (2) must be specified. The former must be applied prior to the latter.

The entering tone finals /ɑ/, /yɑ/ and /wɑ/ have a central vowel [ɐ] in its phonetic form. Since the vowel [ɐ] only appears in entering tone syllables, I believe that this vowel is a tonally conditioned variant of /ɑ/, just as the case of the mid vowel. By considering four vowels [ɨ, ʉ, ə, ɐ] in entering tone syllables, one can make a claim that in this dialect entering tone syllables phonetically centralize vowels. I will discuss this later (2.6.2).

Finals with the low front vowel phoneme are listed in this way.

/æ/ [æ] /yæ/ [iæ] /wæ/ [uæ]

/æn/ [æ̃] /yæn/ [iæ̃] /wæn/ [uæ̃]

Except for the vowel nasalization and /n/ deletion, no other phonological rules are needed to phoneticize their forms.

2.5.3. The high vowel phoneme

Finals with the high vowel phoneme will now be discussed. These finals can be listed in this way.

(1) /ɨ/ [ɿ, ʅ] /yɨ/ [i] /wɨ/ [u] /ywɨ/ [iu]

(2) /yɨ/ [ɨ] /wɨ/ [ʉ] /ywɨ/ [iʉ] (entering tone)

These finals have no ending, therefore, the regressive assimilation rule is irrelevant. It is noteworthy to find that the progressive assimilation rule, the vowel rounding rule and the labial medial (or feature) deletion rule that I have proposed earlier are also applicable for the finals in line (1). In the examples below, the palatal medial in the final /yɨ/ converts the vowel to the front, while the labial medial in the final /wɨ/ converts the vowel to the back. The vowel rounding assimilation then changes the back vowel to rounded, and the labial medial deletion rule deletes /w/ medial. The phonetic realizations of *ji* 鸡 [tɕi] 'chicken'

and *ju* 居 [tɕü] 'to reside' are presented as below:

鸡 [tɕi]	kyɨ	underlying form	
	kyi	assimilation rule (2)	ɨ --> i / y __
	[tɕi]	phonetic form	
居 [tɕü]	kywɨ	underlying form	
	kywɯ	assimilation rule (2)	ɨ --> ɯ / w __
	kywu	vowel rounding rule (1)	ɯ --> u / w __
	kyu	labial medial deletion	w --> ø / __ u
	[tɕü]	phonetic form	

One point needs to be mentioned about the final /yɨ/. There is a discrepancy between the phonetic form [i] and the form /yi/ that has undergone the assimilation rule (2). Phonetically there may be an on-glide in the final /yɨ/, but native speakers do not distinguish the one with a glide from the one without it.

For the apical vowels, I would say that retroflex initials convert the vowel to [ɻ] and dental sibilant initials convert the vowel to [ɿ].

Just as the mid vowel and low vowel in entering tone syllables, the vowels in line (2) are centralized due to the entering tone.

In summary, I have proposed two types of phonological rules to demonstrate how finals in this dialect realize their phonetic forms. The two types of rules are listed as below.

(1) Assimilation

Regressive assimilation

$$V \rightarrow \begin{bmatrix} \alpha \text{ back} \\ \beta \text{ front} \end{bmatrix} / \_\_ \overset{E}{\begin{bmatrix} \alpha \text{ back} \\ \beta \text{ front} \end{bmatrix}}$$

Progressive assimilation

$$V \rightarrow \begin{bmatrix} \alpha \text{ back} \\ \beta \text{ front} \end{bmatrix} / \overset{M}{\begin{bmatrix} \alpha \text{ back} \\ \beta \text{ front} \end{bmatrix}} \_\_$$

Vowel rounding rule (1)

$$\overset{V}{\begin{bmatrix} +\text{back} \\ -\text{low} \end{bmatrix}} \rightarrow [+\text{rounded}] \; / \; \overset{M}{[+\text{rounded}]} \_\_$$

Vowel rounding rule (2)

$$\overset{V}{\begin{bmatrix} +\text{back} \\ +\text{low} \end{bmatrix}} \rightarrow [+\text{rounded}] \; / \; \left\{ \begin{matrix} \_\_\_\_\_ \; [+\text{rounded}] \\ [+\text{rounded}] \; \underset{[\text{nasalized}]}{\_\_\_\_\_} \end{matrix} \right\}$$

Vowel tense rule

$$\overset{V}{\begin{bmatrix} +\text{front} \\ -\text{low} \end{bmatrix}} \rightarrow [+\text{tense}] \; / \; \overset{M}{[+\text{palatal}]} \_\_$$

Revised ending change rule

$$\overset{E}{\begin{bmatrix} +\text{rounded} \\ +\text{back} \end{bmatrix}} \rightarrow \begin{bmatrix} \alpha \text{ rounded} \\ -\beta \text{ high} \end{bmatrix} / \overset{V}{\begin{bmatrix} \alpha \text{ rounded} \\ \beta \text{ low} \end{bmatrix}} \_\_\_$$

Vowel nasalization

$$V \rightarrow [+\text{nasal}] \; / \_\_ \; n$$

(2) Redundant feature deletion

Labial medial (feature) deletion

$$\overset{M}{[+\text{rounded}]} \rightarrow \emptyset \; / \_\_\_ \; \overset{V}{[+\text{rounded}]}$$

/n/ deletion

$$n \rightarrow \emptyset \; / \; [+\text{nasal}] \; \underset{V}{\_\_}$$

I have demonstrated earlier that a restricted relation between certain rules exists and a particular sequence of application of certain rules are required. The regressive assimilation and the progressive assimilation are mutually exclusive. The former must be applied prior to the latter. Furthermore, the vowel nasalization must be applied before the vowel rounding rule (2). All rules in the Shuyang dialect are ordered in the fashion (Kenstowicz & Kisseberth 1979: 98) depicted as below. If two rules are connected by a line, the rule higher in the list must be applied before the rule lower in the list. If the rules are not linked, they can be applied freely.

Regressive assimilation
Progressive assimilation
Vowel nasalization
Vowel rounding rule (2)
Vowel rounding rule (1)
Vowel tense rule
Revised ending change rule
Labial medial (feature) deletion
/n/ deletion

2.6. Tones and stress

2.6.1. Citation tones

As in most of the subdialects of Jianghuai Mandarin, there are five citation tones in Shuyang: *yinping, yangping, shang, qu* and *ru*. Their tonal values and sample words are listed below.[15]

category	value	example
yinping	313	低 [ti] 'low' 梯 [t'i] 'ladder'
yangping	25	提 [t'i] 'to carry'
shang	42	体 [t'i] 'body'
qu	55	替 [t'i] 'to replace'
ru	13	滴 [ti] 'drip' 踢 [t'i] 'to kick'

(The underlined value indicates the duration is shorter than the others.)

According to the different pitch patterns, I will call the *yinping* 'low tone', the *yangping* 'rising tone', the *shang* 'falling tone', and the *qu* 'high tone'. Comparing with the other tones, I will call the *ru* 'short tone'.

2.6.2. The entering tone

Entering tone syllables in the Shuyang dialect have three characteristics. First, the duration of this tone is acoustically shorter than the other tones. In most of Jianghuai dialects, the entering tone is accompanied by a short duration because entering tone syllables usually have a glottal stop in those dialects (see Jiangsu 1960: 2, 21). However, my data show that entering tone syllables in the Shuyang dialect do not have a glottal stop which confirms the reports of

[15] The numerical notation of pitch values is based on Y. R. Chao's five-scale system (see Chao 1968: 25-6).

Bao & Yan (1985) and Yan & Bao (1988) that entering tone syllables in this dialect have already lost the glottal stop. This case indicates that without the glottal stop, an entering tone syllable can separate itself from the others by its short tonal duration.[16]

Secondly, vowels of entering tone syllables in this dialect show some special features: (1) All vowels in entering tone finals are centralized; (2) They do not undergo any assimilation processes (2.5). This is the reason that schwa only phonetically appears in entering tone finals.

Thirdly, the entering tone in this dialect has its own pitch value. I use 'tone letters' '13' to represent its pitch value. These 'tone letters' indicate that the entering tone slightly rises from very low to middle.

The above three characteristics indicate that after the stop ending disappeared in Shuyang, the category of the entering tone still exists in this dialect.[17] It is clear counterevidence for an opinion on the disappearance of the entering tone in the evolution of Northern Mandarin. That opinion claims that the loss of stop endings immediately caused a disappearance of the entering tone (Wang 1958: 134).

2.6.3. Interaction of tone and stress

As a Jianghuai dialect, the Shuyang dialect also shares some similarity with other Jianghuai dialects in tone sandhi. Yue-Hashimoto (1987) proposed three main types of tone sandhi in terms of the domain of sandhi. She claimed that the so-called 'local modification' type, which is locally determined by the presence of following or preceding tones, prevails across Mandarin dialects. I

[16] The same phenomenon can also be found in modern Haizhou dialect (see Su 1990 and Jiangsu 1960).

[17] The same situation is also found in modern Haizhou dialect (see Su 1990 and Jiangsu 1960).

will demonstrate in this section that no such sandhi type is to be found in the Shuyang dialect. Tone sandhis in this dialect belong to the 'last-syllable dominant' type, in which all tones except that of the last syllable are reduced.

Before the sandhi forms are discussed, stress needs to be examined. Three degrees of stress are recognized in the Beijing dialect by Chao (1968: 35): normal, weak and contrastive. Since contrasting stress only occurs in a situation when a speaker puts more stress on a particular word in a phrase, I am not going to discuss this abnormal pattern of speech.

Weakly stressed syllables are restricted in neutral tone syllables in the Shuyang dialect and will be discussed later.

Normal stress is characterized by the presence of a perceptible tonal contour (Norman 1988: 148). Chao described normal stress of Beijing Mandarin in this way. In a sequence of syllables, the last syllable has the strongest phonetic stress, the first has the second strongest, and the intervening syllables have the weakest. These varying degrees of normal stress are completely predictable by position and can therefore be analyzed as ailophones of one stress phoneme.

Normal stress in the Shuyang dialect conforms to Beijing Mandarin. The strong stress falls on the last stressed syllable, the other syllables in preterminal position have a less strong stress. At the same time, syllables with less strong stress change tonal contour. For example, *lian* 连 [niɛ̃ʟ] in this dialect has a tone value 25 in its citation form. In the compound *Xinhailian* 新海连 (a former name of Lianyungang), the last syllable is still pronounced as tone value 25 because of its position. However, in the compound *Lianyungang* 连云港, the first syllable changes to its sandhi form, value 33. The following phrases show the same

tone change.

25 + 313 --> 33 + 313	麻糕	*magao* 'sesame cake
25 + 25 --> 33 + 25	麻油	*mayou* 'sesame oil'
25 + 25 --> 33 + 25	油瓶	*youping* 'oil bottle'
25 + 25 + 25 --> 33 + 33 + 25	麻油瓶	*mayouping* 'sesame oil bottle'
25 + 42 --> 33 + 42	苹果	*pingguo* 'apple'
25 + 55 --> 33 + 55	霉味	*meiwei* 'moldy smell'
25 + <u>13</u> --> 33 + <u>13</u>	牙刷	*yashua* 'tooth brush'

In the compound 'sesame oil bottle', the second syllable shares the same sandhi form as the first one, but its duration is shorter than the first one. This confirms that the intervening syllables have the weakest stress.

The above examples indicate that the rising tone in this dialect always changes to the mid level tone when the syllable has a less strong stress in a compound.

A syllable in falling tone also changes to the mid level tone when it does not bear the strong stress in a phrase. Here are some examples.

42 + 25 --> 33 + 25	水牛	*shuiniu* 'water buffalo'
42 + 313 --> 33 + 313	水汪	*shuiwang* 'puddle'
42 + 42 --> 33 + 42	水饺	*shuijiao* 'boiled dumplings'

42 + 55 --> 33 + 55	水饭	*shuifan* 'boiled dumplings, etc.'
42 + 13 --> 33 + 13	水笔	*shuibi* 'fountain pen'

The entering tone in this dialect also changes to the mid level sandhi form with a short duration when it appears in a preterminal position of a compound. The following examples are illustrative.

13 + 55 --> 33 + 55	月亮	*yueliang* 'the moon'
13 + 313 --> 33 + 313	月初	*yuechu* 'the beginning of the month'
13 + 42 --> 33 + 42	月饼	*yuebing* 'moon cake'
13 + 25 --> 33 + 33	药房	*yaofang* 'medical store'
13 + 13 --> 33 + 13	毒药	*duyao* 'poison'

Based on the phrases I have listed, the following situation is expected. When two phrases only differ from each other in the tone of initial syllable, i.e., one is the rising, the other is the falling, the two phrases would be homophonous. This situation really occurs in the Shuyang dialect. Here is one example.

25 + 55 --> 33 + 55	霉味 [mei uei]	'moldy smell'
42 + 55 --> 33 + 55	美味 [mei uei]	'good smell'

In the Shuyang dialect, without contrasting stress, the phrase 'moldy smell' sounds like the one 'good smell'.

If a phrase has an entering tone word, that phrase will not become homophonous with non-entering tone phrases due to the short duration of the entering tone and a difference of phonetic vowels.

There is another sandhi form in this dialect. A syllable in low tone will change to a low level tone when it is in a preterminal position of a compound. Examine the following.

313 + 55 --> 11 + 55	稀饭	*xifan* 'porridge'
313 + 25 --> 11 + 25	青鱼	*qingyu* 'black carp'
313 + 25 + 313 --> 11 + 33 + 313	青鱼汤	*qingyutang* 'black carp soup'
313 + 25 + 42 --> 11 + 33 + 42	瓜偻籽	*gualouzi* (a kind of seed)
313 + 42 + 313 --> 11 + 33 + 313	鸡爪汤	*jizhuatang* 'chicken leg soup'
313 + 313 + 25 + 13 --> 11 + 11 + 33 + 13	东西南北	*dong-xi-nan-bei* 'east, west, south and north'

I would call this sandhi form the low level type in order to distinguish it from the sandhi form of syllables in rising or failing tones. By the same token, the sandhi form of the rising or falling tones can thus be called the mid level type. The mid level type and the low level type are different from each other in value. For instance, the following two words are not homophonous.

313 + 42 --> 11 + 42	青菜 [tɕiŋ tsæ]	'bok choy'
25 + 42 --> 33 + 42	芹菜 [tɕiŋ tsæ]	'celery'

The high tone in this dialect also changes to the low level sandhi form when a syllable in high tone bears a less strong stress in a phrase. Here are

some examples.

55 + 25 --> 11 + 25	酱油	*jiangyou*	'soy sauce'
55 + 25 + 25 --> 11 + 33 + 25	酱油瓶	*jiangyouping*	'soy sauce bottle'
313 + 55 + 313 --> 11 + 11 + 313	稀饭锅	*xifanguo*	'porridge pot'
55 + 313 --> 11 + 313	镇江	*Zhenjiang*	(name of a city)
55 + 42 --> 11 + 42	上海	*Shanghai*	(name of a city)
55 + 55 --> 11 + 55	画画	*huahua*	'to draw picture'
55 + <u>13</u> --> 11 + <u>13</u>	化学	*huaxue*	'chemistry'
55 + 313 + 25 + 42 --> 11 + 11 + 33 + 42	大瓜倭籽	*da gualouzi*	'big *gualouzi*'

With the same type of sandhi form, a syllable in low tone would be homophonous with a syllable in high tone when these two kinds of syllables have a less strong stress. Here is one pair.

313 + 55 --> 11 + 55	花店 [xuɑ tiɛ̃˩]	'flower store'
55 + 55 --> 11 + 55	画店 [xuɑ tiɛ̃˩]	'picture store'

Sandhi changes do not occur in a bi-syllabic compound if the final syllable is weakly stressed. Weakly stressed syllables in this dialect only appear in neutral tone syllables. A duplicated morpheme or a noun suffix are in neutral tone. The following are some examples ('ø' stands for the neutral tone).

55 + ø --> 55 + ø	弟弟	*didi* 'younger brother'
25 + ø --> 25 + ø	胡子	*huzi* 'beard'
55 + ø --> 55 + ø	凳子	*dengzi* 'stool'
313 + ø --> 313 + ø	梯子	*tizi* 'ladder'
42 + ø --> 42 + ø	饺子	*jiaozi* 'dumplings'
13 + ø --> 13 + ø	麦子	*maizi* 'wheat'

When the final syllable is in neutral tone, the strong stress will fall on the preceding syllable.

In summary, a tone sandhi change in the Shuyang dialect is an interaction of stress and tone. It depends on two aspects of a syllable: the position of the syllable in a compound and the syllable's citation tone. A syllable is less stressed if it appears in a preterminal position in a phrase. A less stressed syllable always undergoes a tone sandhi change depending on its citation tone. The rising, falling and short tones change to a mid level tone, while the low and high tones change to a low level tone. The sandhi tones in this dialect can be listed like this:

	Rising	Falling	Short	Low	high
Citation form	25	42	13	313	55
Sandhi form	33	33	33	11	11

Comparing this sandhi change with the 'last-syllable dominant' type of tone sandhi which was proposed by Yue-Hashimoto (1987), I would say that

tone sandhis in the Shuyang dialect belong to the last-syllable dominant type but they are stressed related.

The level pitch patterns of sandhi forms can also be found in other Jianghuai dialects. Lu (1988) reported that there is only one mid-low sandhi form in the Taizhou dialect. When the initial syllable with a *shang* tone is followed by a *yangping* or *yangru* tone syllable in a compound, its tone pitch value changes from the citation form 213 to its sandhi form 22. Wang (1992) also reported that in the Yangzhou dialect, two sandhi forms are the level 33 and level 44 respectively. Since both of them did not mention the location of stress in compound, my report of the Shuyang dialect provides a clear example of the stress related type of tone sandhi changes in Jianghuai Mandarin.

2.7. Combination of initials and finals

In the Shuyang dialect, as in other Mandarin dialects, not all initials can combine with all finals. This is shown most clearly by certain kinds of initials which cannot combine with the *cuokou* type of syllables. These initials are labials, dental sibilants, retroflexes and alveolars (/t/ and /t'/). Furthermore, dental sibilants and retroflex cannot combine with the *qichi* type of syllables. Table 6 illustrates all combinations of initials and finals in this dialect. 'x' indicates that the combination is non-entering tone only. 'x+' indicates that the combination can be both non-entering tone and entering tone. 'x*' indicates that the combination is entering tone only.

Table 6. Combination of initials and finals in Shuyang

	p	p'	m	f	t	t'	l	c	c'	s	cr	cr'	sr	r	k	k'	x	ø
i								x	x	x	x	x	x					
yi	x-	x-	x-		x-	x-	x-								x-	x+	x+	x+
wi	x	x	x	x	x-	x-	x-	x-	x+	x+	x-	x+	x-	x-	x-	x+	x+	x+
ywi							x+								x-	x+	x+	x+
ə	x*	x*	x*	x*	x*	x*	x*	x*	x*	x*	x*	x*	x*	x*	x*	x*	x*	x*
yə	x*	x*	x*		x-	x*	x*								x-	x+	x+	x+
wə	x-	x+	x+		x-	x+	x+	x-	x	x+	x*	x*	x*	x*	x-	x+	x+	x+
ywə							x*								x*	x+	x+	x*
əy	x	x	x	x	x	x	x	x	x	x								
wəy											x	x	x	x	x	x	x	x
əw					x	x	x	x	x	x					x	x	x	x
yəw			x		x		x								x	x	x	x
yən	x	x	x		x	x	x								x	x	x	x
əŋ	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
yəŋ	x	x	x		x	x	x								x	x	x	x
wəŋ					x	x	x	x	x	x	x	x	x	x	x	x	x	x
ywəŋ															x	x	x	x
æ	x	x	x		x	x	x	x	x	x	x	x	x		x	x	x	x
yæ															x		x	
wæ											x	x	x		x	x	x	x
æn	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x
yæn															x	x	x	x
wæn											x		x		x	x	x	x
ɑ	x-	x	x-	x*	x-	x+	x+	x-	x+	x+	x-	x+	x+		x*			x
yɑ															x-	x*	x+	x+
wɑ													x*		x-	x	x+	x+
ɑŋ	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
yɑŋ							x								x	x	x	x
wɑŋ											x	x	x					x
ɑw	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x
yɑw	x	x	x		x	x	x								x	x	x	x
wɑn	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x
ywɑn															x	x	x	x

I will also list all syllables which represent every possible combination of initial, final and tone in this dialect. Syllables are classified into eighteen rhymes. The names of these rhymes are mostly from the Xiju Xinyun (see Yan & Bao 1988).[18] Fourteen non-entering tone rhymes are listed in Appendixes A to N. Four entering tone rhyme are listed in Appendixes O to R. The rhymes and their finals are listed below:

Appendix	Rhyme	Final
A	*zhi-xi* 知希	ɨ, yɨ, ywɨ
B	*pu-su* 普苏	wɨ
C	*zhe-ye* 遮野	yə
D	*po-suo* 坡梭	wə, ywə
E	*jiao-shao* 焦稍	ɑw, yɑw
F	*pai-huai* 排怀	æ, yæ, wæ
G	*ma-sha* 马沙	ɑ, yɑ, wɑ
H	*pei-huei* 呸灰	əy, wəy
I	*chou-niu* 丑牛	əw, yəw
J	*tian-xian* 天仙	yən
K	*pan-huan* 盘桓	wɑn, ywɑn
L	*gan-dan* 甘单	æn, yæn, wæn
M	*gong-sun* 弓孙	əŋ, yəŋ, wəŋ, ywəŋ
N	*chang-sang* 昌桑	ɑŋ, yɑŋ, wɑŋ
O	*qi-li* 泣立	yɨ*
P	*lu-zhou* 鹿轴	wɨ*, ywɨ*
Q	*tie-xue* 铁雪	ə*, yə*, wə*, ywə*
R	*kua-da* 括达	ɑ*, yɑ*, wɑ*

[18] The information about the Xiju Yinyun in the Yan & Bao's (1988) report are only twenty names of rhymes and four sample words under each rhyme.

According to the rhyming practice of Huaihai Opera and the phonological system of the Shuyang dialect (see Table 4), several adjustments have been made. First, I have separated the non-entering tone final /yə/ ([ɪeɹ]) as an independent rhyme and name it '*zhe-ye*' rhyme in Appendix C. This final in the Xiju Yinyun was incorrectly grouped with the entering tone final /yɨ/ to form an entering tone rhyme. The authors of the Xiju Yinyun did not realized the particularity of the mid-high vowel [eɹ] in this final. The non-entering tone final /yə/ and the entering tone final /yɨ/ do not rhyme each other and my analysis shows that they do not share the same nucleus.

The second adjustment is that three rhymes in the Xiju Yinyun are combined into one rhyme in my classification. Those three rhymes and their finals in the Xiju Yinyun are listed below:

gong-sun 弓孙	əŋ, wəŋ
ren-chen 人辰	əŋ, wəŋ, ɥweŋ
jin-xing 金星	yəŋ

From this list, it is easy to find that the rhyme grouping in the Xiju Yinyun is not phonologically appropriate. Words with the final /əŋ/ can appear in both the *gong-sun* rhyme and the *ren-chen* rhyme in the Xiju Yinyun. For instance, *sheng* 生 is in the *gong-sun*, and *sheng* 胜 is in the *ren-chen*.

The third adjustment I have made is a combination of two entering tone rhymes. The *tie-xue* rhyme (Appendix Q) includes words with finals /ə, yə, wə, ɥwə/. In the Xiju Yinyun, words with finals /ə/ and /yə/ were grouped as one rhyme. Those with finals /wə/ and /ɥwə/ were grouped another rhyme. This separation is questionable based on a fact that words with the final /yə/ and those with the final /ɥwə/ can rhyme each other.[19] The following farmer's proverb

[19] The same rhyming convention can also be found in the Yangzhou dialect (Wang 1992).

illustrates the point.

> *Chun wu feng, Xia wu re* [ieɻ], *Qiu wu lianyin Dong wu xue* [ɕüə].
> 春雾风 夏雾热 秋雾连阴冬雾雪。
> The Spring fog is an omen of wind, the Summer fog is an omen of hot, the Autumn fog is an omen of rainy weather for several days, and the Winter fog is an omen of snow.

Moreover, in a Huaihai Opera we also find that words such as 灭 /myə/ and 节 /kyə/ rhyme with words such as 月 /ywə/ (see Yan & Bao 1988). For the different grouping of the four finals /ə, yə, wə, ywə/ in the Xiju Yinyun, I would say that the labial feature in finals /wə/ and /ywə/ is responsible for that. The same phenomenon can also be found in the entering tone finals /wɨ/ and /ywɨ/ and the non-entering tone final /wɨ/.[20]

2.8. Comparison of Shuyang with its neighboring dialects

An effective way to demonstrate the affiliation of the Shuyang dialect with its neighboring dialects is to compare phonetic discrepancies. The Shuyang county is located just on the edge of the northern side of Jianghuai Mandarin, immediately adjacent to Central Mandarin (see Map 2). The Xuzhou dialect is chosen for comparison because it is the closest big city where Central Mandarin is spoken. The Yangzhou dialect is chosen for comparison due to its historical significance in representing Jianghuai Mandarin. The Liangyungang (or Haizhou) dialect is chosen because historically Shuyang belonged to an administrative district with Haizhou as its capital.

[20] In those two cases, they even form two separate rhyme groups, the *lu-zhou* rhyme and the *pu-su* rhyme.

2.8.1. Comparison with the Xuzhou dialect

Xuzhou, population 800,000, is located 148 kilometers west of Shuyang, and is a very important hub of communications in eastern China. According to Li Rong's (1985) classification, the Xuzhou dialect belongs to Central Mandarin. In the following discussion, the data on the Xuzhou dialect are from Jiangsu (1960) and Li Shen (1985).

The Xuzhou dialect seems to have two more initial consonants than the Shuyang dialect. These two initials and their correspondents in Shuyang are shown in the following words.

	Xuzhou	Shuyang
wei 味	[ve]	[uei]
nu 奴	[nu]	[lo]

The dental nasal initial merged with the lateral initial [l] in Jianghuai Mandarin (see 4.2.3). Since all syllables with the [v] initial in Xuzhou correspond to those with the 'zero' initial but the glide /w/ as the first segment of syllable in Shuyang, it can be regarded as a redundant phonetic form before the glide /w/. Therefore, Shuyang initials are not too different from the Xuzhou initials except for the coalescence of [n] and [l] in the former.

The primary discrepancy between Shuyang and Xuzhou finals can be seen in those formerly with the entering tone. In the Xuzhou dialect, former entering tone syllables have joined non-entering tone finals, while they are preserved in the Shuyang dialect as different finals. The following words illustrate such a discrepancy.

	Entering tone	Non-entering tone
	各 'each'	歌 'song'
Xuzhou	[-ə] *yinping*	[-ə] *yinping*
Shuyang	[-uə] *ru*	[-o] *yinping*
	设 'to set up'	遮 'to cover'
Xuzhou	[-ə] *yinping*	[-ə] *yinping*
Shuyang	[-iə] *ru*	[-ieʟ] *yinping*

The final [ə] in Xuzhou corresponds to four finals in Shuyang. They are the two non-entering tone finals [o, ieʟ] and the two entering tone finals [iə, uə].[21]

Another main difference between Xuzhou finals and Shuyang finals can be illustrated in the following list.

	Xuzhou	Shuyang
gan 乾	[kæ̃]	[kæ̃]
jian 间	[tɕiæ̃]	[tɕiæ̃]
lian 连	[liæ̃]	[niɛ̃ʟ]
guan 官	[kuæ̃]	[kɒ̃]
juan 捐	[tɕüæ̃]	[tɕiɒ̃]

These words were derived from one ancient rhyme. In the Xuzhou dialect, they still share one rhyme base, but in the Shuyang dialect, they spilt into three rhyme bases. The historical explanation will be provided in 4.4.8.

[21] I will argue that the contrast between the *kaikou* versus *hekou* in certain kinds of finals was neutralized in an early stage of the Shuyang dialect. All these syllables apparently obtained a labial medial in this dialect (see 4.4.1). That is one reason why I have phonemicized the Shuyang final [o] as */wə/* (see 2.3.6). The correspondence between the entering tone final [uə] in Shuyang and [ə] in Xuzhou has derived from another sound change in the evolution of the Shuyang dialect. I will explain this as a labial medial insertion which occurred in certain entering tone syllables (5.4).

2.8.2. Comparison with the Yangzhou dialect

In Jiangsu's report (Jiangsu 1960), Jianghuai Mandarin is divided into three areas (see Map 2). One is called the Hong-Chao group. One is called the Tai-Ru group. The third, represented by the Xuzhou dialect, belongs to Central Mandarin. Yangzhou and Shuyang are located in the area of the Hong-Chao group.

By reconstructing the original tonal values of Jianghuai Mandarin, Hirayama (1984) divided the dialects of the Hong-Chao area in Jiangsu into four subgroups: Nanjing, Yangzhou, Funing and Yancheng types. Because of their secluded geographical location, the dialects of the Funing and Yancheng types are not too important for the historical study of the Shuyang dialect. The Nanjing type includes the dialects of Nanjing, Huaiyin, Huai'an, Siyang, and Lianshui. The Yangzhou type includes the dialects of Yangzhou, Jiangdu, Baoying, Shuyang, and Lianyungang. A crucial point for distinguishing the Yangzhou type from the Nanjing type is that the *shang* tone has a unique falling value in the former but a falling rising value or low level value in the latter.

Yangzhou is located 203 kilometers south of Shuyang, with a population of 300,000. By comparison, modern Yangzhou dialect seems to have maintained more features of Jianghuai Mandarin than the Nanjing dialect.[22]

According to Wang Shihua's report (Wang 1992), the Yangzhou dialect has seventeen initials. Compared with Shuyang, it does not have the retroflex

[22] According to Bao's survey (Bao 1980, 1986), the Nanjing dialect has become more and more similar to the standard Mandarin in the past sixty years. The following two typical features of Jianghuai Mandarin have become obscure in modern Nanjing dialect.

(1) Syllables with initial [n] have become distinctive from those with initial [l] in the speech of the younger generation.

(2) Syllables from the *shan-xian-she* are grouped into two rhymes in the Nanjing dialect while in many other Jianghuai dialects, they are distributed in three rhymes such as Shuyang's [æ̃], [ɛ̃ʟ], [ɒ̃]. Hu Yuan reported that in the mid of the last century some places in Nanjing still kept three rhymes for the *shan-xian-she* words (see Bao 1986).

initials [tʂ, tʂ', ʂ, ʐ]. Three retroflex initials [tʂ, tʂ', ʂ] in Shuyang correspond to dental sibilants in Yangzhou, while [ʐ] in Shuyang corresponds to [l] in Yangzhou.

Among all Jianghuai dialects, only the Shuyang dialect maintains the contrast between the retroflex and dental sibilants like northern Mandarin (see Jiangsu 1960, Table 5). It will be discussed later that this may be attributable to an early sound change in Shuyang (4.2.1).

Finals with the entering tone in these two dialects show the most important diversity. First, entering tone syllables in Yangzhou, according to Jiangsu (1960) and Wang (1992), end with a glottal stop while entering tone syllables in Shuyang do not have stop ending. Second, The Shuyang dialect has ten entering tone finals while the Yangzhou dialect has thirteen. Therefore, there are several cases that one final in the Shuyang dialect corresponds to two finals in the Yangzhou dialect. The following examples illustrate this discrepancy.[23]

		Yangzhou	Shuyang
骨	'bone'	[kuəʔ]	[kʉ]
独	'single'	[tɔʔ]	[tʉ]
月	'the moon'	[üəʔ]	[üə]
脚	'foot'	[tɕiɑʔ]	[tɕüə]

The discrepancy between Yangzhou's [uəʔ] and Shuyang's [ʉ] will be explained by a sound change which lowered the high vowel */ɨ/* but not in the case of the *hekou* syllables in Shuyang (see 5.1). This sound change might have occurred without such a limitation in Yangzhou. For the second word above, the final [ɔʔ] in Yangzhou can be regarded as a phonemical

[23] The Yangzhou data are from Jiangsu (1960). To facilitate the comparison, I replace [y] with [ü].

correspondent to the final [ʉ] in Shuyang.[24] For the discrepancy between the last pair, [tɕiɑʔ] and [tɕüə], I propose that the group of words to which the word 'foot' formerly belonged had a labial medial and later underwent a vowel change in the evolution of Shuyang (see 4.4.10 and 5.5).

2.8.3. Comparison with the Lianyungang dialect

Lianyungang is a city on the coast of the Yellow Sea, 70 kilometers northeast of the Shuyang county. Historically it was the capital of the Haizhou administrative district. From the Sui dynasty to the Republic time (excluding the Ming dynasty), the Shuyang county was administrated by the Haizhou governor. The data on the Lianyungang dialect are from Su Xiaoqing (1990) and Jiangsu (1960).

The Lianyungang dialect has no dental sibilant initials, that is, there is no phonological contrast between the retroflexes and the dental sibilants in this dialect (Jiangsu 1960). Therefore, the main discrepancy in initial between Lianyungang and Shuyang are as below:

Lianyungang	Shuyang
tʂ	ts tʂ
tʂ'	ts' tʂ'
ʂ	s ʂ

I propose that the retroflex in Shuyang came from the former retroflex which did not merge with dental sibilants (4.2.1). The Lianyungang dialect clearly had a

[24] There are two pieces of evidence to support this assumption. First, there is no final [uʔ] or [ʉʔ] in Yangzhou. Second, the final [iɔʔ] in Yangzhou corresponds to Shuyang's [iʉ].

different sound change which combined the former retroflex initials and dental sibilant initials into one initial series like the Yangzhou dialect.[25]

According to Jiangsu's report (1960), the Lianyungang dialect also has entering tone syllables. Syllables in entering tone of this dialect, like Shuyang, have no glottal stop ending. With respect to finals, there is no significant difference between these two dialects.

2.8.4. Conclusion

The main differences between the Shuyang dialect and its neighboring dialects can be listed as below.

(1) Compared with the Xuzhou dialect

Entering tone syllables are maintained as a unique tone category and the entering tone finals are different from the non-entering tone finals in the Shuyang dialect.

(2) Compared with the Yanzhou dialect

The Shuyang dialect does not have glottal stop for entering tone syllables.

The Shuyang dialect maintains the retroflex initials.

Entering tone finals of these two dialects show many discrepancies.

(3) Compared with the Lianyungang dialect

The Shuyang dialect maintains the distinction between retroflex initials and dental sibilant initials, while the Lianyungang dialect combines them as retroflex only.

In summary, compared with Central Mandarin, the Shuyang dialect shares a similar initial system. Its final system demonstrates many differences.

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[25] In the Yangzhou dialect, the *zhi/zhuang/zhang* series merged into the *jing* series. In the Lianyungang dialect, the *jing* series merged into the *zhi/zhuang/zhang* series see (4.2.1).

Compared with the typical Jianghuai dialect, the Yangzhou dialect, the Shuyang dialect has retroflex initials. Entering tone finals of these dialects show many discrepancies. Compared with the Lianyungang dialect, its geographically closest neighbor, the Shuyang dialect does not have any significant difference except for the maintenance of the dental sibilant initials.

CHAPTER III

THE HISTORICAL BACKGROUND OF MANDARIN CHINESE

It is believed that all Mandarin dialects were derived from one proto-language. It is also believed that many dialects such as the Shuyang dialect were not derived directly from Proto-Mandarin due to their different historical background. This chapter centers around the historical background of Mandarin Chinese which is necessary for the study of the evolution of the Shuyang dialect. I will first briefly review the nature of the language represented by the Qieyun rhyme dictionary and the one by the Dengyun tables of the Song dynasty. The Dengyun sound system will be regarded as Proto-Mandarin. The sound systems of three major old Mandarin dialects will also be reviewed. Among them, I will re-analyze the sound system of Shao Yong's '*Shengyin Changhe Tu*' 声音唱和图 in his Huangji Jingshi Shu. I will argue that the sound system in Shao's tables reflects his native dialect which belongs to Northern Mandarin. It is not the Bian-Luo dialect as Zhou Zumo (1943) proposed.

3.1. The nature of the Qieyun and the Dengyun tables

3.1.1. The nature of the Qieyun

The Qieyun rhyme dictionary was compiled in AD 601 by Lu Fayan. It is generally accepted that this rhyme dictionary, the earliest record of a sound system of the Chinese language, reflects the standard language in the sixth

century (Zhou 1966: 473). However, the exact nature of the language of the Qieyun remains a controversial issue (see Chen 1949, Zhou 1966, Shao 1982). If the assumption that the Qieyun mainly reflects its contemporary language is accepted, then either the old Luoyang dialect or the old Jinling dialect has to be chosen as the language of this dictionary, since these two cities were the political and cultural centers during that period. Shao Rongfen (1982: 6) argued that the Qieyun was primarily a record of the dialect prevailing in Luoyang, which was the capital of the three successive dynasties, the Late Han (AD 25-220), the Wei (AD 220-265), and the Western Jin (AD 265-317). Shao's argument is supported by phonological similarity between the Qieyun and the Jinshu Yinyi, a character dictionary of the Luoyang dialect written in AD 747. Although the Jinshu Yinyi appeared one and half centuries later than the Qieyun, Shao still found an extreme resemblance between them. Having considered the similarity between these two books, Shao reached the conclusion that the Qieyun recorded the Luoyang dialect.

The dictionary itself has kind of evidence to imply that the Luoyang dialect might be the standard language at that time. There are four sentences in the preface of the Qieyun to compare the different dialects. These sentences can be translated as follows.

> In the Wu and Chu area, the accent is slightly light and shallow; in the Yan and Zhao area, the accent is quite heavy and muddy. The *qu* tone sounds like the entering tone in the Qin-Long area, while the *ping* tone sounds like the *qu* tone in the Liang-Yi area.

The exact linguistic import of these sentences is not easy to unveil. But the mentioned areas are significant. The Wu-Chu area must be the region south of the Yangtze River and the area of the present Jianghuai Mandarin; the Yan-Zhao area must be the region around the Shanxi and Hebei provinces; the

Qin-Long must be the area of the Gansu province and part of the Shaanxi province; and the Liang-Yi must be the area of southern Shaanxi and the Sichuan province. The author of the preface criticized all dialects except for the one in the Central Plains area. Therefore, it is reasonable to get an impression that the perfect accent in the mind of the author must be an unadulterated dialect, which was spoken in Luoyang and prevailed in the Central Plains area.

However, all of these considerations cannot be taken as internal linguistic evidence to prove what the dialect is in the Qieyun. Chang (1975, 1979) believed that the Qieyun system is very complicated due to a mixture of many phonological distinctions based on different dialects. Hsueh (1986: 90-1) argued that the sound system in this dictionary was basically modeled on the Luoyang dialect but with some adjustments according to its Jinling version.

Before the exact nature of the language in the Qieyun is exposed, I will consider the standard language in the Tang dynasty the proto form of Mandarin. There are two reasons to favor this consideration. First, the sound system of this standard language was reflected in the Dengyun tables which started in the Tang dynasty. Secondly, the methodology which these tables used is more precise than the *fanqie* notation in the Qieyun. In other words, the Dengyun tables reveal to us a more strict phonological pattern which makes a description of the spoken language possible.

3.1.2. The nature of the Dengyun tables

The Dengyun tables started around the mid-Tang era. The practice was obviously influenced by the linguistic practice introduced by Buddhist monks. At the time of the Qieyun, people's main interest was still in the accurate pronunciation of individual characters, though the way the Qieyun was

compiled already implied the underlying phonemic system of the language.[1] As this phonological tradition developed, the Qieyun practice was felt to be insufficient for the reflection of sound system. It is believed that there are at least two factors to bring about the development of Dengyun tables. On the one hand, scholars, especially those who were influenced by the Indian linguistic practice, realized that a syllable could be further specified beyond its initial and final, since different initials often share some common qualities and since finals could further be categorized by their phonological make-ups, such as the contrast between *kai* 开 'open' and *he* 合 'close', and the distinction of *deng* 等 'divisions'. On the other hand, the discrepancy between the sound system represented by the Qieyun and the contemporary dialect in the Tang dynasty must have been clearly felt by those scholars. Thus, encouraged by the new discoveries and motivated by the need to study the sound system of their spoken language, those scholars started to draw Dengyun tables in that period (Hsueh 1987).

Pulleyblank (1984: 3, 61), Huseh (1985, 1987) and Norman (1988: 29) argued that the Dengyun phonology, in principle, is a reflection of the standard language in the Tang dynasty. The significance of this argument is that it regards these Dengyun tables as an independent source preserving a later stage of the Chinese language, rather than merely tabulating a certain rhyme dictionary several centuries earlier.[2]

Furthermore, Dong Tonghe (1968: 112) pointed out that the Dengyun tables represent the beginning of phonological analysis of sound system. In

[1] Pulleyblank pointed out that the Qieyun 'represents the earliest stage of the language for which there exists something approaching a complete phonological statement, that is, an inventory of all the distinct syllables classified by rhymes' (Pulleyblank 1984: 1).

[2] Most scholars (e.g., Li 1983: 10-1) still consider that the Dengyun tables were nothing but an attempt to tabulate a certain rhyme dictionary using concepts borrowed from India.

these tables one can find a classification of initials and a classification of medials which were unspecified in the tradition of rhyme dictionaries. It is reasonable to say that this Chinese approach, developed one millennium ago, really corresponds to the theory of 'distinctive features' in modern linguistics in spirit (Hsueh 1987).

Based on these considerations, the assumption that the Dengyun tables reflect the standard language in the Tang era is adopted in this thesis. Moreover, I believe that this phonological system can be called Proto-Mandarin.

3.2. Proto-Mandarin: the Dengyun sound system

Since different rhyme-table books were compiled in different periods, they probably reflect different stages of Mandarin. This assumption is supported by the fact that there are observable differences between earlier Dengyun tables and later Dengyun tables. The earlier Dengyun tables are to be found in the Yunjing and the Qiyinlüe (Dong 1968: 112, Li 1983: 164). The later Dengyun tables are in the Sisheng Dengzi, the Qieyun Zhizhang Tu and the Jingshi Zhengyun Qieyun Zhinan (Dong 1968: 183-5, Li 1983: 179-89). It is believed that the sound system in the earlier Dengyun tables appeared earlier than the Song dynasty (Dong 1968: 112-3).[3] It is also believed that the later tables reflected the sound changes in the Song dynasty (Li 1983: 179). In other words, using the same tabular method and the same set of terminology, authors of these tables tried to reflect what they considered to be the standard language in their own time.

[3] However, when he mentioned about the nature of these tables, he considered that the earlier tables reflect the sound system of the Qieyun (see Dong 1968: 113).

3.2.1. Differences between earlier Dengyun tables and later Dengyun tables

Before the phonological system of the Prorto-Mandarin is discussed, major differences between the earlier and later versions of Dengyun tables must be pointed out.[4] These differences indicate that the Dengyun tables, in nature, reflect the contemporary sound system of the compiler. I will compare the Yunjing, the earliest rhyme-table book, with the Qieyun Zhizhang Tu (hereafter QZT), one of the later rhyme-table books.

There are two major divergences between these two rhyme-table books: the merger of rhymes and the dual-entry of some entering tone words in QZT. Certain different rhymes which appear in different tables in the Yunjing were combined into one table in QZT. For example, the *dong* 东 rhyme and the *dong/zhong* 冬钟 rhymes belong to two different tables in the Yunjing, while in QZT they appear in one table. There are two possible explanations. First, although the Yunjing listed them in different tables, they might not be phonologically in contrast. This separation may show that the compiler was more concerned with the Qieyun tradition than its contemporary phonological system. The second possibility for those mergers is that sound changes occurred between the Yunjing time and the QZT time. Whatever it is, both explanations favor the view that sound changes had been recorded in QZT.

Other mergers of rhyme groups in the Yunjing were seen respectiveiy in the *jiang-she/dang-she*, *jia-she/guo-she*, and *zeng-she/geng-she*. These mergers were labeled by the so-called *nei-wai hundeng* 内外混等 'the confusion of inner turn and outer turn', clearly a reflection of sound changes (Hsueh 1985).

[4] For more discussion on this issue, see Li (1983: Chapter 6).

QZT also moved the words of the *zhi-she* which are listed in the division four (abbreviated as Div. IV hereafter) under the *jing* initial series in the Yunjing to the position of Div. I. Hsueh (1980a) believed that this indicates the first step among the sound changes which eventually formed a new rhyme, the *zhi-si* rhyme, in the Zhongyuan Yinyun.

Another major distinction between the earlier and later tables is the dual-entry of some entering tone words in the later Dengyun tables. In the Yunjing, syllables in the entering tone only appear in tables matching the *yangsheng* rhymes (i.e., those with nasal endings), while in QZT, words in the entering tone are matched with both the *yangsheng* rhymes and the *yinsheng* rhymes (i.e., those without a nasal ending). For example, *hei* 黑 (DT xɔk) appears in both the *zhi-she* (*yinsheng* rhymes) and the *geng-zeng-she* (*yangsheng* rhymes). One logical assumption for this phenomenon is that a sound change occurred that affected the entering tone syllable endings. In other words, these stop endings changed to a different form or were simply lost. Therefore, these entering tone words were listed in the *yinsheng* rhymes, while the entry in the *yangsheng* rhymes indicates that the Qieyun tradition was too much for the QZT compiler to ignore (Hsueh 1985).

3.2.2. Hsueh's description of the Dengyun sound system

The final system of the Dengyun tables described by Hsueh (1985) and the initial system of Middle Chinese proposed by Hsueh (1975) are adopted as the phonological system of Proto-Mandarin in this thesis. My choice is based on the following considerations. His study of the Dengyun tables illustrates both the vowel contrast and the ending contrast of tables, and thus clarifies the controversial issue of the 'inner' versus 'outer' turns in the Dengyun phonology.

His description of the initial system of Middle Chinese demonstrates the basic feature contrasts of initials in the Dengyun tables, and it will hence facilitate the analysis of the development of any Mandarin dialect. In other words, one can discuss sound changes that affect these initials in terms of phonological features.

The initial system is listed in Table 7. Purely for diachronic study of the Shuyang dialect, the *ri* initial is represented by /r-/. The vowel system of the Dengyun tables is listed in Table 8, the 'inner' finals are in Table 9, while the 'outer' finals are in Table 10.

Table 7. Initials of the Dengyun tables (see Hsueh 1975: 28-30)

	Stops			Fricatives		Resonants	
Labials	p 帮	ph 滂	pɦ 并			m 明	
Dental stops	t 端	th 透	tɦ 定			n 泥	l 来
Dental sibilants	c 精	ch 清	cɦ 从	s 心	sɦ 邪		
Palatal stops	tj 知	tjh 彻	tjɦ 澄				
Retroflexes	cr 庄	crh 初	crɦ 崇	sr 生	srɦ 俟		
Palatal sibilants	cj 章	cjh 昌	cjɦ 船	sj 书	sjɦ 常	r 日	
Gutturals	k 见	kh 溪	kɦ 群	x 晓	xɦ 匣	ŋ 疑	
	q 影						ø 喻

(In this table, '-j-' represents the feature of palatalization, '-r-' represents the feature of retroflexion, '-h-' stands for the feature of aspiration, and '-ɦ-' stands for the feature of voicing. 'c' stands for the dental sibilants which are commonly described as 'ts'.)

Table 8. Vowel features of the Dengyun tables (see Hsueh 1985)

backness / height	front	central	back
high		ɨ	
low	e	a	ɔ

Table 9. The 'inner' finals of the Dengyun tables (see Hsueh 1985)

	tong	zhi	yu	liu	shen	guo	zeng	dang
I	wɨŋ/k	---	wɨ	ɨw	---	(w)ɔ	(w)ɔɲ/k̂	(w)ɔŋ/k
II								
III	ywɨŋ/k	y(w)ɨy	ywɨ	yɨw	yɨm/p	y(w)ɔ	y(w)ɔɲ/k̂	y(w)ɔŋ/k
IV								

('k̂' represents 'k͡' in Hsueh's description. For the discussion of this ending, see Hashimoto 1978.)

Table 10. The 'outer' finals of the Dengyun tables (see Hsueh 1985)

	xie	xiao	shan	xian	zhen	jia	geng	jiang
I	(w)ɔy	ɔw	(w)ɔn/t	ɔm/p	(w)ɨn/t	---	---	---
II	(w)ay	aw	(w)an/t	am/p	[ən/t]	(w)a	(w)aŋ/k̚	aŋ/k
III	y(w)ay	yaw	y(w)an/t	yam/p	y(w)ɨn/t	y(w)a	y(w)aŋ/k̚	---
IV	(w)ey	ew	(w)en/t	em/p		---	(w)eŋ/k̚	---

3.2.3. Dual-entry of entering tone words

The entering tone syllables in the Yunjing occurred exclusively in rhymes which ended with nasal endings; however, in the later Dengyun tables such as the Sisheng Dengzi (hereafter SD) some entering tone words have two or three entries. One appears in the rhyme groups with nasal endings, the other appears in the groups with glide endings or 'zero' ending (Chou 1986). According to the tendency of sound changes in entering tone syllables, it is apparent that the form with glide ending or 'zero' ending was the new reading which lost the previous stop ending, while the one that matches with syllables with nasal ending was the obsolete reading which preserved the previous stop ending.

The situation of entering tone words in Shao Yong's (1011-1077) '*Shengyin Changhe Tu*' of Huangji Jingshi Shu (hereafter HJ) reflects this tendency. Zhou (1943) claimed that entering tone syllables in HJ had lost endings */t/* and */k/*, but still maintained /p/ because all the entering tone syllables

originally with /t/ or /k/ were grouped with syllables that had a glide or 'zero' ending, and those originally with /p/ were still grouped with syllables that ended with a nasal. This distribution indicates that in the eleventh century the /t, k, ʔ/ endings were lost or changed to a glottal stop. In other words, if an entering tone word had two readings, the one grouped with *yinsheng* rhymes was the new form, while the one grouped with *yangsheng* rhymes was obsolete.

Another implication of this distribution is that among the four stop endings in Proto-Mandarin, /t, k, ʔ/ were lost before /p/ was lost. It is noteworthy that in SD the entering tone words which appear in the *xian-she* and *shen-she*, two *she*'s that ended with the /m/, do not have any alternation in the *yinsheng* rhymes, while the entering tone words of the other *she*'s have both the *yinsheng* rhyme entry and the *yangsheng* rhyme entry. The same distribution of entering tone syllable are also found in the Jingshi Zhengyun Qieyun Zhinan and QZT (Chou 1986). Since the *xian-she* and the *shen-she* have the stop ending /p/ in the Dengyun tables, one can claim that by the later Dengyun tables the entering tone syllables in the *xian-she* and the *shen-she* still preserved the stop ending /p/. That is why these entering tone words do not have alternation in the *yinsheng* rhymes in these tables.

However, the picture of entering tone syllables in the *yinsheng* rhymes is not very clear. For instance, *ku* 哭 (DT khwɨk) and *tu* 秃 (DT thwɨk) in SD are listed both in the rhyme group *yu-she* which has the 'zero' ending and in the rhyme group *liu-she* which ends with the glide /-w/. Hsueh (1975: 107, 1992) suggested that in an earlier form of Northern Mandarin, the stop ending /k/ changed to /w/ first, and the /w/ ending was then lost.[5] But in old Southern

[5] When /k/ changed to /w/, entering tone syllables of the *tong-she* got the final /ɨwɨw/, which then lost its ending as a result of dissimilation. The result of this two-step evolution 'happened to be identical with the literary pronunciation resulting simply from the loss of the /k/' (Hsueh 1975: 107).

Mandarin, the previous stop endings were replaced by a glottal stop. This will be discussed in 3.3.2.

3.3. Three old Mandarin dialects

To describe the historical evolution of the Shuyang dialect, three major old Mandarin dialects need to be discussed. They are so-called the Bian-Luo (Bianliang and Luoyang) dialect of the Song dynasty, underlying in HJ by Shao Yong (1011-1077); the Dadu (Beijing) dialect of the Yuan dynasty, which was recorded in the Zhongyuan Yinyun (1324); and the Nanjing dialect of the Ming dynasty, which was reflected in the Hongwu Zhengyun (1375). Due to the different areas where the three old dialects prevailed, I will call them Old Central Mandarin (OCM), Old Northern Mandarin (ONM) and Old Southern Mandarin (OSM) respectively.

3.3.1. Old Central Mandarin: the Bian-Luo dialect of Song

HJ is a book written by Shao Yong. Chapters Seven to Ten of this book were titled as '*Shengyin Changhe Tu*' which concerns Chinese phonology. On the basis of the tabular design in HJ and the rhyming practice of eight poets (including Shao Yong himself), Zhou Zumo (1943) reconstructed a sound system for what he called the Bian-Luo dialect in his *Songdai Bian-Luo yuyin kao* 'A study of the Bian-Luo dialect of the Song dyansty'.

Shao divided initials into twelve categories, shown as in Table 11. Each category has four horizontal lines and four vertical lines. The horizontal lines are marked *qing* 清 'clear' and *zhuo* 浊 'muddy' alternatively. The four vertical lines are marked *kai* 开 'open', *fa* 发 'expand', *shou* 收 'restrain' and *bi* 闭 'close'

respectively which will be discussed soon. When Shao could not find a character for a potential syllable, he drew a hollow rectangle to represent it. A slid rectangle indicates that there was no syllable for that position.

Table 11. Initial categories of HJ

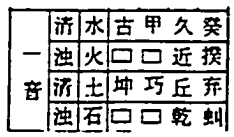
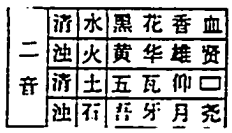
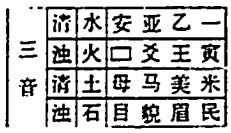
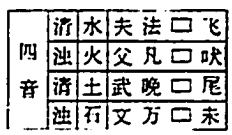
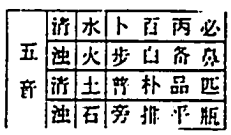
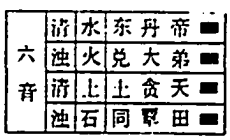
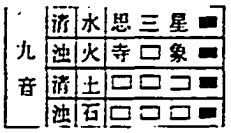
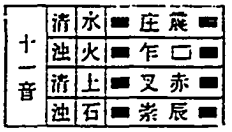
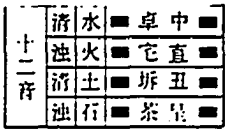
	Shao's categories	Zhou's construction
1.		k k'
2.		x ɣ, ø ŋ
3.		ø m
4.		f v, ø mj
5.		p p'
6.		t t'
7.		n l

Table 11 (continued)

Shao's categories	Zhou's reconstruction
8. 	ʦ ʦ'
9. 	s
10. 	ʂ ʐ, ø ɲ
11. 	ʦ̣ ʦ̣'
12. 	ʦ̣ ʦ̣'

(HJ tables are from Chinese Encyclopedia, Vol. Language and Character [1988: 372]. The reconstructions are from Zhou 1943)

According to HJ's design and the phonological analysis of Mandarin Chinese, I am arguing that Zhou's reconstruction for categories 2, 4, 10 and 12 need modification.

The voiced initial words are grouped differently according to their different tones. In category 1, for example, the first *zhuo* line which has non-*ping* tones is matched with the first *qing* line which has an unaspirated voiceless initial. The second *zhuo* line which has the *ping* tone is matched with

the second *qing* line which has an aspirated voiceless initial. With this observation, Zhou (1943) claimed that the devoicing of voiced stop or affricate initials had already occurred at the Shao Yong's time. This claim is correct because it explains why Shao Yong listed four lines in each initial category and matched the *zhuo/qing* line in that way.

Another assumption can be made that each pair of *qing/zhuo* reflects one initial phoneme because *zhuo* lines in HJ were not voiced at that time. In other words, every initial category in HJ has no more than two phonemes which are phonologically related. See Zhou's reconstruction in Table 11. Nine of the twelve categories of HJ have no more than two phonemes,[6] but three of them have three initials. Zhou argued that the words with nasal initials [ŋ, ɱ, ń] in the *shang* tone changed their nasal initials to vocal sounds or even lost the initials in the Bian-Luo dialect. The sound changes in these three nasal initials can be represented as follows.

Category 2	*yi* initial	ŋ > ɣ > ø
Category 4	*wei* initial	ɱ > v > ø
Category 10	*ri* initial	ń > ʐ > ø

Zhou said that some Div. I words with the *yi* initial in modern Kaifeng dialect can be pronounced with an [ɣ] sound in the initial position. It is evidence for the sound change ŋ > ɣ > ø.

I am not arguing against Zhou's claim about the sound change process that occurred in these nasal initials. The point is whether these transition forms are independent phonemes or just conditional variants. For three reasons I believe that these transition forms are not independent initial phonemes. First,

[6] Category 9 is an exception. Zhou (1943) suggested that there is a variant of /n/ in this category.

in modern Beijing dialect, some words from the *yi* initial or the *wei* initial can be pronounced with an [ɣ] sound or an [v] sound, but they have no phonological value. Following the same argument, in the Bian-Luo dialect of the Song dynasty, the transition forms [ɣ, v, ʐ] could not be independent initial phonemes. Second, based on HJ's design and the initial devoicing of HJ, I assume that each initial category of HJ has no more than two initial phonemes. If these three transition forms [ɣ, v, ʐ] are considered as conditional variants of [ŋ, ɱ, ń] respectively, a strict principle can be proposed for the arrangement of HJ. That is, every initial category in Shao's design includes no more than two initial phonemes.

Third, and more importantly, one piece of internal evidence in HJ makes me believe that these three transition foms might be tonally related. Zhou claimed the voiced stop and affricate initials were grouped differently in HJ according to different tones. By the same token, these so-called secondarilly muddy initials might also be grouped differently based on different tones. See categories 2, 3, 4, 7, and 10 in Table 11. Words with the secondarilly muddy initials in the *shang* tone are listed under the *qing* in the second pair of *qing/zhuo*, and those with the other tones are listed under the *zhuo*. The similar arrangement can also be found in voiced initial words. In category 1, for example, the words with the *ping* tone are grouped with the /k/ initial, the words with non-*ping* tones are grouped with the /k'/ initial which is phonologically related to /k/. The only difference is that in voiced initial categories the *ping* tone words and those in other tones are grouped in two initials, while in secondarilly muddy initial categories the *shang* tone words and those in other tones belong to one initial.

There are two possibilities to explain how the *shang* tone affects these secondarily muddy initials. First, the *shang* tone might have some special feature while the other tones did not have. This special feature might slightly affect the phonetic value of the initial and make the initial sound slightly different, but that would not separate it phonemically from those with the other tones.

The other possibility and the most likely to occur is that the disappearance of these secondarilly muddy initials underwent two steps. First, they were lost in the words with the *shang* tone, later they were lost in the words with the other tones. The sound system in HJ reflects the first step of the disappearance of the secondarilly muddy initials.

Categories 11 and 12 (see Table 11) raise another question. How can we reconstruct the *zhao* series and the *zhi* series? The syllables in category 11 belonged to the *zhao* series in the Dengyun tables while those in category 12 belonged to the *zhi* series. If these two categories shared an identical initial series as Zhou reconstructed, according to what Shao did for the finals (only seven of the ten groups had syllables listed), Shao would leave the last category (category 12) vacant. But Shao did not do that. Based on this observation, these two separated categories must contain different initials. The question is how category 12 is to be identified if it is different from category 11 in phonological nature. The *zhi* initial in the Dengyun tables is reconstructed as the palatal stop /tj/ (see Table 7). According to the design of HJ, category 12 must be very close to category 11. Since the latter is reconstructed as the retroflex /tʂ/ (or /cr/ in Table 7) by Zhou, the former might be a retroflex stop /tr/. This indicates that in HJ, the *zhi* series /tj/ changed from a palatal stop to a retroflex stop /tr/, but had not yet merged into the retroflex /cr/. Such a situation

in HJ confirms one sound change for the merger of the *zhi/zhuang/zhang* initial series (Hsueh 1975: 43). After the *zhuang* series and the *zhang* series merged, the *zhi* series joined the *zhuang/zhang* series. The following two processes reflect the merger of the *zhi/zhuang/zhang* series.

(1) j > r

(2) t > c / __ r

The initials in category 12 in Table 11 had undergone the first process, but had not yet undergone the second process. In other words, the *zhi* series started to change but had not lost their identity.

It is now desirable to discuss the vertical lines Shao's tables. These four vertical lines parallel approximately the four divisions of the Dengyun tables with some adjustments. These adjustments indicate that the sound changes occurred in Shao Yong's time. For instance, words in the *kai* line (the first vertical line) should be the Div. I of the Dengyun tables. But there are eight words which came from the Div. III, listed as below.

Category 3	*mu* 目 (DT mywɨk)
Category 4	*fu* 夫 (DT pywɨ)
	fu 父 (DT pfiywɨ)
	wu 武 (DT mywɨ)
	wen 文 (DT mywɨn)
Category 8	*zi* 自 (DT cfiyɨy)
Category 9	*si* 思 (DT syɨy)
	si 寺 (DT sfiyɨy)

See category 4 first. This category has initials /ɱ/ and /ɱ/ according to what has been discussed. These two initials were derived from bilabial initials of the Dengyun tables. In the evolution of Mandarin, the bilabial initials /p, ph, pɦ/

in the Proto-Mandarin became /f/ and the nasal labial initial /m/ became /ɱ/ (with an exception in the *tong-she* words) if these labial initials proceeded a compound medial /yw-/ (Hsueh 1975: 39).[7] With this consideration, it is not a surprise to find that all words in category 4 came from Div. III of the Dengyun tables.

The exceptional case of this labial-dentalization explains another exceptional word *mu* 目 (DT mywɨk), which is in category 3. This word belonged to Div. III of the *tong-she*. Words with the /m/ initial of the *tong-she* lost the palatal medial before the labial-dentalization, therefore, their /m/ initial did not change to /ɱ/ (Hsueh 1975: 39).

The remaining three exceptional words in categories 8 and 9 belonged to Div. III of the *zhi-she* with the *jing* (/c/) initial series. According to Hsueh's study, in the evolution of apical vowels in Mandarin, the process of losing the palatal medial /y/ occurred at first in all kinds with the /cr/ initial series, then it affected the unrounded *zhi-she* words with the *jing* initial series. Later the palatal ending was lost (Hsueh 1975: 67-8). The phenomenon that *zi* 自 (DT cfiyɨy), *si* 思 (DT syɨy), *si* 寺 (DT sfiyɨy) are listed under the *kai* line in HJ indicates that these Div. III words had already lost the medial /y/ and they became indifferent with Div. I words.

Words in the second vertical line in initial categories of HJ belonged to Div. II of the Dengyun tables. Exceptions can be found in categories 6 to 11 where Div. I or Div. III words appear. My explanation for these exceptions is that Shao chose corresponding Div. I words because the Div. I and II in certain rhymes shared the same final when he could not find any common Div. II words in those categories. For example, *dan* 丹 (DT tɔn), *tan* 贪 (DT thɔm), *tan* 覃 (DT

[7] Hsueh used /v/ to discuss the initial changes in ZYYY. That /v/ corresponds to /ɱ/ in HJ.

tʃiɔm) in categories 6 have no common Div. II words with the */t/* initial series. *Da* 大 (DT tʃiɔ) in category 6 has no any correspondent Div. II words. The same situation can also be found in category 7 (*nan* 南 DT nɔm), category 8 (*zai* 哉 DT cɔy, *zai* 在 DT cʃiɔy, *cai* 采 DT chɔy, *cai* 才 DT cʃiɔy) and category 9 (*san* 三 DT sɔm). Such a replacement means that Div. I and II of the *shan-she*, *xian-she* and *xie-she* shared the same vowel at HJ time. When Shao could not find Div. I or II words in certain rhymes, he substituted Div. III words for them. This replacement occurred in category 11. *Zhuang* 庄 (DT cryɔŋ) belonged to Div. III of *dang-she* which did not have correspondent Div. I words in the Dengyun tables. *Chong* 崇 (DT crʃiywiŋ) belonged to Div. III of *tong-she* which did not have correspondent Div. I words either.

Shi 士 (DT crʃiyiy) in category 10 is an unexplainable exception. This word belonged to Div. III of *zhi-she* with the *zhuang* initial series in the Dengyun tables. According to what has been discussed, this word should be listed in the first vertical line to group with Div. I words. I believe this is a mistake Shao Yong or the person who later drew that table made.[8]

One can also find some substitutes in the third vertical line. The exceptional words in this line belonged to Div. IV of the Dengyun tables and they are listed as follows.

category 6	*di* 帝 (DT tey)
	di 弟 (DT tʃiey)
	tian 天 (DT then)
	tian 田 (DT tʃien)
category 7	*nian* 年 (DT nen)

[8] The tables in HJ were not drawn by Shao Yong himself (see Chinese Encyclopedia, Vol. Language and Character [1988: 372]).

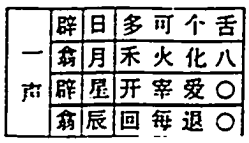
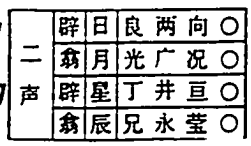
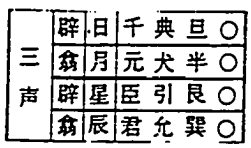
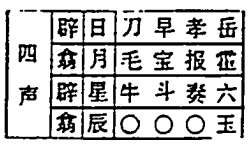
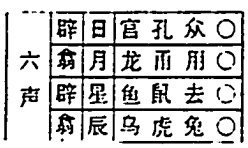
category 9 *xing* 星 (DT seŋ)

Words in category 6 were derived from the *duan* series which did not have Div. III syllables in the Dengyun tables. Therefore, Shao listed Div. IV words in this position. It indicates that Div. III and Div. IV words had already merged at HJ time. The same merger is also found in category 7 (*nian* 年 DT nen) and category 9 (*xing* 星 DT seŋ). Besides, this merger explains why many Div. III words are listed in the fourth vertical line.

However, this merger shows that even Shao Yong himself had difficulty in differentiating the so-called *shou* 'restrain' (in the third line) from the *bi* 'close' (in the fourth line). For instance, Shao listed the Div. IV words of the *xie-she*, *di* 帝 (DT tey) and *di* 弟 (DT tfiey) in category 6 in the third line, while in category 4 he listed *fei* 吠 (Div. III of *xie-she*, DT pfiywey) in the fourth line and left the third line vacant.

Finals in HJ are categorized into seven groups, and every group has two pair of *pi* 辟 'open' versus *xi* 翕 'close' lines. Phonological values of those finals, according to Zhou's study, are presented in Table 12. To facilitate the comparison, I add the names of the *she* groups of those finals according to the non-entering tone words in HJ. In Table 12, non-entering tone finals are listed under 'non-entering', and entering tone finals under 'entering'. Arabic numbers represent the final groups in HJ.

Table 12. Final groups of HJ

	she		non-entering	entering
1	*guo/jia*		a, ia, ua	a, ia, ua, ya
	xie		ai, uai	
2	*dang/jiang*		aŋ, iaŋ, uaŋ	
	zeng/geng		əŋ, iŋ, uəŋ, yəŋ	
3	*shan*		an, ian, uan, yan	
	zhen		ən, in, uən, yən	
4	*xiao*		au, iau, (uau)	ɔ, iɔ, uɔ, yɔ
	liu		ou, iou, u (*fei*)	u, y
5	*zhi*		i, ɿ, ʅ, ui	ə, ɿ, ʅ. iə, uə, yə
	zhi		uei	ei, uei,
6	*tong*		uŋ, yŋ	
	yu		y, u	
7	*shen*		im	ip, (iup)
	xian		am	ap, iap, (uap)

(HJ tables are from Chinese Encyclopedia, Vol. Language and Character [1988: 372]. The reconstructions are from Zhou 1943)

The rhyming practice of the eight poets under Zhou's investigation can not provide any signficant information about the nuclei of entering tone syllables in HJ. Without further information, the difference between entering tone syllables and their non-entering tone correspondents must be only the tonal category or the syllable ending. Therefore, Zhou's reconstruction for group 4 needs to be modified. A glide ending /w/ has to be added to the entering tone finals and the vowel /ɔ/ should be redefined as /a/.

Three considerations favor this adjustment. First of all, Shao Yong listed entering tone words which had stop endings /k/, /ƙ/ or /t/ in the Dengyun tables with the *yinsheng* rhymes. This is found in groups 1, 4, and 5. It means that entering tone words and their non-entering tone correspondents in one final group share the same nucleus and syllable ending.[9] In group 4, it is found that the entering tone words *yue* 岳 (DT ŋak) and *huo* 雘 (DT xwɔk) from the *jiang-dang-she* which previously ended with /k/ are grouped with the *xiao-she* words which end with /w/ in HJ, and the entering tone words *liu* 六 (DT lywɨk) and *yu* 玉 (DT ŋywɨk) from the *tong-she* which previously ended with /k/ are grouped with the *liu-she* words which also end with /w/ in HJ. It is obvious that the entering tone words from the *tong-jiang-dang-she* in group 4 should have the ending /w/.

The second consideration concerns about Shao Yong's native accent. Several pieces of evidence show that Shao Yong might reflect his Northern Mandarin accent on the entering tone words in HJ. First of all, Shao's hometown was Fanyang (the Zhuo Xian county, Hebei province) where Northern Mandarin prevailed. There is a record about Shao Yong in the Song

[9] The glottal stop is a redundant feature of entering tone words. The entering tone is the distinctive feature.

Shi (Chap. 427) which is translated like this:

> Shao Yong styled himself Yao Fu. His ancestor was in Fanyang. His father, named Gu, moved to Hengzhang, later moved to Gongcheng. When Shao Yong was thirty, he traveled to Henan. He buried his parents on the bank of the Yishui River and he hence claimed himself a Henanese.

Hengzhang is an ancient name of Hengshui county, Hebei province, which is 120 kilometers east of Shijiazhuang city. Gongcheng is an ancient name of Hui Xian county, Henan province, which is 240 kilometers south of Shijiazhuang city, 90 kilometers northwest of Kaifeng city. From this historical document, it is probable that when Shao Yong moved to Luoyang at the age of 30, his native northern accent did not change. In 3.2.3, I mentioned that the entering tone syllables which ended with /k/ were once changed to /w/ in old Northern Mandarin (Hsueh 1975: 107, 1992). In group 4 of Table 12, one can find that the entering tone syllables from the *tong-she*, *jiang-she* and *dang-she* which ended with /k/ in Proto-Mandarin are all listed with those which have /w/ ending. The position of these entering tone syllables in HJ indicates that Shao Yong pronounced these words with his Northern Mandarin accent and these syllables should naturally appear where they did.

The third consideration of adding the ending /w/ to the entering tone finals in group 4 is that Shao Yong's rhyming habit on entering tone words is different from the native speakers of the Bian-Luo dialect. Among the eight poets under Zhou's investigation, only two of them were native speakers of the Bian-Luo dialect. Shi Dazu was a native Bianliang speaker, and Han Wei was a native speaker of Yongqiu which was near Bianliang. According to Zhou's study (1943), the rhyming habit of both poets shows that the entering tone words of the *geng-she* and *zeng-she* which used to have the /ĸ/ ending rhymed with

those of the *zhen-she* (with the /t/ ending) or even with those of the *shen-she* (with the /p/ ending). But Shao Yong's rhyming habit shows a clear distinction between the /ʔ/ ending words and the /t/ ending words. Zhou did not give any explanation although he noticed this discrepancy. The implication of this discrepancy is significant because it indicates that in the Bian-Luo dialect (in literary readings), the stop endings of the *geng-zeng-she* and the *zhen-she* changed to a glottal stop. But in Shao Yong's Northern Mandarin accent, the *geng-zeng-she* words must have had a different sound change from those of the *zhen-she* words. Therefore, Shao never rhymed them. I will discuss soon that in old Northern Mandarin, the words of the *geng-zeng-she* changed the stop ending /ʔ/ to /y/, while those of the *zhen-she* changed the stop ending /t/ to the glottal stop. Shao's rhyming habit indicates that Shao read the entering tone words according to his native Northern Mandarin dialect.

Based on Shao's rhyming habit and the HJ's design, the entering tone words from the *zeng-she*, *de* 德 (DT tɔʔ) and *bei* 北 (DT pɔʔ) in group 5, are redefined with a /y/ ending. The entering tone words from the *jiang-dang-she*, *yue* 岳 (DT ŋak) and *huo* 雹 (DT xwɔk), and those from the *tong-she*, *liu* 六 (DT lywɨk) and *yu* 玉 (DT ŋywɨk) in group 4, are redefined with a /w/ ending. The entering tone words from the *shan-she* and the *zhen-she*, *ba* 八 (DT pat) in group 1, *ri* 日 (DT ryɨt) and *gu* 骨 (DT kwɨt) in group 5, are redefined with a glottal stop. The high vowel with a glottal stop might sound like the high vowel with a /y/ ending by Shao Yong's ears. That probably is the reason why Shao listed words *ri* 日 (DT ryɨt) and *gu* 骨 (DT kwɨt) with the *zhi-she* words.

The nucleus in group 5 needs attention. The non-entering tone words in this group were derived from the Div. III of the *zhi-she* which had the high vowel

in the Dengyun tables.[10] Since there is no substantive evidence to show that the palatal ending was lost in the *zhi-she* at HJ time, I redefine the rhyme base of the *zhi-she* as the high vowel plus the */y/* ending. Hsueh (1975: 68) proposed that the evolution of the apical vowels from the *zhi-she* in ONM is composed of two steps: the palatal medial was lost first and then the palatal ending was lost. The sound system of HJ has probably undergone the first step but not the second step.

The question for group 5 is how to explain the two *xi* 'close' lines. The words in the first 'close' line had the *zhuang* initials in the Dengyun tables, while those in the second 'close' line had the *zhang* initials or guttural initials. According to Hsueh's (1975: 43) study, the palatal medial was lost in retroflex syllables in the evolution of Mandarin. That loss occurred first in the syllables with the *zhuang* initials. With this consideration, the syllables with the *zhuang* initials in the first 'close' line of group 5 might be analyzed without the palatal medial, while the second *xi* line with the palatal medial.

The argument that the words in the *xi* line of the second pair in group 5 have a medial */yw-/* is supported not only by the sound change which occurred in the evolution of Mandarin but also by the HJ's internal design. There is one piece of evidence in HJ to favor this analysis. The non-entering tone words in group 5 are from the *zhi-she* and the Div. III and IV of the *xie-she* which has the high vowel as the nucleus. Since there were not two different rhyme bases for the *zhi-she* words, Shao had to list the */yw-/* final as one *xi* line and left its

[10] Word *qi* 妻 (DT chya) was from the Div. III of *xie-she* which had a low vowel in the tables. Div. III and IV of *xie-she* merged with the *zhi-she* words because they rhymed each other (Zhou 1943).

correspondent *pi* line vacant.[11]

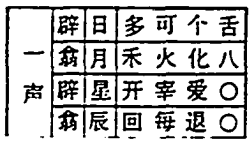
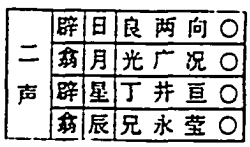
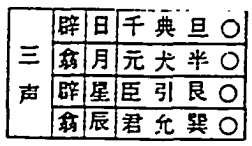
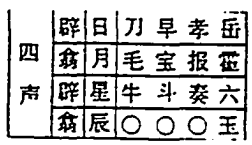
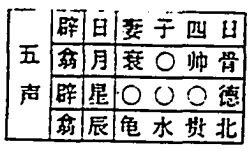
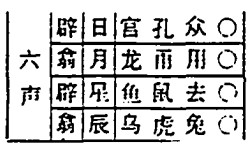
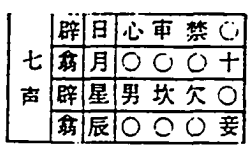
Zhou differentiated the second *xi* line in group (5) with a vowel [e]. His supporting evidence is the final form [ui] in modern Kaikeng dialect. However, this [ui] in the modern dialect does not imply an [e] vowel. In modern Beijing dialect, the nucleus of this final is phonemically a high vowel (see Hsueh 1986: 60).

According to the above arguments and a strictly phonemic description, the finals of HJ are redefined in Table 13.[12]

[11] Another kind of vacancy can be found in group 4. The words in the second line (the *xi* line) of that group have labial initials. But the other *xi* line, which matches the *pi* line of the *liu-she* words, is vacant. Two possible explanations for this vacancy. One is that a labial initial word with a high vowel did not sound like a *hekou* syllable. The other explanation of the vacancy in group 4 is that the labial initial words of the *liu-she* had already undergone a sound change which deleted the ending /w/ by dissimilation (see Hsueh 1975: 73).

[12] With respect to the fact that the entering tone words of the *zeng-she* were grouped with the *zhi-she* words, I believe that the high vowel in the final /ywɨy/ of the *zhi-she* might be pronounced as [ə] just as in modern Mandarin dialects.

Table 13. Redefined finals of HJ

she		non-entering	entering
1. *guo/jia*		a, ya, wa	a?, ya?, wa?, ywa?
xie		ay, way	
2. *dang/jiang*		aŋ, yaŋ, waŋ	
zeng/geng		eŋ, yeŋ, weŋ, yweŋ	
3. *shan*		an, yan, wan, ywan	
zhen		in, yin, win, ywin	
4. *xiao*		aw, yaw, waw	aw, yaw, waw, ywaw
liu		iw, yiw	wiw, ywiw
5. *zhi*		iy, wiy	i?, wi?, ywi?
zhi		ywiy	ey, wey
6. *tong*		wiŋ, ywiŋ	
yu		ywi, wi	
7. *shen*		im	ip
xian		am, yam	ap, yap

(HJ tables are from Chinese Encyclopedia, Vol. Language and Character [1988: 372])

By comparison between the earlier Dengyun tables such as the Yunjing and HJ, we can find a general sound change pattern which occurred in the stop endings. Table 14 lists the stop endings of entering tone syllables.[13]

Table 14. Comparison of stop endings in the Yunjing and HJ

She	Yunjing ending	HJ ending
shan	-t	-ʔ
zhen	-t	-ʔ
geng/zeng	-k̆	-y
jiang/dang	-k	-w
tong	-k	-w
shen/xian	-t	-p

One can find that the ending */k/* changed to the glide */w/*, the ending */k̆/* changed to */y/*, and the ending */t/* changed to the glottal stop. Sound changes of the ending stops from the earlier Dengyun tables to HJ may be summarized as follows:

(1) k̆ > y / __ #

(2) k > w / __ #

(3) t > ʔ / __ #

In summary, the sound system in HJ was said to be that of the Bian-Luo dialect in the Song dynasty according to Zhou's (1943) study. Based on the earlier discussion, however, I believe that the sound system in HJ reflects Shao Yong's Northern Mandarin accent. This indicates that Central Mandarin and

[13] Shao did not list the entering tone words of the *geng-she* in the tables of HJ. They are supposed to have the same ending as the *zeng-she* words.

Northern Mandarin in the Song dynasty shared many similarities in the non-entering tone syllables due to the fact that they were derived from Proto-Mandarin not long before. But the entering tone syllables of these two types of Mandarin had undergone different sound changes. In Central Mandarin, the stop endings /k, k̚, t/ changed to a glottal stop, while in Northern Mandarin the stop endings /k/ and /k̚/ changed to the glides /w/ and /y/ respectively. It seems that Zhou Zumo's (1943) study ignored Shao Yong's Northern Mandarin accent and he hence failed to differentiate these two types of sound changes. That is why Zhou could not explain Shao Yong's different rhyming habit and the implication of HJ design could not be fully explained in his reconstruction.

3.3.2. Old Southern Mandarin: the Nanjing dialect of Ming

From the Eastern Jin, the local Jinling dialect, which was originally affiliated to the Wu dialect, started to be affected by Mandarin. Emperors of the Eastern Jin and the four succeeding dynasties (including Liu Song, Qi, Liang, Chen) set the capital in Jinling for about three hundred years. In the middle of this period, 'Mandarin' must have been spoken among all aristocratic families, no matter whether they were native Wu speakers or immigrants from the north (Bao 1986). However, the local Jinling dialect was not replaced by Mandarin. By the end of the Southern dynasty, the common people in Jinling still spoke local dialect (Yan Zhitui [531 - 590]: Yanshi Jiaxun).

When was the local Jinling dialect replaced by Mandarin? Although available linguistic information is not enough to give a clear-cut answer for this question, non-linguistic evidence may be helpful to answer it. I believe that the twelfth century (the Song dynasty) is the latest time for the dialect replacement.

The Yuan dynasty (1271-1368) is not a possible choice. At the beginning of Yuan, the population of Jinling was only 95,000. By the Ming dynasty (1391), the population was 473,000. More than half had immigrated from other parts of the country in the earlier years of Ming by the order of the emperor (Bao 1986). From this data one can estimate that the population of Jinling only doubled during the 160 years of the Yuan dynasty. Obviously this population change was not significant enough for a dialect replacement.

The end of Northern Song or the beginning of Southern Song is the most possible choice. According to a historical record, Kins occupied Jinling in 1129. When they left the next year, almost all the buildings burned down and less than one-tenth of local residents remained (Jiangning Fuzhi, see Bao 1986). After that, most of the new immigrations to Jinling came from the Central Plains area due to the non-Han's control of north China (Bao 1986). Having undergone the biggest population change during the period from the Eastern Jin to Yuan, the local Jinling dialect had been replaced by Mandarin by the twelfth century, which I call Old Southern Mandarin.

The earliest linguistic data about OSM is the Hongwu Zhengyun (1375). However, it by no means represents the earliest state of OSM as I have argued before. Initials in the Hongwu Zhengyun (HZ thereafter) are listed in Table 15 and finals of HZ are in Table 16.

Table 15. Initials of HZ (see Chou 1989: 147)

p	p'	(b)	m	f	v
t	t'	(d)	n	l	
k	k'	(g)	(ŋ)		
ts	ts'	(dz)		s	(z)
tṣ	tṣ'	(dẓ)		ṣ	(ẓ)
	x	(ɣ)	(q)	ø	
	r				

(The initials in parenthesis indicate that they were voiced and thus exceptional in HZ.)

Table 16. Finals of HZ (see Chou 1989: 207)

ɿ,ɭ	yi	wi	ywi
	ye		ywe
a	ya	wa	
o		wo	
iw	yiw		
	yew		
ow	yow		
	yiy	wiy	
ay	yay	way	
in	yin	win	ywin
	yen		ywen
an	yan	wan	
on		won	
im	yim		
	yem		

Table 16 (continued)

am	yam		
		wiŋ	ywiŋ
eŋ	yeŋ	weŋ	yweŋ
oŋ	yoŋ	woŋ	
it	yit	wit	ywit
	yet		ywet
at	yat	wat	
ot		wot	
ip	yip		
	yep		
ap	yap		
		wik	ywik
ek	yek	wek	ywek
ok	yok	wok	

Entering tone syllables in HZ were arranged in a traditional way, that is, these syllables were listed with the *yangsheng* rhymes. In order to match the consonant endings of those rhymes, three stop endings /p, t, k/ had to be assigned to entering tone syllables. However, the following reasons convince me that native speakers of Nanjing in Ming did not have the stop endings for entering tone words. First, as I argued earlier, the replacement of the local Jinling dialect by Mandarin happened in the twelfth century. At that time, the previous stop endings were lost. OSM might not have preserved the previous stop endings for entering tone syllables.

Secondly, Song Lian, chief editor of HZ, said in the preface of the book that they judged pronunciations by the criteria of the standard language called 'Central Plains standard reading' (*Zhongyuan yayin* 中原雅音) in order to avoid dialectal influence. By this statement, the so-called 'Central Plains standard

reading' implied in HZ should be interpreted as a reading style that educated people in Central Plains area preferred. I mentioned earlier that in the Bian-Luo area the previous stop ending started to disappear at the eleventh century. By the fourteenth century, the common Nanjing people had no way to know which kind of syllables ended with /k/ and which one ended with /t/.

The third reason for my assumption is the late development of the Nanjing dialect. Hu Yuan (1801-1880), a native speaker of Nanjing, recorded the Nanjing dialect in his rhyme tables, the Gujin Zhongwai Yinyun Tongli. In that book, all entering tone syllables were grouped with non-entering tone syllables by the similarity of the main vowels instead of endings (Bao 1986). Hu's arrangement shows that the contrast among the former /p, t, k/ endings had disappeared in the earlier years of nineteenth century. If the Nanjing dialect in the Ming dynasty had preserved the stop endings /p, t, k/, then these endings would have disappeared after the late Ming or during Qing. However, during that span, history tells us that no great number of northern immigrants moved into Nanjing. By regular sound changes, the Nanjing dialect would not merge all stop endings into one glottal stop during that period. Therefore, the merger of three stop endings in OSM must not have occurred later than the HZ time.

3.3.3. Old Northern Mandarin: the Dadu dialect of Yuan

More than forty years before HZ, an important rhyme book in the history of Mandarin was published, the Zhongyuan Yinyun (ZY thereafter). It was compiled by Zhou Deqing in 1324. It met the requirement for a reference book for versification in its own time when a new form of poetic literature suddenly rose into prominence. This new form of poetry is known as *Yuanqu* and probably was based upon the language then spoken in Dadu (Beijing), capital

of the Yuan dynasty. I shall call the Dadu dialect Old Northern Mandarin.

The language underlying in ZY can be considered as a representative of ONM. Initials of ZY are listed in Table 17, and finals are listed in Table 18.

Table 17. Initials of ZY (see Hsueh 1975: 50)

p	ph	f	m	v
t	th		n	l
c	ch	s		
cr	crh	sr		r
ts	ts'	s		
k	kh	h	ŋ	ø

Table 18. Finals of ZY (see Hsueh 1975: 76-7)

i		wi	ywi
	ye		ywe
a	ya	wa	
o		wo	ywo*
iw	yiw	wiw	
ow	yow	wow**	
iy*	yiy	wiy	
ay	yay	way	
in	yin	win	ywin
	yen		ywen
an	yan	wan	
		won	
im	yim		
	yem		
am	yam		

Table 18 (continued)

		wiŋ	ywiŋ***
eŋ	yeŋ	weŋ	yweŋ
aŋ	yaŋ	waŋ	

* These two finals were derived from entering tone syllables.

** According to Hsueh's late study (1986: 105), the *xiao-hao* rhyme should share one vowel.

*** According to his late study (Hsueh 1986: 105), the *dong-zhong* rhyme should have a high vowel.

The previous entering tone syllables were grouped with non-entering tone syllables in ZY. As a tonal category, in general, the entering tone must have disappeared in that dialect. However, since some entering tone words have more than one reading in ZY, Hsueh (1975) proposed two tiers for these dual-reading words: a spoken tier and a literary tier. The spoken tier indicates a local reading of the Dadu dialect, the literary tier indicates a borrowed form. The primary difference between these two kinds of syllables was the presence or absence of a syllable ending: the spoken tier with the ending /y/ or /w/, but the literary tier without any ending.

CHAPTER IV

SHUYANG DIALECT: ITS LINGUISTIC AFFILIATION AND DEVELOPMENT (PART I)

4.1. The historical background of the Shuyang dialect

Before the evolution of the Shuyang dialect is discussed, the historical background of Jianghuai Mandarin needs to be examined. The earliest of Jianghuai Mandarin can be found in HZ. For instance, entering tone syllables in HZ ended with a glottal stop (see 3.3.2), while most of modern Jianghuai dialects still have the glottal stop. The triple divisions of the *shan-she* finals in HZ maintained in Jianghuai Mandarin while in the modern dialects of northern Mandarin all rhymes of the *shan-she* merged into one rhyme (Bao 1991). Therefore, the sound system of HZ can be considered as an earlier form of Jianghuai Mandarin.

Besides HZ, two other Jianghuai dialects had their earlier forms recorded in historical documents. One is the old Haizhou dialect in the Lishi Yinjian (hereafter LY) written by Li Ruzhen (1763-1830). It is believed to reflect the old Haizhou (Lianyungang) dialect in the later eighteenth century. The other is the old Nanjing dialect in the Gujin Zhongwai Yinyun Tongli (hereafter GZ) written by Hu Yuan (1810-1880). These two old Jianghuai dialects will give us some information on the Jianghuai Mandarin in the eighteenth century.

4.1.1. The Haizhou dialect in the Lishi Yinjian

It was shown in 2.8.3 that the Shuyang dialect is phonologically close to the Haizhou dialect. Haizhou is now an administrative division of the Lianyungang city. Old Haizhou was an important town in northeastern Jiangsu, and its administrative region consisted of Donghai, Ganyu, Guanyun and Shuyang counties until the People's Republic period. It is certain that the Haizhou dialect played an important role in the evolution of the Shuyang dialect.

Li Ruzhen's LY (1805) is the earliest record of the Haizhou dialect. According to Yang Yiming's study, the author lived in the suburb of Beiping (Beijing) until he was twenty (Yang 1992: 6). Then he followed his brother and moved to Haizhou. In LY the author tried to systematically compare the northern dialect with the southern dialect to show that 'there are many different dialects'. Yang (1992: 37-57) claimed that the so-called *beijing* 北音 'northern dialect' in LY was Beiping Mandarin, and the so-called *nanjing* 南音 'southern dialect' in LY was probably the Haizhou dialect.

The initials of the old Haizhou dialect in LY have the following features.[1]

(1) [l] and [n] are not in contrast;

(2) Only one set of initials /tʂ, tʂ', ʂ/ are present for the ancient *zhi, jing* and *zhuang/zhang* series;

(3) There exist the so-called *jianyin* (the dental sibilants of the *jing* series which precede the palatal medial) and *tuanyin* (the gutturals of the *jian/xiao* series which precede the palatal medial).

[1] All the data about the Lishi Yinjian are from Yang (1992).

Modern Haizhou dialect has the first two of the above features,[2] but not the third one.

The finals in the old Haizhou dialect in LY have the following features.

(1) The ending in the *zhen-she* words and the *shen-she* words is the velar nasal ending /ŋ/;

(2) Words of the Div. I from the *shan-she* with the *hekou* feature are still distinct from those of the Div. II, for instance, *guan* 官 (DT kwɔn) is /kõ/, and *guan* 关(DT kwan) is /kwæ̃/;

(3) Words of the Div. I from the *guo-she* with the *hekou* feature are no longer distinct from those with the *kaikou* feature, for instance, *guo* 锅 (DT kwɔ) is /ko/, and *ge* 哥 (DT kɔ) is /ko/.

The finals of modern Haizhou dialect preserves all these features.

4.1.2. The Nanjing dialect in the Gujin Zhongwai Yinyun Tongshi

In the area of Jianghuai Mandarin, the Nanjing dialect and the Yangzhou dialect are two main representative dialects. I choose the old Nanjing dialect underlying in Hu Yuan's GZ (1866) as one of the stages in the evolution of Jianghuai Mandarin to decide the relative chronology of sound changes which occurred from OSM to modern Jianghuai Mandarin. There are two reasons for this choice. First, Hu's GZ is the first systematic recording of the Nanjing dialect after HZ. Second, the old Nanjing dialect in GZ had a very close relation to other Jianghuai dialects at that time. According to Bao's report, after the Ming dynasty, the largest population change in the Nanjing area happened in 1852 when the Qing army crashed down the Taiping rebellion headquartered in Nanjing. In the

[2] Yang's (1992) report on the Haizhou dialect used /ts/ for ancient *zhi/zhuang/zhang* series, while Su (1990) used /tʂ/ for them. They are not in phonological contrast in that dialect.

Tongzhi era of Qing (1862-1874), up to seventy percent of the people in Nanjing came from Anhui and Hubei provinces. Besides, many immigrants arrived from northern Jiangsu. These records suggest that most of the new immigrants in Nanjing after the Taiping rebellion came from other Jianghuai dialect areas.

More importantly, under some initials and many finals, Hu described how Nanjingnese pronounced these sounds at that time and compared them with the neighboring dialects (Bao 1986). His description can even inform us the phonetic value of some finals. Initials and finals of GZ are listed in tables 19 and 20 respectively.[3]

Table 19. Initials of GZ (see Bao 1986)

k	k'	x	ø
t	t'	l	(z)
ʈʂ	ʈʂ'	ʂ	ʐ
ts	ts'	s	(j)
p	p'	m	(w)
f	(v)		

Table 20. Finals of GZ (see Bao 1986)

ɿ,ɻ	i	u	ü
əi		uəi	
əu	iəu		
e	ie		
ɛ	iɛ	uɛ	
o			
ɐ	iɐ	uɐ	
au	iau		

[3] The elements in parentheses are questionable according to Bao (1986).

Table 20 (continued)

ən*	iən	uən	üən
	iẽ		üẽ
õ		uõ	
an	ian	uan	
oŋ	ioŋ		
(aŋ)	(iaŋ)	(uaŋ)	

*The dental nasal ending /n/ is not in contrast with the velar nasal ending when the nucleus is schwa.

There are five tones in GZ: *yinping, yangying, shang, qu,* and *ru.*

From the above lists, as well as Hu's descriptions about the old Nanjing dialect, two interesting observations can be made (Bao 1986). First, the Proto-Mandarin /n/ initial is no longer distinctive from its /l/ initial, while the *ri* initial is still different as /ʐ/. Second, since the initial series *zhang/zhi* are different from the series *zhuang/jing*, the Nanjing dialect in GZ has the /ts, ts', s/ series and the /tʂ, tʂ', ʂ/ series.

According to Hu's description of the Yangzhou dialect and the Nanjing dialect in GZ, another important observation on entering tone syllables can be obtained. Hu Yuan considered that entering tone rhymes could be grouped differently in different dialects. What he said about entering tone rhymes is translated like this:[4]

> In the Yangzhou dialect, *wu* 勿 (DT mywɨt) can be grouped with *wen* 温 (DT qwɨn), *wen* 文 (DT mywɨn), *wen* 吻 (DT mywɨn), and *wen* 问 (DT mywɨn). In the Jinling dialect, such a grouping cannot occur. *Wu* 勿 (DT mywɨt) must be an entering tone correspondent of *wu* 乌 (DT qwɨ).

[4] The original sentences were quoted in Bao 1986.

The words *wen* 温 (DT qwɨn), etc., are pronounced as /uəŋ/ in both modern Yangzhou dialect and modern Nanjing dialect.[5] However, according to Hu's description,[6] the pronunciation of these words in the old Nanjing dialect must be different from their pronunciation in old Yangzhou dialect during the eighteenth century. In old Yangzhou dialect *wen* 温 (DT qwɨn) had [õ] as final, in old Nanjing dialect *wen* 温 (DT qwɨn) had [uəŋ] as final. With this observation, one assumption can be made. Entering tone syllables in both the old Yangzhou dialect and the old Nanjing dialect had already lost the previous stop endings in the eighteenth century, they were grouped with the *yinsheng* rhymes.

Besides the pair *wu* 勿 (DT mywɨt) and *wu* 乌 (DT qwɨ), Hu listed twenty-one more pairs in GZ to illustrate the grouping between entering tone words and non-entering tone words. Among these twenty-one pairs, only one pair has *yangsheng* rhyme words. Here is the pair.

yue 月 (DT ŋywat) versus *yuan* 渊 (DT qwen),
yuan 元 (DT ŋywan),
yuan 远 (DT øywan),
yuan 愿 (DT ŋywan)

In GZ, these *yangsheng* rhyem words have [üẽ] as final (Bao 1986). The nasalized vowel must sound like a *yinsheng* rhyme final in the old Nanjing dialect.

[5] In Jiangsu's (1960) report these words are /uəŋ/. However, this velar nasal ending is not in contrast with the dental nasal ending in both the Yangzhou dialect and the Nanjing dialect. These two nasal endings were not in contrast in the old Nanjing dialect in GZ either, when the nucleus is /ə/ (Bao 1986).

[6] Hu's original word for 'grouping' is *zhixia* 直下, literally meaning 'straight down'.

4.2. Evolution of Shuyang initials

Before the discussion of particular sound changes in the evolution of Shuyang initials, three general sound changes in Mandarin initials need to be mentioned.

(1) Devoicing

The voiced stops and fricatives in Table 7 changed to their voiceless counterparts if the syllable had the previous *ping* tone. Otherwise, they lost the voicing feature (Hsueh 1975: 37).

(2) Labial-dentalization

Bilabial initials /p, ph, pfi/ became /f/ and the nasal labial initial /m/ (with an exception of the Div. III of the *tong-she*) became /v/ if these labial initials proceeded a compound medial /yw-/. The palatal medial then was lost (Hsueh 1975: 39).

(3) Merger of *zhi/zhuang/zhang* series

The *zhi/zhuang/zhang* series merged into one retroflex series by two sound change rules (Hsueh 1975: 43):

j > r

t > c / __ r

4.2.1. Retroflex and dental sibilants

There are both retroflex and dental sibilants in modern Shuyang dialect (Table 2), though most of Jianghuai dialects have only one set. We may wonder how it happened.

Retroflexes in modern Mandarin dialects were derived from the *zhi/zhuang/zhang* series of the Dengyun tables (Wang 1958: 115-20), and dental sibilants were derived from the *jing* series. However, most of the

Jianghuai dialects have only dental sibilants (Jiangsu 1960: Table 5). This means that after the *zhi/zhuang/zhang* series merged into one retroflex /cr/ set, this retroflex series lost the retroflex feature and merged into the dental sibilant series /c/.[7] The latter merger can be written as below:

$$r > \emptyset / \left\{ \begin{matrix} s \\ c \end{matrix} \right\} \_\_$$

The Shuyang dialect did not undergo the merger of the retroflexes and dental sibilants, therefore, it has these initials. We may wonder why the Shuyang dialect has this special feature among Jianghuai dialects. The study of Shuyang's history and its location might provide some explanation.

According to Tang Zhongmian's Haizhou Zhilizhou Zhi (1811), the area of Shuyang first had its name meaning the north side of Shu River during the Eastern Wei (534-550). Before that time it was called Houqiu which belonged to an administrative district with Tancheng (now Tancheng county, Shandong province) as its capital. After the Sui dynasty (581-618), Shuyang belonged to an administrative district called Haizhou (now Lianyungang city, Jiangsu province). From this data we know that before the Proto-Mandarin, the dialect in Shuyang might have the same accent as Shandong people. During the Sui-Tang period, the dialect in Shuyang became a Jianghuai Mandarin. I believe that the distinction between retroflexes and dental sibilants in the Shuyang dialect indicates this dialect has an ancient relation with the northern dialect.

Shuyang is geographically close to an area where Central Mandarin is spoken. In Map 2 we can find that Suqian county and Xinyi county are located in its west and northwest side where retroflexes and dental sibilants are in

[7] The Haizhou dialect has only the retroflexes. I believe that when most of the Jianghuai dialects underwent the de-retroflexion, the Haizhou dialect obtained a retroflex feature. The merger of the retroflex series and the dental sibilant series is writtern as this:

$$\emptyset > r / \left\{ \begin{matrix} s \\ c \end{matrix} \right\} \_\_$$

contrast. This particular location was helpful for the Shuyang dialect to maintain the distinction between retroflexes and dental sibilants.

4.2.2. Palatals

Palatal initials [ʨ, ʨ', ɕ] in Shuyang occur in words which belong to the Div. II, III or IV of the *jian/xiao* initials, or the Div. III or IV of the *jing, zhi*, or *zhang* series of the Dengyun tables. Here are some examples.

jia 家	Div. II DT ka SY [ʨia]
jie 姐	Div. III DT cya SY [ʨie⊥]
xi 西	Div. IV DT sey SY [ɕi]
che 车	Div. III DT cjɦya SY [ʨ'ie⊥]
zhan 占	Div. III DT cjyam SY [ʨiɛ̃⊥]
zhan 展	Div. III DT tjyan SY [ʨiɛ̃⊥]
zhe 哲	Div. III DT tjyat SY [ʨiə]
zhe 舌	Div. III DT cjɦyat SY [ɕiə]

Their origins in the Dengyun tables are illustrated in Table 21.

Table 21. The origins of Shuyang palatals in the Dengyun tables

jian/xiao	*jing*	*zhi*	*zhang*
Div. II			
Div. III	Div. III	Div. III	Div. III
Div. IV	Div. IV		

The Div. II under the *jian/xiao* series in Table 21 commands attention. It is known as an insertion of medial /y/ in the Div. II syllables with the *kaikou* feature under gutturals. This sound change can be formulated into a rule according to

Hsueh's phonemicization of the Dengyun system (Hsueh 1982, 1985, 1992).

$$\text{ø} > \text{y} / \text{G}\_\_ \text{a}$$

With this consideration, a hypothesis can be posed that the palatalization of initials in Shuyang occurred in syllables with a palatal medial.[8]

From Table 21 we may also propose that the palatalization of initials in Shuyang consists of two sound changes: the retroflex initials /cr/ changed to /c/ first, and later /c/ changed to /k/.[9] Since the first sound change only occurs in the words of Div. III from the *jia-she* and the *shan-xian-she* with the *kaikou* feature (see Appendixes C and J),[10] this sound change is conditioned by the syllable nucleus. I here present a tentative formula because I have not discussed what the vowel(s) of the *jia-she* and *shan-xian-she* was (see 4.4.2, 4.4.8).

$$\text{r} > \text{ø} / \left\{\begin{matrix}\text{s}\\ \text{c}\end{matrix}\right\}\_\_ \text{y V} \begin{pmatrix}\text{n}\\ \text{m}\end{pmatrix}$$

('V' represents the vowel(s) of the *jia-she* and the *shan-xian-she*.)

The second sound change of the initial palatalization in Shuyang can be presented as below.[11]

$$\text{c} > \text{k} / \_\_ \text{y}$$

This sound change represents the merger of the so-called *jianyin* (the dental sibilants of the *jing* series which precede the palatal medial) and *tuanyin* (the gutturals of the *jian/xiao* series which precede the palatal medial). During the eighteenth century, the merger of the *jianyin* and *tuanyin* probably did not occur

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[8] Recall that Div. III syllables were those having a palatal medial /y/ in the Dengyun tables. Before the Div. III and the Div. IV merged, the Div. IV must have generated a palatal medial (see Hsueh 1975: 56).

[9] Otherwise, the retroflex /cr/ has to change directly to /k/. This change has no rational phonetic interpretation.

[10] The same is also found in modern Haizhou dialect (Yang 1992: 53-4). However, Li Ruzhen did not record this sound change in LY (see Yang 1992: 87). He seemed to ignore this special feature of the Haizhou dialect.

[11] This rule implies a relative sound change $\text{s} > \text{x} / \_\_ \text{y}$.

in the Shuyang dialect since it did not occur in the old Haizhou dialect in LY (Yang 1992: 52). It did not occur in the old Nanjing dialect either (Bao 1986). This sound change was completed in the nineteenth century.

4.2.3. The *lai* initial and the *ni* initial

The syllables with the *ni* initial and those with the *lai* initial coalesced in the Shuyang dialect as well as in most Jianghuai dialects (Jiangsu 1960). The coalescence of the two initials is a special feature of Jianghuai Mandarin, which can be written as below:

n > l

Since this coalescence did not occur in HZ but did occurred in the old Haizhou dialect in LY and the old Nanjing dialect in GZ (Yang 1992, Bao 1986), I believe that this sound change happened in the later Ming or the earlier Qing. When all the so-called *quanzhuo* 'muddy' initials devoiced in old Mandarin dialects, these two *cizhuo* 'secondarily muddy' initials had been affected and they coalesced in Jianghuai Mandarin.

4.3. Tonal development of the Shuyang dialect

Four tones of the Proto-Mandarin become five tones in modern Shuyang dialect. In the evolution of northern Mandarin, there were two tonal changes[12] and one tonal elimination (Wang 1958: 193-8). Since the loss of the entering tone did not occur in the Shuyang dialect, the only tonal changes are two tonal changes. These changes are conditioned by voiced initials. The first change occurred in the ancient *shang* tone where words with voiced (*quanzhuo*) initials changed and joined those of the *qu* tone, but those with the *cizhuo* initials did

[12] Words with voiced initials in the *shang* tone became the *qu* tone, the *ping* tone words slip into two groups, the *yinping* tone and the *yangping* tone.

not. Here are some examples in the Shuyang dialect.

*bu*簿 DT pɦiwɨ *shang* tone = *bu*步 DT pɦiwɨ *qu* tone
*dao*稻 DT tɦɔw *shang* tone = *dao*盗 DT tɦɔw *qu* tone
*ma*马 DT ma *shang* tone ≠ *ma*骂 DT ma *qu* tone
*lu*鲁 DT lwɨ *shang* tone ≠ *lu*路 DT lwɨ *qu* tone

The second change occurred in the ancient *ping* tone where words with voiced or sonorant (*cizhuo*) initials changed and formed a new tone, the *yangping* tone. The remaining ancient *ping* tone words are said to have the *yinping* tone. Here are some examples from the Shuyang dialect.

*tong*同 DT tɦwɨŋ *ping* tone SY *yangping* tone
≠ *tong*通 DT thwɨŋ *ping* tone SY *yinping* tone

*po*婆 DT pɦwɔ *ping* tone SY *yangping* tone
≠ *po*坡 DT phwɔ *ping* tone SY *yinping* tone

*mo*模 DT mwɨ *ping* tone > SY *yangping* tone

4.4. Evolution of Shuyang's non-entering tone finals

For the examination of the historical development of Shuyang finals, I will use OSM and ONM as two main parameters because these two old dialects were sufficiently recorded. According to the working assumptions (2) and (3) I proposed in Chapter I, when a group of Shuyang words have the same final as those of HZ or ZY, the sound changes which were reflected in HZ or ZY will also be regarded as occurring in the evolution of the Shuyang dialect. When Shuyang words have a different final from those of HZ or ZY, a different sound change rule will be argued. In the following discussion, more attention will be paid to the latter case.

My discussion will follow the rhyme order which was used in the Fangyan Diaocha Zibiao (Zhongguo 1955). That order starts with the *guo-she* words and ends with the *tong-she* words.

4.4.1. *Guo-she*

Words from the *guo-she* are all listed in the *po-suo* rhyme (Appendix D) which has a mid vowel [o] as the final. In ONM, the Div. I words of the *guo-she* had /ɔ/, and the Div. III had /e/ (Hsueh 1975: 60-1). The same distribution was found in OSM. Besides, I find a disappearance of the *kaikou* versus *hekou* contrast in both OSM and ONM. For example, *luo* 罗 (DT lɔ) was grouped with *luo* 螺 (DT lwɔ), and *suo* 娑 (DT sɔ) was grouped with *suo* 莎 (DT swɔ). But, *tuo* 驼 (DT tʰɔ) had the same final as *duo* 惰 (DT tʰwɔ) in ONM (see Hsueh 1975: 61), while they did not share the same final in OSM (see Chou 1989: 232-3). This indicates that the contrast between the *kaikou* and *hekou* in the *guo-she* words started to disappear during the fourteenth century in both OSM and ONM. I can say that this sound change affected more syllables in ONM than it did in OSM. However, in modern Nanjing dialect, all the *guo-she* words lost the contrast between the *kaikou* versus *hekou* (see Jiangsu 1960). In modern Shuyang dialect, all the *guo-she* words underlyingly have a labial medial. The sound changes of the *guo-she* words in the Shuyang dialect must be like this. First, the *kaikou* words became the *hekou* by the fourteenth century. It means that they all had a labial medial in their underlying forms. When the low back vowel /ɔ/ was no longer in contrast with the low central vowel /a/ in this dialect (to be discussed in 4.4.8), the vowel of the *guo-she* raised to /ə/. The vowel raising in the *guo-she* words is formulated below.

ɔ > ə / __ #

After this sound change words of the *guo-she* in Shuyang can only have either /wə/ or /ywə/ as their final, shown in Table 22.

Table 22. Finals of the *guo-she* in Shuyang

	Po-suo rhyme	
	division	division
	I	III
kaikou	wə	
hekou	wə	ywə

4.4.2. *Jia-she*

Words of the *jia-she* appear in two Shuyang rhymes. Div. II words are in the *ma-sha* rhyme (Appendix G), while Div. III words are in the *zhe-ye* rhyme (Appendix C). It is quite clear that the vowel of the Div. II of the *jia-she* did not change, but a sound change did alter the vowel of the words in the Div. III of the *jia-she*.

The vowel of Div. III words of the *jia-she* was /a/ in the Dengyun tables, and it changed to the low front vowel /e/ in ONM and OSM, shown in a vowel change rule (Hsueh 1975: 61, Chou 1989: 26).

(1) a > e / y __

Since the vowel of the *zhe-ye* rhyme in modern Shuyang dialect is the schwa /ə/, the vowel /e/ of the *jia-she* later was raised to /ə/ in Shuyang. A vowel raising must have happened in these *jia-she* words.

In the evolution of Northern Mandarin, there was a sound change which raised vowel /ɔ/ and /e/ to mid if they did not have ending, shown below (see Hsueh 1986: 103).

(2) $\{^{ɔ}_{e}\} > ə \; / \_\_ \#$

Due to a de-retroflexion of certain retroflex initial words in the *jia-she*, I believe that the vowel raising in the Div. III of the *jia-she* words in Shuyang occurred earlier than the vowel change reflected in the rule above. I will discuss this further in 4.4.8.

In my discussion about the palatalization of the initials /cr/ in 4.2.2, I said that the vowel of the *jia-she* was one of the conditions for the first sound change of that palatalization. A logical assumption is that medial /y/ in those Div. III words caused the vowel to move the front. In the condition of the front vowel with a palatal medial, the retroflex feature was lost. I believe that in relative chronology, the vowel change occurred prior to the de-retroflexion.

The same de-retroflexion will also be found in the *shan-xian-she* words in Shuyang (see 4.4.8). Recall the de-retroflexion rule in 4.2.1 which was proposed for most of Jianghuai dialects but not for the Shuyang dialect. The Shuyang dialect has its own de-retroflexion sound change. In the *jia-she* words, it can be represented as below.

(3) $r > ø \; / \{^{s}_{c}\} \_\_ \; y \; e \; \#$

Re 惹 (DT ʏa) with the *ri* initial lost its initial in this vowel raising change. I believe that this elimination of the *ri* initial has some relation with the de-retroflexion. Before the de-retroflexion occurred, words like *re* 惹 (DT ʏa) simply lost /r/ initial. The following formula illustrates this process.

(4) r > ø /# __ y e #

The relative chronology of the sound changes involving in the *zhe-ye* rhyme is as below:

Vowel change a > e / y __ #

/r-/ elimination r > ø /# __ y e #

de-retroflexion $r > ø / \left\{ \begin{matrix} s \\ c \end{matrix} \right\}$ __ y e #

vowel raising e > ə / y __ #

After these changes the finals of the *jia-she* words became */a/*, */wa/* and */yə/*.

Table 23. Finals of the *jia-she* in Shuyang

	Ma-sha rhyme	*Zhe-ye* rhyme
	division	division
	II	III
kaikou	a	yə
hekou	wa	

4.4.3. *Yu-she*

Most of the words of the *yu-she* are listed in the *pu-su* rhyme in Shuyang (Appendix B). They have the vowels [u] or [ü] in modern Shuyang dialect. Those Div. I words with nasal initials (the *ming* and *ni* initials), such as *mu* 墓 (DT mwɨ SY [mo]), *nu* 奴 (DT nwɨ SY [lo]), *nu* 努 (DT nwɨ SY [lo]), are listed in the *po-suo* rhyme (Appendix D) which has the vowel [o].

The Div. I words of the *yu-she* had */wɨ/* as final, and the Div. III had */ywɨ/* as final in the Dengyun tables. The Div. III words with the */cr/* initials do not have the

medial /y/ in the modern dialect, a palatal medial deletion is hence proposed. However, this medial deletion in *zhi/zhuang/zhang* series is not accomplished at one stroke. In both ONM and OSM, the palatal medial was already lost in words with the *zhuang* initials, but it remained in those with the *zhi* and *zhang* initials[13] (Hsueh 1975: 42, Chou 1989: 197-200). Later, the palatal medial was also lost after the *zhi* and *zhang* series. Therefore, the process of the palatal medial deletion after retroflex initials in Shuyang is one sound change which was applied twice. This sound change is written as below.

(1) y > ø / cr__

/cr/ (including /sr/) has have two different representations. When the rule was first applied, /cr/ represents the *zhuang* series only. When the rule was applied later, /cr/ stands for the coalescence of the *zhang/zhi* initials. Since the Div. III words of the *yu-she* with the *ri* initial also lost the medial in Shuyang, the sound change in the latter case should include the *ri* initial.

Note that the words from the *yu-she* which appear in the *po-suo* rhyme (Appendix D) are all with nasal initials and have the final /wə/ in the modern dialect, such as *mo* 模 (DT mwɨ SY mwə [mo]), *mu* 墓 (DT mwɨ SY mwə [mo]), *nu* 奴 (DT nwɨ SY lwə [lo]), and *nu* 努 (DT nwɨ SY lwə [lo]). A vowel lowering occurred in these words.[14] Since this lowering happened only in the words with nasal initials, not in those with the lateral initial, it must occur before the coalescence of the *ni* and *lai* initials.

After these changes, finals of the *yu-she* words became /wɨ/ or /ywɨ/ with some exceptions.

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[13] The words from the *zhi-she* with the *zhang* initial are exceptional because they lost the palatal medial. For detailed discussion of the medial deletion in ZY, see Hsueh 1975: 41-3, 1980a.

[14] *nu* 怒 (DT nwɨ SY nwɨ) is an exception.

Table 24. Finals of the *yu-she* in Shuyang

	Pu-su rhyme	
	division	division
	I	III
hekou	ɯi*	yɯi**

* Finals after nasal initials changed to /ɯə/ (in the *po-suo* rhyme).

** Finals after retroflex initials become /ɯi/.

4.4.4. *Xie-she*

Words of the *xie-she* are distributed among three rhymes in the Shuyang dialect. I will examine them separately.

Div. I and II words of the *xie-she* with the *kaikou* feature are listed in the *pai-huai* rhyme (Appendix F). The vowels of these two types of syllables merged into /a/ in the three old Mandarin dialects (Zhou 1943, Hsueh 1975: 66). In the evolution of Beijing Mandarin, these syllables still retained ending /y/ at the beginning of the eighteenth century. Later, a loss of the ending occurred in the Div. II syllables with guttural initials due to a dissimilation of the medial /y/, and the vowel of this type of syllable was raised from low to mid (Wang 1958: 153).

Sound changes of the *xie-she* words in Shuyang are different. Since the Div. I and II words of the *xie-she* with the *kaikou* feature in modern Shuyang dialect share a low vowel without ending, such as *dai* 呆 (DT tɔy SY tæ), *jie* 街 (DT kay SY kyæ), a loss of the ending should have affected the Div. I and II words, but the vowel raising did not occur. By the eighteenth century, all these Div. I and II words, together with the *hekou* Div. II words such as *guai* 怪 (DT kway SY kwæ) had lost their ending /y/ in Shuyang. The ending deletion in the

xie-she words can be represented as below.

(1) y > ø / a __ #

Before the loss of ending, the vowel */a/* became to the front vowel in the condition of ending */y/* due to a change of the vowel system in Shuyang (see 4.4.8). This front low vowel corresponds to the vowel */æ/* in modern Shuyang dialect.

Div. II words with guttural initials obtained a palatal */y/* (4.2.2). Hsueh (1992) proposed that this sound change first started in Northern Mandarin, later it influenced Central Mandarin as well as Southern Mandarin. For example, *jie* 街 (DT kay SY kyæ) and *xie* 鞋 (DT xfiay SY xyæ) obtained a palatal medial in modern Shuyang dialect. However, the colloquial readings of these two words in many Jianghuai dialects are not pronounced with a palatal medial. See the following list (Jiangsu 1960: 155-158).

	街 (DT kay SY kyæ)	鞋 (DT xfiay SY xyæ)
Yangzhou	kɛ	xɛ
Gaoyou	kɛ	xɛ
Yancheng	kɛ	xɛ
Huaiyin	kɛ	xɛ
Taizhou	kɛ	xɛ
Rugao	kɛ	xɛ
Haizhou	tɕiæ	ɕiɛ

It is clear that the influence of the palatal medial insertion in the Div. II syllables with gutturals reached the north edge of Jianghuai Mandarin in Jiangsu province, therefore, these two words obtained a palatal medial in the Shuyang dialect and the Haizhou dialect. The dialects which are south of Shuyang,

however, do not have the palatal medial for these two words.[15] This is clear evidence to indicate that the influence of the palatal medial insertion did not reach the southern part of Jianghuai Mandarin.

The Div. III and IV words of the *xie-she* with the *kaikou* feature, such as *di* 低(DT tey SY tyɨ), appear in the *zhi-xi* rhyme in Shuyang (Appendix A). In Shuyang as well as all three old Mandarin dialects, all have the nucleus /ɨ/. Based on this observation, one can see that after the merger of the Div. III and IV (rule [1] in 4.4.2), these *xie-she* words raised their vowel from /e/ to /ɨ/ and lost the ending /y/ (see 4.4.5). I will discuss soon this observation.

The Div. III and IV words of the *xie-she* with the *hekou* feature, such as *cui* 脆 (DT chyway SY c'əy), *sui* 岁 (DT syway SY səy), *shui* 税 (DT sjyway SY srwəy), appear in the Shuyang *pei-hui* rhyme (Appendix H) which has the mid vowel /ə/ in modern Shuyang dialect. After the merger of the Div. III and IV words, these *hekou* words must have raised their vowel from /e/ to /ɨ/ as their *kaikou* counterparts. Later, this high vowel was lowered to mid in the *hekou* syllables. These two sound changes can be represented as below:

(2) e > ɨ / __ y

(3) ɨ > ə / w __ y

One finds that Div. III words of the *xie-she* with the *hekou* feature lost medial /y/ in Shuyang as well as in ONM and OSM (Hsueh 1975: 70, Chou 1989: 196). This phenomenon indicates that the loss of medial /y/ occurred earlier than the fourteenth century. Without counterevidence, I would say that it occurred after the vowel raising in the *xie-she* just as in ONM (see Hsueh 1975: 70)

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[15] Recall I mentioned that the word *jie* 街 in the Lianshui dialect is pronounced without the medial (2.1).

Moreover, medial */w/* was lost in the *xie-she* words with the *duan, jing* series and *lai/ni* initial in Shuyang (This change also occurred in the *zhi-she* words [4.4.5] and the *zhen-she* words of Shuyang [4.4.9]), such as *cui* 脆 (DT chyway SY c'əy) and *sui* 岁 (DT syway SY səy). These initials share a common feature [+coronal], the loss of medial */w/* in the *xie-she* words can thus be written as below:

(4) w > ø / C [+coronal] __ ə y

Since the loss of medial */w/* was not found in OSM and ONM and it did not occur in the *xie-she* words with retroflex or guttural initials in Shuyang, this loss must have occurred later than the vowel lowering represented by rule (3) above.

The Div. I words of the *xie-she* with the *hekou* feature such as *dui* 堆 (DT twɔy SY təy) and *lei* 雷 (DT lwɔy SY ləy) are homophonous with their Div. III correspondents, but they are different from their Div. II correspondents such as *guai* 怪 (DT kway SY kwæ), *kuai* 筷 (DT k'way SY k'wæ), *wa* 蛙 (DT qway SY wæ) in Appendix F, and *gua* 挂 (DT kway SY kwɑ) in Appendix G. These Div. I words must have merged with their Div. III/IV correspondents first, later they underwent the vowel raising (rule [2]) and the vowel lowering (rule [3]).

The Div. II words with the *hekou* feature in Appendix G such as *gua* 挂 (DT kway SY kwɑ), *hua* 画 (DT xfiway SY xwɑ) and *hua* 话 (DT xfiway SY xwɑ) are exceptional because they did not change their vowel. These exceptional words might be an influence of Northern or Central Mandarin.

Sound changes in the *xie-she* can be ordered by their relative chronology like this.

ɔ > a / [ø medial] __ y	(merger of Div. I and II with the *kaikou* feature)
a > e / y __	(merger of Div. III and IV)
ɔ > e / w __ y	(merger of Div. I into Div. III/IV with the *hekou* feature)
e > ɨ / __ y	(vowel raising)
y > ø / __ w ɨ y	(medial deletion)
ɨ > ə / w __ y	(vowel lowering in the *hekou* words)
w > ø / C [+coronal] __ ə y	(medial deletion)
a > æ / __ y	(vowel system change)
y > ø / æ __ #	(ending deletion)

After these sound changes, the finals of the *xie-she* in Shuyang are in Table 25.

Table 25. Finals of the *xie-she* in Shuyang

	division	division	division
	I	II	III / IV
kaikou	æ	æ	yɨ
	I	II	III / IV
hekou	wəy*	wæ, wɑ	wəy*

* Finals after the *duan, jing* or *lai/ni* initial series become */əy/*.

4.4.5. *Zhi-she*

Words of the *zhi-she* in modern Shuyang dialect are distributed among four rhymes. Most of them are in the *zhi-xi* rhyme (Appendix A). Words with a labial medial are in the *pei-hui* rhyme (Appendix H),[16] some of them are in the *pai-huai* rhyme (Appendix F). The words with the *ri* initial are in the *ma-sha* rhyme (Appendix G).

The *zhi-she* words with the *kaikou* feature had a /ɣɨy/ final in the Dengyun tables (see Table 9). In ONM and OSM, those with retroflex or dental sibilant initials had a new final /ɿ/ except for those with the *zhi* initials (Hsueh 1975: 67, Chou 1989: 197). Without any counterevidence I believe that the Shuyang dialect has also undergone the same process of the emergence of this new final (the so-called *zhi-si* 支思 rhyme in ZY). The following rules illustrates this process (cf. Hsueh 1975: 43, 68).

y > ø / cr __

y > ø / c __ɨy

y > ø / cr __

y > ø / Cɨ __

(As for two medial deletions after the retroflex /cr/, see the discussion about rule [1] in 4.4.3)

The *zhi-she* words with the mid vowel /ə/ such as *zui* 嘴 (DT cywɨy SY cəy), and *shui* 水 (DT sjywɨy SY srwəy) and *gui* 龟 (DT kywɨy SY kwəy) in Appendix H warrant attention. The high vowel /ɿ/ in the *zhi-she* was lowered to mid /ə/ in the *hekou* words. Recall that Div. III and IV of the *xie-she* words raised their vowel to /ɿ/ (rule [2] in 4.4.4). After that vowel change, those *xie-she* words

[16] Words with the *zhuang* initial series such as *shuai* 帅 (RT sɣywɨy SY srwæ) are exceptional.

merged with the *zhi-she* words if they had the *hekou* feature. There are three pieces of internal evidence to support this merger. First, these *zhi-she* words with the *hekou* feature also lowered their vowel to */ə/* as those in the *xie-she* (rule [3] in 4.4.4). Second, these Div. III words of the *zhi-she* also lost medial */y/* just as in the *xie-she* words. Third, these *hekou* words also lost medial */w/* after the *jing* and *lai/ni* initials just as in the *xie-she* words, such as *lei* 累 (DT lywɨy SY ləy), *sui* 虽 (DT sywɨy SY səy), *zui* 嘴 (DT cywɨy SY cəy).

Many *kaikou* words with labial initials in the *zhi-she*, such as *bei* 碑 (DT pyɨy SY pəy), *mei* 眉 (DT myɨy SY məy), *bei* 被 (DT pfiyɨy SY pəy), also underwent the vowel lowering change as their *hekou* counterparts. But some words did not, such as *pi* 皮 (DT pfiyɨy SY p'yɨ) and *bi* 比 (DT pyɨy SY pyɨ). Hsueh (1975: 70) regarded words like *bei* 被 (DT pfiyɨy SY pəy) in ZY as a result of irregular development due to a dialectal interference. He explained in a footnote that those words might be influenced by a dialect where the medial */y/* in Div. III words of the *zhi-she* was lost after labial initials. It is not certain that the Shuyang dialect belongs to that kind of dialect. But the vowel lowering in both the *zhi-she* and the *xie-she* with the *hekou* feature makes me consider a possibility that those with the mid vowel such as *bei* 被 and *mei* 眉 in Shuyang are indigenous forms and those with the high vowel such as *pi* 皮 and *bi* 比 are influenced by the standard Mandarin.

There is one piece of evidence to support this consideration. I have argued earlier that when the vowel of *xie-she* was raised to the high vowel, those *xie-she* words merged with the *zhi-she* words. If the indigenous form of the *zhi-she* words with labial initials have the mid vowel and the glide ending as final, one should also find the same final after labial initials in Div. III or IV words

of the *xie-she* with the *kaikou* feature. In Shuyang there is one word [mei] in the *yangping* tone meaning 'mad', such as [mei tsɿ] 'madman'. According to its meaning and the syntactic function, I believe that *mi* 迷 (DT mey) is the character for that word. This character belongs to Div. IV of the *xie-she* with the *kaikou* feature in the Dengyun tables. The derivation of this word can be listed like this:

mi 迷	mey	in the Dengyun tables
	myey	generate a palatal medial before the merger of Div. III and IV (4.2.2)
	myɨy	vowel raising (see 4.4.4)
	mɨy	palatal medial deletion (see 4.4.4)
	məy	vowel lowering (see 4.4.4)

Note that the last two sound changes occurred in the *hekou* syllables. Since labial initials implies a labial feature, those two changes might also have occurred in this word.

After the vowel lowering, the medial /w/ was deleted in those *zhi-she* words with dental sibilant or lateral initials which share a [+coronal] feature. The same situation is also found in the *xie-she* words (rule [4] in 4.4.4).

The *ri* initial words of the *zhi-she* have the low vowel /ɑ/, and they appear in Shuyang's *ma-sha* rhyme (Appendix G) under the 'zero' initial. Words such as *er* 儿 (DT ryɨy SY ɑ) in the three old Mandarin dialects had a high vowel as the nucleus. Hsueh (1986: 74-5) proposed that the *ri* initial in ZY changed to /r-/, and the final of *er* 儿 was still /yɨy/. Later the final merged into the *zhi-si* rhyme. In the Ming dynasty, this word lost the initial by metathesis and became an /-r/ suffix. The sound changes of this syllable can be represented like this.

ryɨy > rɨ > ɨr ([-ər])

Li Sijing (1986: 42) argued that the /-r/ suffix in Beijing Mandarin had a transition form [ɹ˞], and that the sound changes of the /-r/ suffix is represented as this.

ɹ˞ > ˞ > ər

Wang Li (1985: 316) claimed that [r˞] became a syllabic [ɻ̩] and then changed to [ər] in the Yuan dynasty.[17] The process of emergence of [ər] in Beijing Mandarin can be represented like this.

r˞ > ɻ̩ > ər

Comparing Hsueh's proposal with Li's or Wang's (they are very similar), I find that the main difference is the former proposed a metathesis, the latter proposed an /r-/ deletion as well as a transition form /˞/ or /ɻ̩/. For the Shuyang dialect, both proposals are inappropriate because this dialect does not have /-ər/ suffix. Since this dialect has a low vowel as nucleus without any medial or ending for this syllable, one might be tempted to say that /r-/ was lost first and the vowel was lowered to /a/. The sound changes in words like *er* 儿 in the Shuyang dialect can be represented like this.

rɨ > ɨ > ɑ

In summary, the sound changes in the *zhi-she* are represented by the following rules which are ordered by their relative chronology.

y > ø / cr__

y > ø / c__ ɨy

y > ø / cr__

y > ø / Cɨ__

rɨ > ɨ > ɑ

y > ø / __wɨy (see 4.4.4)

[17] He proposed a metathesis for the sound change from [r˞] to [ər] in his 1958's study.

ɨ > ə / w __ y (see 4.4.4)

w > ø / C [+coronal] __ ə y (see 4.4.4)

After these sound changes, the finals of the *zhi-she* in Shuyang are listed in Table 26.

Table 26. Finals of the *zhi-she* in Shuyang

	division
	III
kaikou	ɨ, yɨ, ɑ
hekou	wəy*, wæ

*Finals after the *duan*, *jing* or *lai* initial series become */əy/*.

4.4.6. *Xiao-she*

Words of the *xiao-she* are all listed in the *jiao-shao* rhyme (Appendix E) which has [ɒ°] (/aw/) as the rhyme base. The three vowels of the *xiao-she* in the Dengyun tables merged into one vowel */a/* in OCM (Zhou 1943) as well as in ONM (Hsueh 1975: 62-6, 1986: 105). The same situation was also found in OSM with some exceptions (Chou 1989: 180-5). Based on the Shuyang dialect's historical relationship with OSM, it is inconceivable that the low vowel coalescence in the *xiao-she* occurred in Shuyang as early as the eleventh century (the OCM era). I would say that the *xiao-she* words in Shuyang merged into one *jiao-shao* rhyme in the fourteenth century, shown in the following rule.

$$\begin{Bmatrix} ɔ \\ e \end{Bmatrix} > a \,/\, \_\_\, w$$

4.4.7. *Liu-she*

Words of the *liu-she* are listed in the *chou-niu* rhyme (Appendix I) which have a mid vowel /ə/. Exceptions are those with labial initials, for instance, *mu* 母 (DT miw SY məw), *mao* 茂 (DT miw SY məw), *mou* 谋 (DT myiw SY məw), and *fou* 否 (DT pyiw SY fəw).

The *liu-she* words had a high vowel /ɨ/ in the Dengyun tables. The high vowel was lowered to the mid before /w/ ending in the Shuyang dialect. Besides the vowel lowering in the *xie-she* and *zhi-she* (rule [3] in 4.4.4), one more vowel lowering rule has to be proposed as below.

ɨ > ə / __ w

One finds in Appendix I that words with lateral initials in Proto-Mandarin lost the medial /y/, for instance, *liu* 刘 (DT liyiw SY liəw), *liu* 馏 (DT liyiw SY liəw), *niu* 牛 (DT nyiw SY liəw). This medial was probably lost after the coalescence of the *ni* initial and the *lai* initial in the *liu-she* syllables. The reading [liʏɯ] /lyəw/ for the word *liu* 六 (DT lywik SY liwi or lyəw) was later borrowed from standard Mandarin.

Words with labial initials in the *liu-she* command discussion. Some words in ONM lost the ending by a dissimilation rule (w > ø / w i __), some words which remained in the ZY's *you-hou* rhyme (/iw/) was interpreted as an interdialectal borrowing (Hsueh 1975: 73). In OSM some words had dual readings, for instance, *mu* 亩 (DT miw HZ miw or mwi) and *mou* 某 (DT miw HZ miw or mwi). This phenomenon was also interpreted as a result of dialectal influence, that is, the /iw/ reading was the indigenous form while the /wi/ form took shape through borrowing (Chou 1989: 202-6).

The pronunciations of these words in modern Shuyang dialect let me have another thought for these irregular readings. Many of them have the final [o] (/wə/), such as *pou* 剖 (DT phɨw SY p'wə), *mou* 谋 (DT myɨw SY mwə), *fou* 否 (DT pyɨw SY fwə), some of them have the final [u] (/wɨ/), such as *mu* 亩 (DT mɨw SY mwɨ). I would explain the discrepancy between /wə/ and /wɨ/ in the modern dialect as a result of a sound change which lowered the vowel from high to mid between two segments with the labial feature, shown as below.

ɨ > ə / P w __ w
('P' stands for labial initial)

Before the vowel lowering, these labial initial syllables are reconsidered like this: The form 'Pwɨw' changed to 'Pwɨ' in ONM by a dissimilation rule (w > ø / w ɨ __). But this dissimilation did not affect the OSM, therefore, those words still maintained the 'Pwɨw' form in OSM during the fourteenth century. After the vowel lowering, OSM had a 'Pwəw' form and ONM still had a 'Pwɨ' form.

At least two considerations favor the assumption of the vowel lowering. First, this vowel change had a rational phonetic interpretation. It has been mentioned that the /w/ ending was lost due to a dissimilation of the medial /w/. Following the same argument, it is also possible to lower the nucleus in the form 'wVw' by a dissimilation. In other words, in the context that both the medial and the ending have a [+high] feature, the high feature of the nucleus is dissimilated.

The second consideration involves the pronunciation of these words in modern Jianghuai dialects. In the Yangzhou, Huaiyin, Haizhou, Yancheng and Shuyang dialects, many words which had a 'Pwɨw' form in both ZY and HZ are pronounced with the non-high vowel. Here are some examples (data about the Yangzhou, Huaiyin, Haizhou dialects are from Jiangsu 1960).

	Yangzhou	Huaiyin	Haizhou	Shuyang
mou 谋	mo	mo	mo	mo (/mwə/)
mou 某	mo	mo	mo	mo (/mwə/)
fou 否	fo	fo	mo	fo (/fwə/)
mu 母	mo	mo	mo	mo (/mwə/)
mu 亩	mo	mo	mo	m̩ (or [mo])
mao 茂	mo	mo	mo	mo (/mwə/)
mao 贸	mo	mo	mo	mo (/mwə/)

The final [o] form in the list indicates that the 'Pwəw' form in OSM had lost the ending by a dissimilation of the medial. The derivation of the /wɨ/ form in Northern Mandarin and the one of the /wə/ form in Shuyang are illustrated below.

	Northern	Shuyang
Dengyun tables	Pwɨw	Pwɨw
w > ø / w ɨ __	Pwɨ	
ɨ > ə / Pw __ w		Pwəw
w > ø / w V __		Pwə

The word *mu* 亩 (DT mɨw SY [m̩] /mwɨ/ or [mo] /mwə/) needs attention. This word together with some other words such as *mu* 母 (DT mɨw SY mwə), *mu* 姆 (DT mɨw SY mwə), *mu* 牡 (DT mɨw SY mwə), and *mou* 某 (DT mɨw SY mwə) had dual readings in OSM (Chou 1989: 203). One of the readings was /mwɨ/. Later, most of these words lost the /mwɨ/ reading and kept the /mwə/ reading in the Shuyang dialect, only *mu* 亩 which is used as a classifier of land still maintains

/mwɨ/ but phonetically it is pronounced as a syllabic [m̩].[18]

After the high vowel of the *liu-she* was lowered to mid and an ending deletion rule, the finals of the *liu-she* are listed in Table 27.

Table 27. Finals of the *liu-she* in Shuyang

	division I	division III
kaikou	əw*	wə**, yəw***

* Finals after labial initials became /wə/.

** Some labial words with the final /wɨ/ are exceptions.

*** Finals after retroflex and lateral initials became /əw/.

4.4.8. *Shan-she* and *xian-she*

Words of the *shan-xian-she* were regrouped into three Shuyang rhymes, which is a special feature of Jianghuai Mandarin (see Bao 1991). The Div. I and II words with the *kaikou* feature and the Div. II words with the *hekou* feature are in the *gan-dan* rhyme (Appendix L) which has the vowel [æ̃] (/æn/). The Div. III and IV words with the *kaikou* feature are in the *tian-xian* rhyme (Appendix J) which has the final [iɛ̃ꜜ] (/yən/). The Div. I, III and IV words with the *hekou* feature (except those with labial initials) are in the *pan-huan* rhyme (Appendix K) which has the vowel [ɒ̃] (/wɑn/).

[18] There is another syllabic [m̩] meaning 'I' or 'my' in the Shuyang dialect. It is probably derived from the word *wu* 吾 (DT ŋwɨ SY wi). When the ancient *yi* initial was lost, this word changed to /wi/. Later it became [m̩] due to its special meaning.

In the evolution of Northern Mandarin, the back and front low vowels /ɔ、e/ of the *shan-xian-she* in the Dengyun tables changed into /a/ in the sixteenth century when the /m/ ending coalesced with the /n/ ending (Wang 1985: 406). In the evolution of the Shuyang dialect, however, the sound changes in the *shan-xian-she* are very different. First, I will argue that a vowel raising change in Shuyang occurred after the fourteenth century. Secondly, I will argue that the previous *hekou* words were distributed in Shuyang in a way different from the way in HZ or ZY, that is, the Div. III and IV words merged with the Div. I words. Thirdly, I will discuss when a three-way-contrast /e-a-ɔ/ among low vowels in the Dengyun tables changed to a two-way-contrast /æ-a/ in Shuyang.

Let me start with the first argument. It was argued in 4.4.2 that a raised vowel /ə/ in the *jia-she* words became one of the conditions for the de-retroflexion of /cr/ initials. I need to examine whether or not the same vowel raising occurred in Div. III and IV words of the *shan-xian-she* when these initials lost the retroflex feature in Shuyang. See the following words.

che 车　　DT cjhya SY k'yə ([ʨ'ie⊥])
zhan 战　　DT cjyan SY kyən ([ʨiẽ⊥])
zhan 展　　DT tjyan SY kyən ([ʨiẽ⊥])
shan 扇　　DT sjyan SY xyən ([ɕiẽ⊥])
zhan 占　　DT cjyam SY kyən ([ʨiẽ⊥])

By applying the two rules which represent the merge of the *zhi/zhuang/zhang* series (see 4.2) and the palatalization process of retroflex initials (see 4.2.2), the evolution of these initials in the Shuyang dialect should be like this.

	zhan 战	*zhan* 展	*shan* 扇	*che* 车
Dengyun tables	cj	tj	sj	cjh
j > r	cr	tr	sr	crh
t > c / __ r	---	cr	---	---
$r > \emptyset / \{^{s}_{c}\}$ __ y V $(^{m}_{n})$	c	c	s	ch
c > k / __ y	k	k	x	kh
phonetic forms	ʨ	ʨ	ɕ	ʨʻ

From the above list we found that the *jia-she* and the *shan-xian-she* words with retroflex initials underwent the same palatalization. In 4.4.2, a de-retroflexion rule of retroflex initials was proposed for the *jia-she* words. It is conceivable that a similar de-retroflexion also occurred in those*shan-xian-she* words. Collapsing these two cases into one rule, it can be presented as below.

$$r > \emptyset / \{^{s}_{c}\}\_\_\ y\, e\, (^{m}_{n})$$

In the same manner, the vowel raising in the *jia-she* and the *shan-xian-she* words should be revised as below.

$$e > ə / y\_\_ (^{m}_{n})$$

It is now appropriate the time to discuss when the vowel raising in the *shan-xian-she* occurred in Shuyang. In Table 16 (see 3.3.2), there are three types of HZ finals (rhymes) which were derived from the *shan-she* words in the Dengyun tables. The comparison of these HZ rhymes and the relevant Shuyang's rhymes can be illustrated as below.

OSM	Shuyang	Dengyun tables
Xian-set (/yen/)	*tian-xian* (/yən/)	*kaikou*, Div. III and IV
	pan-huan (/wɑn/)	*hekou*, Div. III and IV
Han-set (/on/)	*pan-huan* (/wɑn/)	*hekou*, Div. I
	gan-dan (/æn/)	*kaikou*, Div. I (gutturals)
Shan-set (/an/)	*gan-dan* (/æn/)	*kaikou*, Div. I and II
		hekou, Div. II

It was noted that the Xian-set in OSM includes all words in Shuyang's *tian-xian* rhyme and all the *cuokou* words in Shuyang's *pan-huan* rhyme. If the vowel raising in the *shan-xian-she* in Shuyang had occurred before HZ, it would be necessary to accept two situations. (1) The Shuayng's *tian-xian* rhyme was separated as an independent rhyme group. (2) The Div. III and IV words with the *hekou* feature merged with their Div. I counterparts. The above comparison table would be like this:

OSM	Shuyang	Dengyun tables
*Xian-set	*tian-xian* (/yən/)	*kaikou*, Div. III and IV
*Han-set	*pan-huan* (/wɑn/)	*hekou*, Div. III and IV
	pan-huan (/wɑn/)	*hekou*, Div. I
	gan-dan (/æn/)	*kaikou*, Div. I (gutturals)
Shan-set	*gan-dan* (/æn/)	*kaikou*, Div. I and II
		hekou, Div. II

If the vowel raising had occurred before HZ, we have to accept such a view that OSM in HZ does not have much relation with the historical evolution of the Shuyang dialect. The above table shows that two of the three rhyme sets from the *shan-she* words in OSM are not comparable to the earlier stage of the Shuyang dialect. Obviously, without historical data I will not accept this opinion.

Based on the above consideration, I would say that the vowel raising in the *shan-xian-she* words occurred after the fourteenth century in Shuyang. Moreover, the de-retroflexion of retroflex initials in the Shuyang dialect also occurred around the HZ era. It is reasonable to say that the de-retroflexion of retroflex initials occurred when the palatal medial still existed in such syllables.

Now see the words in the *pan-huan* rhyme (Appendix K). The vowels in the *shan-xian-she* with the *hekou* feature have changed differently from those with the *kaikou* feature. In the *kaikou* syllables, the vowel of the Div. I changed to */a/* except those with guttural initials (see Chou 1989: 154). The Div. III and IV merged, and later their vowel */e/* was raised to */ə/*. As to the *hekou* syllables, the Div. I did not merge with the Div. II as in HZ. The Div. I maintained its low back vowel, and later the Div. III/IV changed its vowel and merged with Div. I syllables. Here are some examples:

guan 官 Div. I (DT kwɔn SY kwɑn)
quan 拳 Div. III (DT kɦywan SY k'ywɑn)
quan 犬 Div. IV (DT khwen SY k'ywɑn)

guan 关 Div. II (DT kwan SY kwæn)
guan 惯 Div. II (DT kwan SY kwæn)
shuan 闩 Div. II (DT srwan SY srwæn)

A special vowel change is thus proposed for those Div. III/IV, which changed the front vowel to back in the *shan-she* words with the *hekou* feature. Since those Div. III/IV words in HZ did not change to the back vowel yet, I believe that this vowel change later than the fourteenth century. This change can be presented as below.

e > ɔ / w __ n

This sound change is very uncommon. I will show later that in entering tone words of the *shan-xian-she* with the *hekou* feature, the vowel of the Div. III/IV did not change like that (5.4).

In ZY, the Div. III and IV words of the *shan-she* with the *hekou* feature shared the same vowel with their *kaikou* counterparts (Hsueh 1975: 56). They had never merged with the Div. I syllables.

I will now discuss when the three-way-contrast of low vowels in the *shan-she* words became a two-way-contrast in Shuyang. After the vowel raising in the *shan-xian-she* and *jia-she* words, the *kaikou* syllables of the *shan-she* in Shuyang had two vowels, the vowel */a/* for the Div. I and II, and the vowel */ə/* for the Div. III and IV. The *hekou* syllables had three vowels, the vowel */ɔ/* for the Div. I, the vowel */a/* for the Div. II and the vowel */e/* for the Div. III and IV. After the Div. III/IV merged into the Div. I through a vowel change (e > ɔ / w __ n), there were only two low vowels among the *hekou* syllables, */a/* for the Div. II, and */ɔ/* for the Div. I, III and IV.[19] I believe that the vowel system of Shuyang after that sound change became a two-way-contrast in low vowels because the *shan-she* words usually maintained the most contrasts in low vowels.

There is clear evidence to make me believe that the vowel system change in Shuyang happened around the sixteenth century. The syllables of Div. III and IV of the *shan-she* with the *hekou* feature had the low front vowel */e/* in ZY and HZ (Hsueh 1975: 52-4, Chou 1989: 156). In the old Haizhou dialect, the Div. III and IV words with the *hekou* feature coalesced with those *hekou* Div. I words (Yang 1992: 94-5). Therefore, the vowel change in the *hekou* Div. III and IV words should not be earlier than the fourteenth century, nor later than the eighteenth century. Around the sixteenth century, the finals of the *shan-xian-*

[19] */a/* is correspond to */æ/* and */ɔ/* is correspond to */ɑ/* in modern Shuyang dialect.

she in Shuyang can be regrouped as in Table 28.

Table 28. Finals of the *shan-xian-she* in Shuyang

	division	division	division
	I	II	III / IV
kaikou	æn	æn	yən
	I	II	III / IV
hekou	wɑn	wæn	ywɑn*

* Finals after retroflex initials became /wɑn/.

The *hekou* words of the Div. III with labial-dental initials are exceptional for the vowel change, because they had lost their medial /y/ and merged into Div. II words long before this new change.

In summary, the main sound changes in the *shan-xian-she* are presented by the following rules:

$$r > \emptyset / \begin{Bmatrix} s \\ c \end{Bmatrix} \_\_ \; y e \begin{pmatrix} m \\ n \end{pmatrix}$$

$e > ə / y \_\_ \begin{pmatrix} m \\ n \end{pmatrix}$ (vowel raising in the *kaikou* Div. III/IV)

$e > ɔ / w \_\_ n$ (vowel change in the *hekou* Div. III/IV)

4.4.9. *Shen-she* and *zhen-she*

Words from the *shen-she* and the *zhen-she* are listed in the *gong-sun* rhyme (Appendix M) which has the mid vowel /ə/ as the nucleus.

The words from the *shen-she* and the *zhen-she* had a high vowel in the three old Mandarin dialects. The high vowel /ɨ/ of the *shen-zhen-she* was lowered to the mid vowel /ə/ before the nasal ending in Shuyang. In 4.4.7, I proposed a vowel lowering rule for the *liu-she* syllables. Collapsing the two cases into a single rule, it can be written as below.

$$ɨ > ə \;/\; \_\_ \begin{Bmatrix} w \\ n \end{Bmatrix}$$

The words from the *zhen-she* with the *hekou* feature need attention because some of them have lost the /w/ medial, for instance, *sun* 孙 (DT swɨn SY səŋ), *zun* 尊 (DT swɨn SY cəŋ), *lun* 轮 (DT lywɨn SY ləŋ). It is found that the medial /w/ is lost in the words with *duan*, *jing*, *lai/ni* initial series but is maintained in the words with retroflex or guttural initials. The exactly same phenomenon has been found in the *xie-she* (rule [4] in 4.4.4) and the *zhi-she* (4.4.5). Condensing these three cases into a single rule, it can be written as below.[20]

$$w > ø \;/\; C\ [+\text{coronal}]\ \_\_\ ə \begin{Bmatrix} y \\ n \end{Bmatrix}$$

The Div. III words must not be affected by this rule. Words such as *xun* 迅 (DT sywɨn SY xywəŋ), *jun* 俊 (DT cywɨn SY kywəŋ) and *xun* 巡 (DT sywɨn SY xywəŋ) in the Shuyang dialect have the labial medial. I would say that these Div. III words with the *jing* initials series maintained /yw/ medial and that they belonged the so-called *jianyin* syllables (see 4.1.1).[21]

[20] I will argue later that the *zhen-she* words may change their dental nasal ending to the velar nasal ending around the seventeenth century. For more detailed discussion, see 4.4.12.

[21] *Sun* 笋 (DT sywɨn SY səŋ) is an exception for this phenomenon.

Two words with the *ri* initial *run* 闰 润 (DT ɾywɨn SY ywəŋ)[22] lost their /r-/ initial before the de-retroflexion of initials in Shuyang.

In summary, the main sound changes in the *shen-she* and *zhen-she* are listed by an order of their relative chronology.

$$ɨ > ə \,/\, \_\_ \begin{Bmatrix} w \\ n \end{Bmatrix}$$

$$w > ø \,/\, C\,[+\text{coronal}]\,\_\_\, ə\begin{Bmatrix} y \\ n \end{Bmatrix}$$

After these sound changes, the finals of the *shen-she* and the *zhen-she* are listed in Table 29.

Table 29. Finals of the *shen-zhen-she* in Shuyang

	Gong-sun rhyme	
	division	division
	I	III
kaikou	ən	yən*
hekou	wən**	ywən*

* Finals after retroflex initials lost medial /y/.

** Finals after *duan*, *jing* and *lai/ni* initials lost medial /w/.

4.4.10. *Jiang-she* and *dang-she*

Words from the *jiang-dang-she* are listed in the *chang-sang* rhyme (Appendix N) which has the vowel [ɑ] as the nucleus in modern Shuyang dialect. The *jiang-she* had /a/ as the nucleus, and the *dang-she* had /ɔ/ as the

[22] The velar nasal and the dental nasal are not in contrast in the words with the high or mid vowel in modern Shuyang dialect. This lack of distinction probably occurred after the sixteenth century when the labial nasal ending merged with the dental nasal ending.

nucleus in the Dengyun tables. The words of the *jiang-she* and the *dang-she* later merged by a vowel change. The central vowel */a/* changed to the back vowel */ɔ/* before the velar ending (Hsueh 1985, 1992).

$$a > ɔ \,/\, \underset{E}{\_\_}\ [+\text{velar}]$$

After this change, the contrast between central versus back in low vowels before the velar ending no longer existed, and the vowel of the resulting rhyme, therefore, could be phonemically written as */a/* (Hsueh 1982). In the three old Mandarin dialects, the vowel was represented by */a/*.[23]

One noticeable phenomenon about the words of the *jiang-dang-she* is that the *kaikou* syllables with the *zhuang* initials, such as *zhuang* 庄 (DT ʈʂyɔŋ SY ʈʂwɑŋ), *chuang* 床 (DT ʈʂʰyɔŋ SY ʈʂ'wɑŋ), *chuang* 窗 (DT ʈʂʰaŋ SY ʈʂ'wɑŋ), *shuang* 双 (DT ʂaŋ SY ʂwɑŋ), acquired a labial medial. One can also find this phenomenon in ONM and OSM (Hsueh 1975: 94-5, Chou 1989: 238). Such a change must have happened after the merger of the *jiang-she* and the *dang-she*, because both two *she*'s words which had no labial medial in the earlier Dengyun tables acquired */w/* medial in the later Dengyun tables. In SD, those *jiang-she* words with retroflex and lateral initials belonged to the *dang-she* table with the *hekou* feature. In QZT and the Jingshi Zhengyun Qieyun Zhinan, two rhyme-table books contemporaneous with SD, it was also observed that those *jiang-she* words had the *hekou* feature. A labial medial insertion rule is thus proposed for the *jiang-dang-she* words with the *zhuang* initial series as below (see Hsueh 1975: 108).

$$ø > w \,/\, \{\overset{S}{C}\}r \_\_ ɔ\ ŋ$$

[23] In OSM this vowel was described as the low back vowel */ɔ/* (Chou 1989: 235) . However, */ɔ/* was not in contrast with */a/* before the velar nasal ending.

This change also occurred in the Shuyang dialect.

4.4.11. *Geng-she* and *zeng-she*

Words from the *geng-she* and the *zeng-she* are listed in the *gong-sun* rhyme (Appendix M) which has the mid vowel /ə/ as the nucleus.

The Div. II and III words of the *geng-she* had the vowel /a/ and the Div. IV had /e/ in the Dengyun tables. They merged into one vowel in the middle of the Tang dynasty (Zhou 1943). Later, the words of the *zeng-she* merged with the *geng-she* and the coalescence of the *geng-she* and the *zeng-she* in SD can be summarized with the following vowel change (Hsueh 1992).

$$\left\{\begin{matrix}ɔ\\a\end{matrix}\right\} > e \,/\, \underset{E}{\_\_}\ [+\text{palatal}]$$

Hsueh (1992) claimed that the vowel change in the *geng-she* occurred prior to the /y/ insertion in OCM and OSM, while the reverse is true in ONM. The evidence is that in ZY, the Div. II words with guttural initials of the *geng-she* were grouped with the Div. III syllable. This reveals that the /y/ insertion had already been applied to those Div. II words before the merger of the *geng-she* (Hsueh 1975: 58-9, 1992). However, in OSM, those Div. II words were not homonymous with the Div. III syllable, but they share the same final with Div. I words of the *zeng-she*. Here are some examples (Chou 1989: 170-1, 238-9).

Div. II	Div. III
geng 耕 (DT kaŋ HZ keŋ)	*jing* 京 (DT kyaŋ HZ kyeŋ)
Div. II	Div. I
geng 梗 (DT kaŋ HZ keŋ)	*ken* 肯 (DT kɔŋ HZ keŋ)

These pairs show that in OSM the /y/ insertion did not happen to the Div. II words *geng* 耕 (DT kaŋ HZ keŋ) and *geng* 梗 (DT kaŋ HZ keŋ) before the vowel

change in the *geng-she* words.

The Div. II words of the *geng-she* in Shuyang follow the pattern of OSM. After the vowel change of the *geng-zeng-she* and the palatal ending changed to the velar ending, I believe that the vowel */e/* of the *geng-zeng-she* was raised to the mid vowel */ə/*. The sound changes of the *geng-zeng-she* in Shuyang are listed as follows.

$\{^{ɔ}_{a}\}$ > E / __ [+palatal]	(merger of *geng-she* and *zeng-she*)
ɲ > ŋ / __ #	(palatal ending became velar ending)
e > ə / __ ŋ	(vowel raising in *geng-zeng-she*)

After the above sound changes, the finals of the *geng-zeng-she* in Shuyang appear as listed in Table 30.

Table 30. Finals of the *geng-zeng-she* in Shuyang

	Gong-sun rhyme	
	division	division
	I / II	III / IV
kaikou	əŋ	yəŋ*
hekou	wəŋ	ywəŋ

* Finals after retroflex initials became */əŋ/*.

4.4.12. *Tong-she*

Words from the *tong-she* are also listed in the *gong-sun* rhyme (Appendix M) which has the nucleus */ə/* in the Shuyang dialect.

The *tong-she* words had a high vowel /ɨ/ as the nucleus in all three old Mandarin dialects. According to modern Shuyang dialect, the high vowel was lowered to /ə/ in Shuyang. Recall a vowel lowering rule for the words of the *liu-she* and the *shen-zhen-she* (see 4.4.7 and 4.4.9). It might be possible that the same vowel lowering also occurred in the *tong-she* words.

Before a vowel lowering rule is proposed, another important phonological feature of the Shuyang dialect needs to be examined. In modern Shuyang dialect as well as many other Jianghuai dialects, the dental nasal ending is not in contrast with the velar nasal ending. This is probably a special feature of Jianghuai Mandarin. In the old Haizhou dialect of LY and the old Nanjing dialect of GJ, the two nasal endings were already not in contrast. But OSM did not include any information about the coalescence of the two endings. The change of the nasal ending in Shuyang, I believe, occurred after the sixteenth century and before the eighteenth century. The reason I choose the sixteenth century as the earliest time is that the ending of the *shen-she* must have changed from /m/ to /n/ first, and the words then went through this coalescence together with those of the *zhen-she*. The coalescence of the the nasal ending can be written as this:

$$n > ŋ \;/\; V\,[+high]\,\_\_\,\#$$

If the vowel lowering in the *tong-she* is considered the same vowel lowering in the *liu-she* and the *shen-zhen-she* words, then after the ending change, the vowel lowering rule in the *liu-she* and the *shen-zhen-she* (see 4.4.9) would include the *tong-she* case. After revision the formula would be:

$$ɨ > ə \;/\; \_\_ \begin{Bmatrix} ʷ \\ ŋ \end{Bmatrix}$$

In 4.4.9 there is another sound change which is related to the vowel lowering, that is, */w/* medial is deleted in certain syllables whose initials have a [+coronal] feature. If the vowel lowering in the *shen-zhen-she* is revised as above, the medial deletion rule would also be revised as below.

$$w > \emptyset \,/\, C\,[+\text{coronal}]\,\_\_\,ə\begin{Bmatrix} y \\ ŋ \end{Bmatrix}$$

But this rule is unacceptable because the *tong-she* words did not lose their labial medial.

Based on this consideration, I am claiming that the vowel lowering in the *tong-she* words is not the same vowel lowering of the *liu-she* and the *shen-zhen-she* words. The latter happened earlier than the nasal ending change, while the former occurred after that change. The vowel lowering in the *tong-she* is represented as this.

$$ɨ > ə \,/\, \_\_\,ŋ$$

One more phenomenon in the *tong-she* words needs attention. Many Div. III words lost the medial */y/*, but some with guttural initials maintain the palatal medial */y/*. We have discussed that the words with the retroflex initials lost the palatal medial by rule (2) in 4.4.3. It is found that a palatal medial was also lost in the Div. III words with dental sibilant, lateral, or labial initials in the *tong-she*. This deletion is formulated as below.[24]

$$y > \emptyset \,/\, C\,[+\text{coronal}]\,\_\_\,w\,ɨ\,ŋ$$

However, some words with guttural initials also lost the palatal medial, for instance, *gong* 躬 (DT kywɨŋ SY kwəŋ), *kong* 恐 (DT khywɨŋ SY k'wəŋ). Within the limit of my knowledge, I can see no other way than to treat these exceptional

[24] This sound change occurred before the vowel lowering in the *tong-she*. Therefore, two nasal endings were still in contrast. The evolution of entering tone words of the *tong-she* will support this assumption (5.3).

words as a result of dialectal interference.

In summary, the sound changes in the *tong-she* words and their related sound change are listed by their relative chronology.

y > ø / C [+coronal] __ ʷ i ŋ

n > ŋ / V [+high] __ #

i > ə /__ ŋ

After the medial deletion and the vowel lowering, the finals of the *tong-she* are listed in Table 31.

Table 31. Finals of the *tong-she* in Shuyang

	Gong-sun rhyme	
	division	division
	I	III
hekou	ʷəŋ	ʷəŋ, yʷəŋ*

* Some finals after guttural initials changed to /ʷəŋ/.

4.4.13. A list of sound changes in non-entering tone syllables

To illustrate how the Shuyang dialect evolved, I list sound changes pertaining to non-entering tone syllables in their relative chronology.
The evolution of the Shuyang dialect is divided into three periods. The de-retroflexion of initials and the vowel raising in the *jia-she* and the *shan-xian-she* words mark the end of the first period which covers the period from the fourteenth century until the sixteenth century. The vowel system change (from the three-way-contrast to a two-way-contrast of low vowels) represents the

second period which covers from the sixteenth to eighteenth century. From the eighteenth century to the present is the third period.

(1) The sound changes in the first period

r > ø / # __ y e #

(*/r/* initial elimination, see 4.4.2)

y > ø / C [+coronal] __ ɯ i ŋ

(*/y/* deletion in *tong-she*, see 4.4.12)

$$r > ø / \begin{Bmatrix} s \\ c \end{Bmatrix} \_\_ y e \begin{pmatrix} m \\ n \end{pmatrix}$$

(de-retroflexion of initials, see 4.2.2, 4.4.2 and 4.4.8)

$$e > ə / y \_\_ \begin{pmatrix} m \\ n \end{pmatrix}$$

(vowel raising in *jia-she* and *shan-xian-she*, see 4.4.2 and 4.4.8)

(2) The sound changes in the second period

e > ɔ / w __ n

(vowel change in Div. III/IV of *shan-she*, see 4.4.8)

ɿ > ɨr > ɨ > a

(sound changes in syllables like *er* 'son', see 4.4.5)

ɨ > ə / w __ y

(vowel lowering in *xie-she* and *zhi-she*, see 4.4.4 and 4.4.5)

$$ɨ > ə / \_\_ \begin{Bmatrix} w \\ n \end{Bmatrix}$$

(vowel lowering in *liu-she* and *shen-zhen-she*, see 4.4.7 and 4.4.9)

e > ə / __ ŋ

(vowel raising in *geng-zeng-she*, see 4.4.11)

a > æ / __ y
(vowel system change, see 4.4.4 and 4.4.8)

$w > ø / C\ [+coronal]\ \_\_\ ə\begin{Bmatrix} y \\ n \end{Bmatrix}$
(*/w/* deletion in *xie-she*, *zhi-she* and *zhen-she*, see 4.4.4, 4.4.5 and 4.4.9)

$\begin{Bmatrix} ɔ \\ e \end{Bmatrix} > ə\ /\ \_\_\ \#$
(vowel raising in *guo-she* and *jia-she*, see 4.4.1 and 4.4.2)

n > l / # __
(coalescence of *ni* initial and *lai* initial, see 4.2.3)

n > ŋ / V [+high] __ #
(coalescence of dental nasal ending and velar nasal ending, see 4.4.12)

(3) The sound changes at the third period

ɨ > ə / __ ŋ
(vowel lowering in *tong-she*, see 4.4.12)

y > ø / æ __ #
(ending deletion in *xie-she*, see 4.4.4)

c > k / __ y
(palatalization of initials, see 4.2.2 and 4.4.8)

CHAPTER V

SHUYANG DIALECT: ITS LINGUISTIC AFFILIATION AND DEVELOPMENT (PART II)

5.0. Lexical borrowing: Evolution of Shuyang's entering tone finals

Lexical borrowing is a common phenomenon in all languages or dialects. The study of the phonological history of any language or dialect must be based on the 'native' or ' indigenous' words, not on the borrowed ones, if one intends to find regular rules of sound changes.

However, the situation in the study of any Chinese dialect is further complicated by the fact that words are represented by characters which may be pronounced in either the indigenous way or the borrowed way, and sometimes in both ways, that is, 'colloquial reading' versus 'literary reading'. How to differentiate them as borrowed or indigenous is difficult but very important for any serious and valid study.

As discussed earlier, in the history of Mandarin language, there were three major old Mandarin dialects which were considered as standard language in different eras. These three dialects influenced all Chinese dialects in different ways. In southern Chinese dialects such as Min and Yue, as a result of their influence, there is a literary stratum in lexicon (Chan 1983). In northern and central Chinese dialects (Mandarin dialects), the intradialectal influence mostly shows on borrowed lexical items which are the so-called 'literary readings'.

The two terms 'literary reading' and 'colloquial reading' have long been used by many scholars for the above rather unique Chinese phenomenon, but they sometimes refer to different things. For example, Chan (1983) used them for the differentiation of the indigenous readings of some words and the borrowed readings of other words. By re-examining the irregular sound changes in two southern Chinese dialects (Chaozhou and Shuangfeng), she proposed a dialect mixture approach for literary stratum and colloquial stratum of lexicon. She provided a plausible explanation for the tonal split in Chaozhou and the devoicing in Shuangfeng, both of which were treated as ongoing sound changes that are caught 'in midstream' by the lexical diffusionists (Cheng & Wang 1977 and Wang & Cheng 1977)[1]. She analyzed the irregular sound changes in these two dialects as the result of a colloquial versus literary distinction in the lexicon. The literary stratum reflects sound changes in Northern Chinese, while 'the colloquial stratum preserves older forms and maintains distinctions that have already been lost in the north' (p. 125).

Hsueh (1992) proposed a dialectal overlapping concept for the literary versus colloquial contrast in standard Mandarin. He claimed that 'due to social, demographical, and political interactions, the closely related dialects were "synthesized" into a new form of standard speech for the elite class, in which two or more different dialectal readings of the same word were all accepted but labeled as either *duyin* 读音 "pronunciation for reading" or *yuyin* 语音 "pronunciation for speaking".' He tried to solve the mystery of the literary/colloquial readings through the historical development of Mandarin. This approach assumes that in the history of Mandarin Chinese, two or three related

[1] The Chaozhou case recently was analyzed by the lexical diffusionists as an interaction of colloquial stratum and literary stratum which correspond to two ancient sound systems (see Wang & Lien 1993).

dialects had been regarded as the 'standard speech' in different periods. The so-called literary readings in standard Mandarin can be traced back to these dialects. For instance, in the Beijing dialect (Yuan 1960: 37), there are some words with dual readings as below.

		colloquial	literary
bai	百 (DT paǩ)	[pai]	[po]
bao	薄 (DT pɔk)	[pau]	[po]
shao	勺 (DT sjfiyɔk)	[ʂau]	[ʂuo]
se	色 (DT sryɔǩ)	[ʂai]	[sɤ]
hei	黑 (DT xɔǩ)	[xei]	[xɤ]
he	鹤 (DT xfiɔk)	[xau]	[xɤ]

They are all entering tone words which had a stop ending in Proto-Mandarin. According to Hsueh (1992), the literary readings of these words in standard Mandarin were borrowed from the old Nanjing dialect when that dialect enjoyed greater prestige during the Ming dynasty.

Dialectal overlapping can also be found in ONM. In ZY, for instance, *luo* 落 (DT lɔk ZY low or lwo) and *xue* 学 (DT xfiak ZY hyow or hywo) had dual readings. Hsueh (1975: 100-1) explained that the readings with the glide ending are colloquial, the ones without ending are literary. He argued that in the colloquial tier of Northern Mandarin, the form with the glide ending was derived from a stop ending change (Hsueh 1975: 100-5, and 1992). With this ending change, the palatal ending /ǩ/ of words in the *geng-zeng-she* was replaced by, or changed to, the ending /y/, and the velar ending /k/ was replaced by, or changed to, the ending /w/. With respect to the literary tier, the form with the 'zero' ending of those dual reading words was derived from a sound change by which both stop endings became a glottal stop.

Norman (1988: 41) used two sets of terms, 'popular reading' versus 'literary reading' and 'colloquial reading' versus 'literary reading'. The first set of terms is defined as follows:

> Popular forms are those elements of a language that go back in an unbroken line to the protolanguage; literary elements are words or expressions which at some point ceased to be living words in the spoken language. Such literary elements survive in the texts, and are frequently reintroduced into the spoken language.

He did not define the second set of terms. He only mentioned that the distinction between 'colloquial' versus 'literary' and the one between 'popular' versus 'literary' are different. The former refers to contemporary usage of words, while the latter refers to the historical status of words.

Considering different usages of these two terms, in the present study I will use them basically to distinguish the 'indigenous reading' from the 'borrowed reading' of some words in the Shuyang dialect.

There are three reasons why it is more appropriate to use the terms indigenous and borrowed readings instead of colloquial and literary readings in the discussion of the historical evolution of the Shuyang dialect. First, in dual readings of some words, one of them is always a borrowed form which was influenced by standard speeches in different historical periods. Second, under the influence of the modern standard speech during this century, some borrowed forms are used both colloquially and literarily. For example, the following two words have dual readings in the Shuyang dialect.

		indigenous	borrowed
rou	肉 (DT ɾywɨk)	[ʐɥ]	[ʐɣɯ]
zei	贼 (DT cfiɔʁ)	[tsə]	[tsei]

The borrowed forms are used in speaking and reading, while the indigenous forms are only used by old people or in special compounds, such as *zei* 贼 [tsə] in the compound *maiguozei* [mækʉtsə] 'traitor'. The last but not the least, in the historical evolution of a Mandarin dialect such as the Shuyang dialect, the dialectal influence might not come from one single source. According to the discussion in Chapter III, three old Mandarin dialects in the history of China were successively regarded as standard speech from the eleventh century to the fifteenth century. These three old Mandarin dialects originated from one language, and they influenced one another. As I discussed in Chapter IV, the Shuyang dialect has a linguistic affiliation with OSM. However, since it is located next to Central Mandarin, some borrowed readings in this dialect are inevitably from Central Mandarin. In some cases, a sound change which first started in Northern Mandarin influence the Shuyang dialect in a later time, leaving some indigenous forms unaffected (see 5.5).

In modern Shuyang dialect, there is another type of dual readings shown below.

没 (DT mwɨt) [mə] (verb) in [mə luə tʂu] 'no place to stay'
[mei] (adverb) in [mei læ] 'didn't come'

白 (DT pɦaǩ) [pə] (adjective) in [pə tʂʏɯtɒ^{0}] 'white glove'
[pæ] (adverb) in [pæ feitɕiʏŋ] 'in vain'

The readings [mə] and [mei] for 没 actually belong to two different lexical items, one is a verb, the other is an adverb. The reading [mei] of 没 with a non-entering tone is directly borrowed from modern standard Mandarin and it can only be used as adverb. It means that the reading [mei] of 没 was borrowed into the Shuyang dialect as a different lexical item, which is not a situation I will focus

on.

In this chapter attention will be directed to this phenomenon: both readings are in entering tone and they are not different in meaning. See the following words.

ge	割 (DT kɔt)	[ka]	[kuə]
Guo	郭 (DT kwɔk)	[kua]	[kuə]
jiao	角 (DT kak)	[kuə]	[tɕüə]

One may wonder how the two paired forms developed. A logical answer will be provided when the evolution of entering tone words in the Shuyang dialect is examined.

5.1. *Shen-she* and *zhen-she*

The entering tone words from the *shen-she* and *zhen-she* are distributed in three Shuyang rhymes. The *kaikou* words (except those with retroflex initials and labial initial) are in the *qi-li* rhyme, the *hekou* words are in the *lu-zhou* rhyme. The words with retroflex initials or labial initials with /w/ medial are in the *tie-xue* rhyme which has the mid vowel. Here are some examples.

qi-li rhyme:	*li* 立 (DT lyɨp SY lyɨ)
	qi 七 (DT chyɨt SY k'yɨ)
	bi 笔 (DT pyɨt SY pyɨ)
lu-zhou rhyme	*tu* 突 (DT tɦwɨt SY twɨ)
	chu 出 (DT cjɦywɨt SY cʻwɨ)
	gu 骨 (DT kwɨt SY kwɨ)
	ju 橘 (DT kywɨt SY kywɨ)
tie-xue rhyme:	*shi* 十 (DT sjɦyɨp SY srə)
	zhi 侄 (DT tjɦyɨt SY crə)

bu 不 (DT pwɨt SY pə)

fo 佛 (DT pfiywɨt SY fə)

The stop ending of the *shen-she* words, according to Zhou (1943), still preserved in HJ. However, he found two poets from the Bian-Luo area rhymed *shi* 湿 (DT sjyɨp) and *ru* 入 (DT sjyɨp) with *ji* 寂 (DT cfiek) and *li* 力 (DT lyɔk), and *yi* 邑 (DT qyɨp) with *yu* 域 (DT øywɔk). This phenomenon indicates that all the stop endings started to disappear in the eleventh century in OCM. Shao Yong listed the entering tone words from the *zhen-she* and the *geng-zeng-she* together with the *zhi-xie-she* words in HJ (3.3.1). As argued, */k/* ending changed to glide */y/* in Northern Mandarin. The *geng-zeng-she* words were grouped with the *zhi-xie-she* words without any question. The glottal stop of the *zhen-she* words might sound like the glide */y/* in Shao Yong's dialect. This assumption explains why the *zhen-she* and the *geng-zeng-she* words were grouped with the *zhi-xie-she* words in HJ. It may also be applicable for ONM. In ZY, the entering tone words from the Div. III of the *shen-zhen-she* with the *kaikou* feature (except those with the *zhuang* initials), such as *se* 涩 (DT sryɨp), were listed in the *qi-wei* rhyme that had the */y/* ending (Hsueh 1975: 111).

I have argued that non-entering tone syllables of the *shen-zhen-she* lowered their vowel from high to mid during the second stage of the evolution of the Shuyang dialect (4.4.9 and 4.4.13). For the entering tone words of these two *she*'s, a vowel lowering must also have occurred in certain circumstances. It is found that the vowel was lowered in the words which have retroflex initials and the *kaikou* feature, such as *zhi* 汁 (DT cjyɨp SY crə), *shi* 十 (DT sjfiyɨp SY srə), *zhi* 侄 (DT tjfiyɨt SY crə), *shi* 虱 (DT sryɨt SY srə), *shi* 实 (DT cjfiyɨt SY srə), but not in the *hekou* syllables such as *chu* 出 (DT cjhywɨt SY cr'wɨ) and *shu* 术 (DT

cjfiywɨt SY srwɨ). The vowel lowering can be formulated like this.

(1) ɨ > ə / C [+retroflex] __ ʔ

The glottal ending in the rule indicates that the stop endings /p, t, k/ had already changed to a glottal ending when this sound change occurred.

The entering tone words with the *hekou* feature from the *zhen-she* are listed in the *lu-zhou* rhyme if their initials are non-labial, such as *tu* 突 (DT tfiwɨt SY twɨ), *chu* 出 (DT cjhywɨt SY cr'wɨ), *gu* 骨 (DT kwɨt SY kwɨ), *ju* 橘 (DT kywɨt SY kywɨ). If they had labial initials, the vowel was lowered to mid, and they are listed in the *tie-xue* rhyme, such as *bu* 不 (DT pwɨt SY pə), *mei* 没 (DT mwɨt SY mə), *fo* 佛 (DT pfiywɨt SY fə).[2] The following list shows those with labial initials in other Jianghuai dialects (data except the Shuyang dialect are from Jiangsu 1960).

	Yangzhou	Huaiyin	Haizhou	Shuyang
bu 不 (DT pwɨt)	pəʔ	pəʔ	pə	pə
mei 没 (DT mwɨt)	məʔ	məʔ	mə	mə
fo 佛 (DT pfiywɨt)	fəʔ	fəʔ	fə	fə

With this observation, the vowel lowering in the *shen-zhen-she* occurred in two cases: those with retroflex initials reflected in rule (1) above, and those with labial initials without palatal medial,[3] represented as below.

(2) ɨ > ə / C [+labial] M [-palatal] __ ʔ

This sound change must have occurred after the labial-dentalization of initials.

[2] Those with the 'zero' initial shared the same sound change as the words with guttural initials and are listed in the *lu-zhou* rhyme, such as *wu* 物 (DT mywɨt) and *wu* 勿 (DT mywɨt).

[3] The Div. III words with the *kaikou* feature are not included, such as *bi* 笔 (DT pyɨt SY pyi) and *mi* 蜜 (DT myɨt SY myi).

In 2.8.2, I mentioned that the final [ʉ] in the word *gu* 骨 (DT kwɨt SY kwɨ) in Shuyang corresponds to the final [uəʔ] of Yangzhou. This means that those with retroflex initials and the *hekou* feature like *chu* 出 (DT cjɦywɨt SY ɕʻwɨ Yangzhou [tsʻuəʔ]) and those with non-labial initials like *hu* 忽 (DT xwɨt SY xwɨ Yangzhou [xuəʔ]) had undergone a vowel lowering in Yangzhou. But they did not lower their vowel in Shuyang.

After the vowel lowering and the stop ending deletion, the entering tone finals of the *shen-zhen-she* are listed in Table 32.

Table 32. Entering tone finals of *shen-zhen-she* in Shuyang

	division I	division III
kaikou		yɨ, ə
hekou	wɨ, wə	ywɨ*, wə

* Finals after retroflex initials or the 'zero' initial became /wɨ/.

5.2. *Geng-she* and *zeng-she*

The entering tone words from the *geng-zeng-she* are distributed in three Shuyang's rhymes. Here are some examples.

qi-li rhyme	*li* 力 (DT lyɔk SY lyɨ)
	mi 觅 (DT mek SY myɨ)
	ji 脊 (DT cyak SY kyɨ)
lu-zhou rhyme	*guo* 国 (DT kwɔk SY kwɨ)
	yu 域 (DT øywɔk SY ywɨ)

tie-xue rhyme　　*bei* 北 (DT pɔk̚ SY pə)
shi 食 (DT cjɦiyɔk̚ SY srə)
ge 格 (DT kak̚ SY kə)
chi 尺 (DT cjɦyak̚ SY ʈ'ə)
guo 国 (DT kwɔk̚ SY kwə)
yu 域 (DT øywɔk̚ SY ywə)

The words of the *geng-she* and those of the *zeng-she* merged into one rhyme group in SD, which has been summarized as a vowel change (rule [1] in 4.4.11). After that, the palatal stop ending changed to the glide /y/ in Northern Mandarin (Hsueh 1975: 104, 1992). In Southern Mandarin, a vowel raising occurred in the *qichi* or *cuokou* syllables of the *geng-zeng-she* (Hsueh 1992). Without counterevidence, a vowel raising from /e/ to /ɨ/ in the *qichi* or *cuokou* syllables must have also occurred in Shuyang, shown as below.

(1)　　e > ɨ / y (w) __ k̚

After rule (1), those having the high vowel with the labial medial changed their vowel to mid. Later, those with the low vowel also raised their vowel to mid. These two changes can be written as follows.[4]

(2)　　ɨ > ə / w __ k̚

(3)　　e > ə / __ ʔ

The ending /k̚/ of the *geng-zeng-she* might still exist or merge with /k/ ending when the sound change reflected in rule (2) happened. However, several considerations make me believe that /k̚/ ending must have still existed when the sound change represented by rule (2) occurred. First, that sound change did not occurred in the *tong-she* words (with /k/ ending) which also had the high vowel and the labial medial. Tat change must have occurred earlier than the merger of

[4] Rule (3) will be included in rule (2) in 5.4.

/k̚/ and /k/. Second, the data about other Jianghuai dialects in Jiangsu (1960) indicate that there was a vowel change in these *geng-zeng-she* words. Among the six Jianghuai dialects (Yangzhou, Gaoyou, Yancheng, Huaiyin, Taizhou and Rugao) are there a total of 57 entering tone words from the *tong-she* which all have vowels [o] or [ɔ] as nucleus.[5] However, the two words from the *geng-she* with the *hekou* feature, *yi* 役 (DT øywak̚ SY ywɨ or yə) and *yi* 疫 (DT øywak̚ SY ywɨ or yə), do not have a consistent reading like the *tong-she* words in these six Jianghuai dialects. See the following list.

	yi 役 (DT øywak̚)	*yi* 疫 (DT øywak̚)
Taizhou[6]	yʊʔ or yəʔ	yʊʔ or yəʔ
Gaoyou	yɪʔ	yɪʔ
Rugao	yɪʔ	yɪʔ
Yangzhou	yəʔ	yəʔ
Huaiyin	ieʔ	ieʔ
Yancheng	yoʔ	yoʔ

Taizhou, Gaoyou and Rugao dialects have a high vowel for these words, while the other dialects (including the Haizhou dialect) have a non-high vowel.[7]
I believe that the forms with a high vowel appeared earlier, while those with a non-high vowel appeared later. According to their distribution in Jianghuai dialects and the dual readings in Taizhou and Shuyang, a vowel lowering in the *geng-zeng-she* (from /ɨ/ to /ə/) must have happened after rule (1), when the

[5] The only examples are *yu* 玉 (DT ŋywɨk̚ SY ywɨ) and *rou* 肉 (DT ɾywɨk̚ SY ɾwɨ), which have nuclear vowels [y] and [ɤ] respectively in some dialects.

[6] The dual readings in Taizhou are all literary, see Lu (1988).

[7] According to the sound changes I have proposed earlier, the earlier form which has a high vowel maintains in southern area of Jianghuai Mandarin (see Map 2), while the later form which has a non-high vowel is mostly observed in northern area. In the later form, the labial medial is found lost in Huaiyin.

geng-zeng-she had a different ending from the *tong-she*. An implication of the significant discrepancy between the *tong-she* words and the *geng-she* words with the *hekou* feature in Jiangsu's data is that when the sound change in rule (2) happened, the */k̚/* ending still existed.

The following words reflect the sound changes in the *geng-zeng-she* words.

zeng-she	*geng-she*
bei 北 (DT pɔk̚ SY pə)	*bai* 百 (DT pak̚ SY pə)
se 色 (DT sryɔk̚ SY sə)	*zhai* 窄 (DT crak̚ SY cə)
shi 食 (DT cjɦiyɔk̚ SY srə)	*ke* 客 (DT khak̚ SY k'ə)
ji 极 (DT kɦiyɔk̚ SY kyɨ)	*di* 笛 (DT tɦiek̚ SY tyɨ)
guo 国 (DT kwɔk̚ SY kwɨ or kwə)	*huo* 获 (DT xɦwak̚ SY xwɨ or xwə)

Some other changes in these words need to be mentioned. First, it is noted that the */y/* insertion in the Div. II words with guttural initials did not occur in words like *ke* 客. When the */y/* insertion happened in Southern Mandarin, the merger of the *geng-she* and *zeng-she* represented by rule (1) in 4.4.11 had already occurred in OSM. The Div. II words from the *geng-she* such as *ke* 客, *ge* 格 (DT kak̚ SY kə), *e* 额 (DT ŋak̚ SY ə), *xia* 吓 (DT xak̚ SY xə), *ge* 隔 (DT kak̚ SY kə), therefore, were not qualified for that insertion (see Hsueh 1992). Second, the */y/* deletion after the retroflex initials such as in *shi* 食, and a de-retroflexion in some *geng-zeng-she* words such as in *se* 色 must also have occurred.[8]

The dual readings of some *hekou* syllables in the *geng-zeng-she*, such as *guo* 国 (DT kwɔk̚ SY kwɨ or kwə) and *huo* 获 (DT xɦwak̚ SY xwɨ or xwə), are

[8] This de-retroflexion was mostly observed in OSM (see Chou 1989: 117-20).

clear evidence to support the two vowel changes in rule (1) and rule (2) I proposed for the *geng-zeng-she* words. It is obvious that the form with the high vowel underwent the vowel change rule (1) but not the vowel change rule (2). The form with the mid vowel, close to their literary readings of Northern Mandarin, underwent both vowel change rules. When the sound changed reflected in rule (2) happened in Shuyang, some earlier forms still maintained.

In 2.1, I mentioned that people in the western part of the Shuyang county pronounced the word *maizi* 麦子 as [mei tsɿ], not [mə tsɿ] as people in the eastern part of Shuyang. I also mentioned that the [mei tsɿ] reading is the result of influence by Central Mandarin. We now can explain why Central Mandarin has the [ei] (/ɨy/) final for *mai* 麦 (DT maǩ). In Central Mandarin, after stop ending /ǩ/ changed to the glide /y/, the entering tone disappeared. The former entering tone words like *mai* 麦 (DT maǩ), *bai* 百 (DT paǩ), and *bai* 白 (DT pɦiaǩ), must have undergone the same vowel change as those non-entering tone counterparts of the *zhi-she* and the *xie-she* (see rule [2] in 4.4.4). That is why Central Mandarin has a high vowel and the glide /y/ for words like *mai* 麦. In Shuyang, after the *geng-she* and the *zeng-she* merged (ɔ, a > e / __ ǩ), words like *mai* 麦 raised their vowel to mid after the stop ending changed to a glottal ending.

In summary, the main sound changes in the entering tone words of the *geng-zeng-she* are listed below:

$$\begin{Bmatrix} ɔ \\ a \end{Bmatrix} > e \;/\; \_\_\; ǩ$$

$$e > ɨ \;/\; y\,(w)\; \_\_\; ǩ$$

$$ɨ > ə \;/\; w \_\_\; ǩ$$

ǩ > k

e > ə / __ ʔ

After these sound changes, the entering tone finals of the *geng-zeng-she* can be listed as in Table 33.

Table 33. Entering tone finals of *geng-zeng-she* in Shuyang

	division	division
	I / II	III / IV
kaikou	ə	yɨ, ə
hekou	wɨ, wə	ywɨ, ywə, yə

5.3. *Tong-she*

The entering tone words from the *tong-she* are distributed in two Shuyang rhymes, the *lu-zhou* rhyme and the *tie-xue* rhyme, shown as below:

lu-zhou rhyme — *tu* 秃 (DT thwɨk SY t'wɨ)
shu 叔 (DT sjywɨk SY srwɨ)
ju 菊 (DT kywɨk SY kywɨ)

tie-xue rhyme — *mu* 木 (DT mwɨk SY mwə)
fu 福 (DT pywɨk SY fwə)

The words of the *tong-she* had the final /wɨk/ (Div. I) or /ywɨk/ (Div. III) in the Dengyun tables. In Northern Mandarin, the velar stop ending changed to the glide ending /w/ (Hsueh 1975: 106 and Hsueh 1992). This sound change did not occur in the Shuyang dialect.

As their non-entering tone counterparts, entering tone words of the *tong-she* had also lost palatal medial except those with guttural initials. For the non-entering tone words, I considered the /y/ deletion rule prior to the vowel lowering in the *tong-she* without explanation (see 4.4.12). The derivation of entering tone words of the *tong-she* indicates that this /y/ deletion happened when the stop endings /p, t, k/ were still in contrast. One can find that the entering tone words of the *shen-zhen-she* with the *hekou* feature did not delete that medial. It means that when the /y/ deletion occurred, the *tong-she* words must have a different stop ending from the *zhen-she* words, and that deletion only affected the *tong-she* words. The /y/ deletion can be written like this:

$$y > \emptyset \,/\, C\,[+\text{coronal}]\ \_\_\ w\,i\begin{Bmatrix} k \\ ŋ \end{Bmatrix}$$

Words with labial initials in the *tong-she* lowered the vowel to mid while the others did not. In modern Shuyang dialect, they are pronounced without the labial medial, such as *fu* 福 (DT pywɨk SY fə), *fu* 服 (DT pfiywɨk SY fə), *mu* 目 (DT mywɨk SY mə), and *mu* 木 (DT mwɨk SY mə). A vowel lowering must have happened in these labial initial words after the /k/ ending changed to a glottal. I discussed that the high vowel was lowered to mid in labial initial words without palatal medial (rule [2] in 5.1). The vowel lowering in the *tong-she* words must be the same as the one in the *shen-zhen-she* words. The following formula represents the vowel change in these two cases.

$$ɨ > ə \,/\, C\,[+\text{labial}]\ M\,[-\text{palatal}]\ \_\_\ ʔ$$

As a summary, the sound changes in the *tong-she* words can be listed below:

$$y > \emptyset \ /\, C\,[+\text{coronal}]\ \_\_\ w\,ɨ\begin{Bmatrix} ŋ \\ k \end{Bmatrix}$$

k > ʔ / __ #

ɨ > ə / C [+labial] M [-palatal] __ ʔ

With these sound changes, the entering tone finals of the *tong-she* can be listed in Table 34.

Table 34. Entering tone finals of *tong-she* in Shuyang

	Lu-zhou rhyme	
	division	division
	I	III
hekou	wɨ*	ywɨ, wɨ*

* Finals after labial initials became */ə/*.

5.4. *Shan-she* and *xian-she*

The entering tone words from the *shan-xian-she* appear in either the *kuo-da* rhyme or the *tie-xue* rhyme, shown as below:

kuo-da rhyme (for their phonemic forms in the Shuyang dialect, see Appendix R)

ta 塔 (DT thɔp), *jia* 夹 (DT kap), *fa* 法 (DT pywap)

ge 割 (DT kɔt), *shua* 刷 (DT srwat), *ba* 八 (DT pat), *fa* 发 (DT pywat)

tie-xue rhyme (for their phonemic forms in the Shuyang dialect, see Appendix Q)

he 盒 (DT xfiɔp), *ke* 磕 (DT khɔp), *she* 涉 (DT sjfiyap)

ke 渴 (DT khɔt), *bie* 鳖 (DT pyat), *po* 泼 (DT phwɔt), *kuo* 阔 (DT khwɔt)

The Div. I of the *shan-xian-she* had the vowel /ɔ/ in the Dengyun tables. In the Shuyang dialect, the *kaikou* words of Div. I with non-guttural initials merged with their Div. II counterparts whose vowel /a/ is correspondent to /ɑ/ in the modern dialect. However, those with guttural initials have a different vowel from their Div. II counterparts in Shuyang.

Div. I	Div. II
he 喝 (DT xɔp SY xwə)	*xia* 瞎 (DT xat SY xyɑ)
ke 磕 (DT khɔp SY k'wə)	*jia* 夹 (DT kap SY kyɑ)
ke 渴 (DT khɔt SY k'wə)	*ya* 轧 (DT qat SY yɑ)
kuo 阔 (DT khwɔt SY k'wə)	*gua* 刮 (DT kwat SY kwɑ)

Based on their phonemic forms in the modern dialect, these Div. I words with the *kaikou* feature must have merged with their *hekou* counterparts. A medial insertion is thus proposed as below:

(1) ø > w / G __ ɔ ʔ

Since these *kaikou* words did not have a medial in HZ, I believe this medial insertion must have occurred later than the fourteenth century when the stop endings /p, t, k/ had already changed to a glottal stop. Later, the back low vowel of the Div. I and the front low vowel of the Div. III/IV was raised to mid when the vowel system of Shuyang changed. This vowel raising can be written like this:

(2) $\left\{ \begin{matrix} e \\ ɔ \end{matrix} \right\}$ > ə / __ ʔ

In the historical evolution of Northern Mandarin, a similar sound change as rule (2) is found. After the seventeenth century, the two different rhymes in the so-called '*Shi-san zhe*' (The thirteen rhymes), the *mie-xie* rhyme that had the front low vowel as nucleus, and the *suo-po* rhyme that had the back low vowel as nucleus, merged into one rhyme in the Beijing dialect. Hsueh (1986)

proposed a vowel change rule for this merger, shown as below (p. 103).

$$\begin{Bmatrix} e \\ ɔ \end{Bmatrix} > ə \ / \ \_\_ \ \#$$

With two sound changes (rule [1] and rule [2]) and other related sound changes we discussed earlier, the derivation of the Div. I and II words with guttural initials can be illustrated in the words *he* 喝 and *xia* 瞎.

he 喝	*xia* 瞎	
xɔp	xat	(in Dengyun tables)
---	xyat	(*/y/* insertion)
xɔʔ	xyaʔ	(change of ending)
xwɔʔ	---	(medial insertion)
xwəʔ	---	(vowel raising)

All the Div. III and IV syllables with the *kaikou* feature have the final */yə/* in the modern dialect. Their non-entering tone syllables raised the vowel from */e/* to */ə/* (4.4.8). The same vowel change must have also occurred in their entering tone counterparts after the stop endings changed to a glottal stop.

Words previously with retroflex initials now have the palatal initials. Detailed discussion about this sound change is in 4.2.2 and 4.4.8.

The word *ge* 割 (DT kɔt) needs attention. I mentioned in 5.0 that this word has two readings in the Shuyang dialect: */kɑ/* and */kwə/*. It is obvious that the */kɑ/* form underwent neither the sound change represented by rule (1) nor the one by rule (2) of the *shan-xian-she*. This reading must be influenced by a dialect where the Div. I words with guttural initials merged with the Div. II words without exception. The sound changes of the word *ge* 割 may be ordered like this.

	indigenous	borrowed	
ge 割	kɔt	kɔt	(in Dengyun tables)
	---	kat	(merger of Div. I and II)
	kɔʔ	kaʔ	(change of ending)
	kwɔʔ	---	(medial insertion)
	kwəʔ	---	(vowel raising)

When the vowel raising reflected in rule (2) happened in Shuyang, the indigenous form raised the vowel but the borrowed form still maintained.

As to the *hekou* syllables, it seems that the *hekou* words followed the sound changes in their *kaikou* counterparts because their vowels are distributed in a similar way in the dialect (see Table 35). However, the situation is different. In the *kaikou* syllables, the Div. III words such as *she* 涉 (DT sjfiyap ST xyə) and *re* 热 (DT ryat ST yə) underwent a vowel raising at an earlier stage (see 4.4.8), while the Div. I words like *he* 盒 (DT xfiɔp ST xwə) and *ke* 渴 (DT khɔt SY k'wə) underwent a vowel raising reflected in rule (2) of this section at a later time. In the *hekou* syllables, the Div. III/IV words like *xue* 雪 (DT sywat SY xywə) and the Div. I words like *tuo* 脱 (DT thwɔt SY t'wə) underwent the later vowel raising, the earlier vowel raising in the *kaikou* syllables did not occur in the *hekou* words.

The Div. III words with labial initials like *fa* 法 (DT pywap SY fɑ) and *fa* 发 (DT pywat SY fɑ) underwent a labial-dental change earlier,[9] so they have the same vowel as the Div. II.

After the sound changes we discussed earlier, the entering tone finals of the *shan-xian-she* can be listed in Table 35.

[9] For a detailed discussion of this change, see Hsueh (1975: 38-40).

Table 35. Entering tone finals of *shan-xian-she* in Shuyang

	division I	division II	division III / IV
kaikou	a, wə	a	yə
hekou	wə	wa	ywə*

* Finals after retroflex initials became */wəl*.

5.5. *Jiang-she* and *dang-she*

The entering tone words from the *jiang-she* and the *dang-she* are listed in the *tie-xue* rhyme (Appendix Q) which has the vowel */ə/* as nucleus in the modern dialect, shown in the following list.

mo 莫 (DT mɔk SY mə), *bo* 剥 (DT pak SY pə)

ge 各 (DT kɔk SY kwə), *ke* 壳 (DT khak SY k'wə), *tuo* 托 (DT thɔk SY t'wə), *zhuo* 桌 (DT tjak SY crwə)

que 雀 (DT cyɔk SY kywə)

It had been discussed in 4.4.10 that the non-entering tone syllables with retroflex initials in the *jiang-she* had the *hekou* feature in Proto-Mandarin. Based on this observation, a labial medial is also expected to appear in certain entering tone syllables of the *jiang-dang-she*. The fact is all the entering tone words from the *jiang-dang-she* have that medial in the Shuyang dialect. I believe that after the merger of the *jiang-she* and the *dang-she*, all the entering tone syllables had the *hekou* feature.

Later, during the second stage of the evolution of the Shuyang dialect, the back low vowel of the *jiang-dang-she* words raised the vowel to */ə/*. In 5.4, I

proposed a vowel raising for the entering tone words in the *shan-xian-she* (rule [2] in 5.4). That sound change rule is also applicable to the *jiang-dang-she* words.

Among the Div. I words of the *dang-she* with the *hekou* feature, there are two exceptional words *Kuo* 郭 (DT kwɔk) and *Huo* 霍 (DT xwɔk) (both are family names) which have dual readings in Shuyang: /kwɑ/ and /kwə/ for *Kuo* 郭, /xwɑ/ and /xwə/ for *Huo* 霍. The main difference between the two readings is the vowel, one has a low vowel, the other had a mid vowel. It is obvious that the form with the mid vowel underwent the vowel raising I proposed in 5.4, while the form with the low vowel did not undergo that change. With this consideration, it is reasonable to say that the latter is an earlier form, the former is a later form. The readings of the words like *Guo* 郭 and *kuo* 扩 (DT khwɔk SY k'wə) in other Jianghuai dialects support this assumption. Here are examples (Jiangsu 1960: 601).

	Guo 郭 (DT kwɔk)	*kuo* 扩 (DT khwɔk)
Yangzhou	kuɑʔ	k'uɑʔ
Gaoyou	kuɑʔ	k'uɑʔ
Yancheng	kuɑʔ	k'uɑʔ
Huaiyin	kuɑʔ	k'uɑʔ
Taizhou	kuɑʔ	k'uɑʔ
Rugao	kuaʔ	k'uaʔ
Haizhou	kuə	k'uə

Only the Haizhou dialect has a mid vowel for these words, the others have all a low vowel. This is clear evidence to indicate that the /kwɑ/ reading of *Guo* 郭 in Shuyang is an earlier form which still maintains in many Jianghuai dialects, while the /kwə/ reading is a later form which appears on the northern border of

Jianghuai Mandarin, where an influence from Central Mandarin is clearly observed. When the vowel change represented in rule (2) in 5.4 happened in Shuyang, all the back low vowel changed to a mid vowel. But some words such as *Guo* 郭 and *Huo* 霍 maintained the earlier form.

The word *jiao* 角 (DT kak) 'horn' in the *jiang-she* also needs attention. It has two readings in the Shuyang dialect: /kwə/ and /kywə/. The first reading /kwə/ did not undergo the major sound change in the evolution of Mandarin, that is, the *kaikou* Div. II syllables with guttural initials had obtained a palatal medial. Those without a palatal medial were probably derived from an earlier form of Mandarin in which the insertion of /y/ in the Div. II syllables did not happen in the *jiang-dang-she* words. One consideration favors this assumption. I find that none of Jianghuai dialects has a palatal medial in the colloquial reading of this word (Jiangsu 1960: 651). The following examples are illustrative.

	角 (DT kak)
Haizhou	kuɑ or tɕyə
Yangzhou	kɑʔ
Gaoyou	kɑʔ
Yancheng	kɑʔ
Huaiyin	kɑʔ
Taizhou	kɑʔ
Rugao	kaʔ

The above readings of this word indicate that the /kwə/ form in the Shuyang dialect is not a common form in Jianghuai Mandarin.

In 4.4.4, I also argued that some *xie-she* words such as *jie* 街 (DT kay) and *xie* 鞋 (DT xfiay) in many Jianghuai dialects did not undergo the /y/ insertion either. This indicates that the insertion of /y/ in the Div. II syllables did not occur

at an earlier stage of OSM. Hsueh (1992) claimed that the insertion started in Northern Mandarin, then its wave of influence reached Southern Mandarin earlier than the fourteenth century. The Shuyang case and the data from other Jianghuai dialects show that this claim is not correct. The wave of influence tapered off in the Shuyang dialect, leaving a mixture of affected and unaffected words, for instance, 角 (DT kak SY kwə or kywə), 搉 (DT khak SY k'wə) and 壳 (DT khak SY k'wə) versus 觉 (DT kak SY kywə), 乐 (DT ŋak SY ywə), 学 (DT xfiak SY xywə).

In summary, after the coalescence of the *jiang-dang-she*, all the entering tone words became *hekou* syllable. Later, the vowel was raised to /ə/. With these sound changes, the entering tone finals of the *jiang-dang-she* can be listed in Table 36.

Table 36. Entering tone finals of *jiang-dang-she* in Shuyang

Tie-xue rhyme	
division	division
I / II	III
wə, ywə	ywə*

* Finals after retroflex initials became /wə/.

5.6. A list of sound changes in entering tone syllables

To illustrate how entering tone syllables developed in Shuyang, I list sound changes pertaining to entering tone syllables according to the relative chronology. The glottal stop ending was lost in the third period of the evolution

of Shuyang. The non-entering tone finals will appear when the same sound change also happened in those finals.

e > ɨ /y (w) __ ǩ

(vowel raising in *geng-zeng-she*, see 5.2)

ɨ > ə / w __ ǩ

(vowel change in *geng-zeng-she*, see 5.2)

$y > \emptyset$ / C [+coronal] __ w ɨ $\begin{Bmatrix} k \\ ŋ \end{Bmatrix}$

(*/y/* deletion in *tong-she*, see 4.4.12 and 5.3)

ǩ > k / __ #

$\begin{Bmatrix} p \\ t \\ k \end{Bmatrix}$ > ʔ / __ #

r > ø / C __ y e $\begin{pmatrix} n \\ m \\ ʔ \end{pmatrix}$

(de-retroflexion in *shan-xian-she* and *jia-she*, see 4.4.2, 4.4.8 and 5.4)

e > ə /y __ $\begin{pmatrix} n \\ m \\ ʔ \end{pmatrix}$

(vowel raising in *shan-xian-she* and *jia-she*, see 4.4.2, 4.4.8 and 5.4)

ɨ > ə /C [+labial] M [-palatal] __ ʔ

(vowel lowering in *shen-zhen-she* and *tong-she*, see 5.1 and 5.3)

ɨ > ə / C [+retroflex] __ ʔ

(vowel lowering in *shen-zhen-she*, see 5.1)

ø > w / G __ ɔ ʔ

(/w/ insertion in *shan-xian-she*, see 5.4)

$\left\{ \begin{matrix} e \\ ɔ \end{matrix} \right\}$ > ə / __ (ʔ)

(vowel change in *geng-zeng-she*, *shan-xian-she*, and *jiang-dang-she*, see 5.2, 5.4, and 5.5)

ʔ > ø / __ #

(loss of the glottal stop ending)

CHAPTER VI

CONCLUSIONS

This thesis provides a synchronical and diachronical description of the Shuyang dialect. With this description of a Mandarin dialect which is located on the border between Southern Mandarin and Central Mandarin, I have demonstrated that this dialect has linguistic affiliation with Southern Mandarin but with a notable influence from Central Mandarin due to historical and geographical factors. In this concluding chapter, I will try to draw together the most important assumptions, positions, and results that have been discussed in this work.

6.1. Shuyang's initials, finals and tones

The Shuyang dialect maintains most of the features of Southern Mandarin. In initials, the dental nasal [n] and the lateral [l] are not in contrast. In finals, words derived from the *shan-xian-she* are split into three Shuyang rhymes, namely, the *tian-xian* rhyme, the *pan-huan* rhyme and the *gan-dan* rhyme. In tone, it still maintains the entering tone as a separate category. However, compared with its major neighboring dialects, modern Shuyang dialect lacks two features which are very common in Southern Mandarin. The retroflex initials and dental sibilant initials are in contrast in the Shuyang dialect, while most of Jianghuai dialects have only one set for these two initial series.

The entering tone syllables lost the glottal stop in this dialect, but most of Jianghuai dialects still have this stop.

The diachronoical description of the Shuyang dialect explains why the distinction between retroflex initials and dental sibilant initials is maintained in this dialect. A de-retroflexion of initials occurred at an earlier stage of Southern Mandarin, but this de-retroflexion occurred only in the Div. III/IV of the *jia-she* and the *shan-xian-she* words in Shuyang, which later underwent a palatalization of initials.

The tone sandhi changes in the Shuyang dialect are stress related. They depend on two aspects of a syllable: the position of the syllable in a compound and the syllable's citation tone. A syllable is less stressed if it appears in a preterminal position in a compound. A less stressed syllable always undergoes a tone sandhi change. The *yangping*, *shang* and *ru* tones change to a mid level tone, while the *yinping* and *qu* tones change to a low level tone.

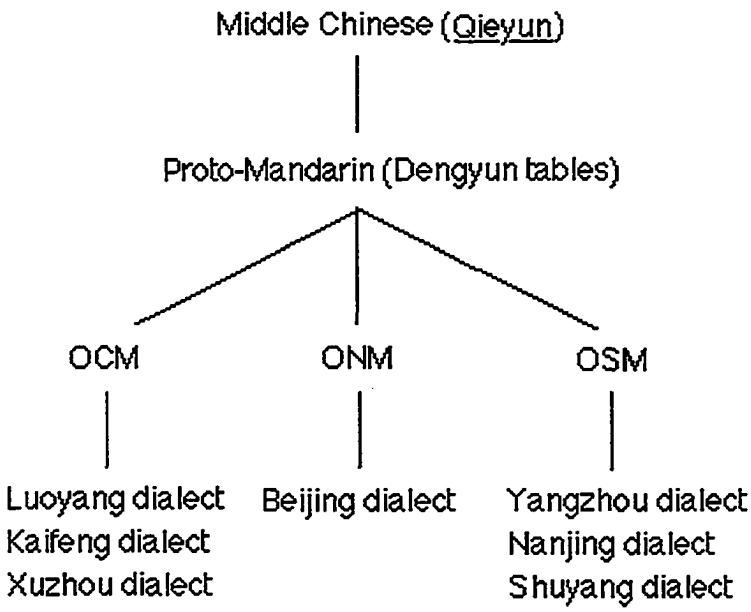
6.2. Three periods in the evolution of the Shuyang dialect

On the basis of the evolution of non-entering tone syllables, the historical development of the Shuyang dialect was divided into three periods. The first period started from the fourteenth century until the sixteenth century. In this period, a vowel raising process occurred in the *jia-she* and the *shan-xian-she* words. As a result, a special Shuyang rhyme, the *tian-xian* rhyme, was thus formed. The de-retroflexion of certain words with retroflex initials which later caused their initials to be palatals, another unique character of the Shuyang dialect, also occurred in this period. The second period extended from the sixteenth century to the eighteenth century, when the three-way-contrast in low vowels became a two-way-contrast in the dialect. From the eighteenth century

to the present is the third period when the entering tone syllables lost their glottal stop ending but the entering tone is still maintained.

6.3. Three old Mandarin dialects and dialectal influences in the evlotion of the Shuyang dialect

In the history of the Chinese language, the sound system reflected in the Dengyun rhyme tables is considered Proto-Mandarin which later developed into three major old Mandarin dialects: Old Central Mandarin, Old Northern Mandarin and Old Southern Mandarin. The Shuyang dialect descended from Old Southern Mandarin. The linguistic relationship of the early forms of Mandarin and their major descendent dialects can be roughly represented by the following diagram.



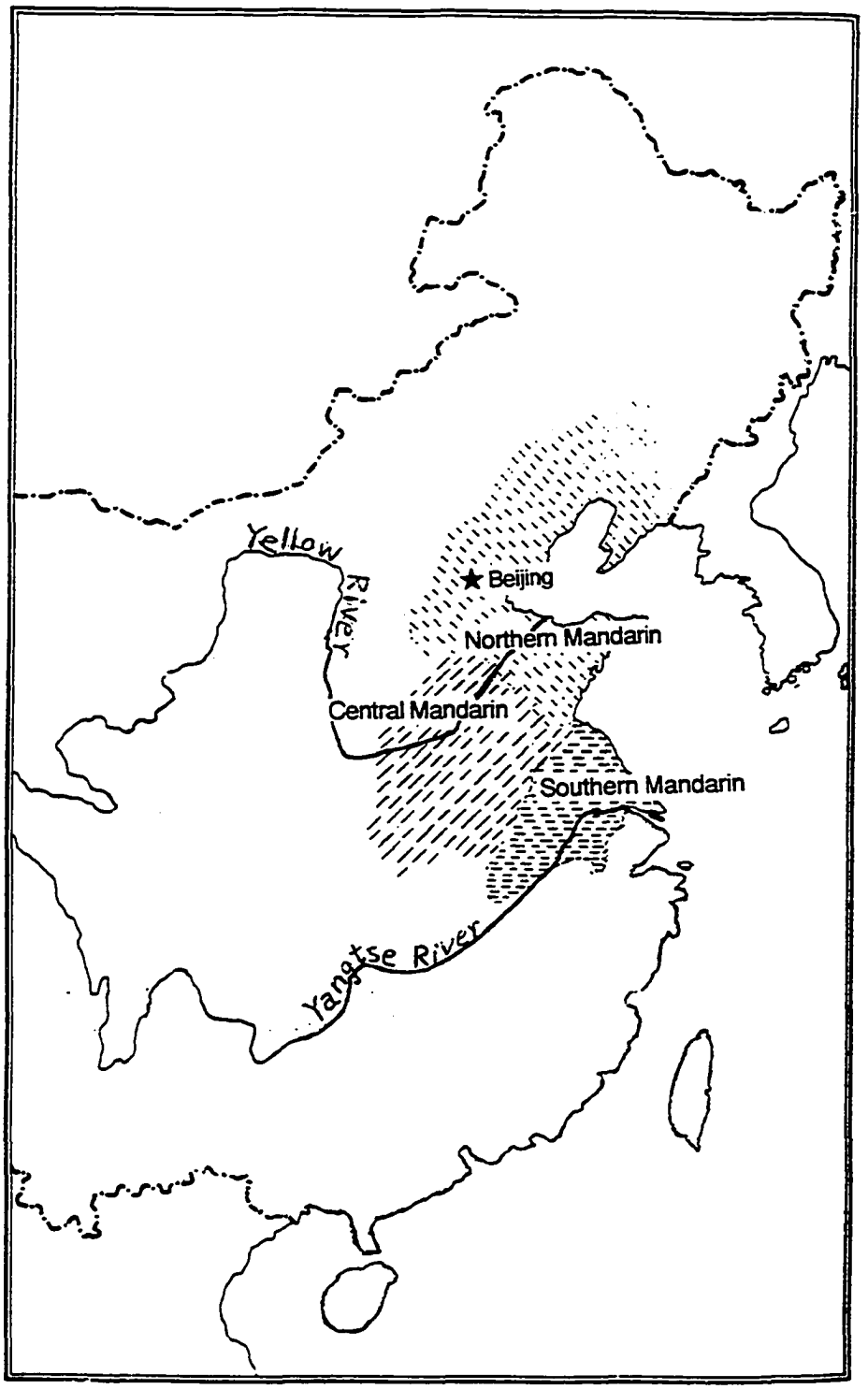
The distinction between colloquial readings versus literary readings is usually considered as a dual-layered structure in the lexicon. The evolution of entering tone syllables of Shuyang shows that the concept of dialectal

overlapping is a possible explanation for the dialectal interferences in Mandarin dialects like Shuyang. The dual readings of entering tone words in the dialect, in most cases, represent a contrast between the indigenous reading and the borrowed reading. The former resulted from the evolution in Southern Mandarin, the latter from Central Mandarin or Northern Mandarin which heavily influenced the Shuyang dialect.

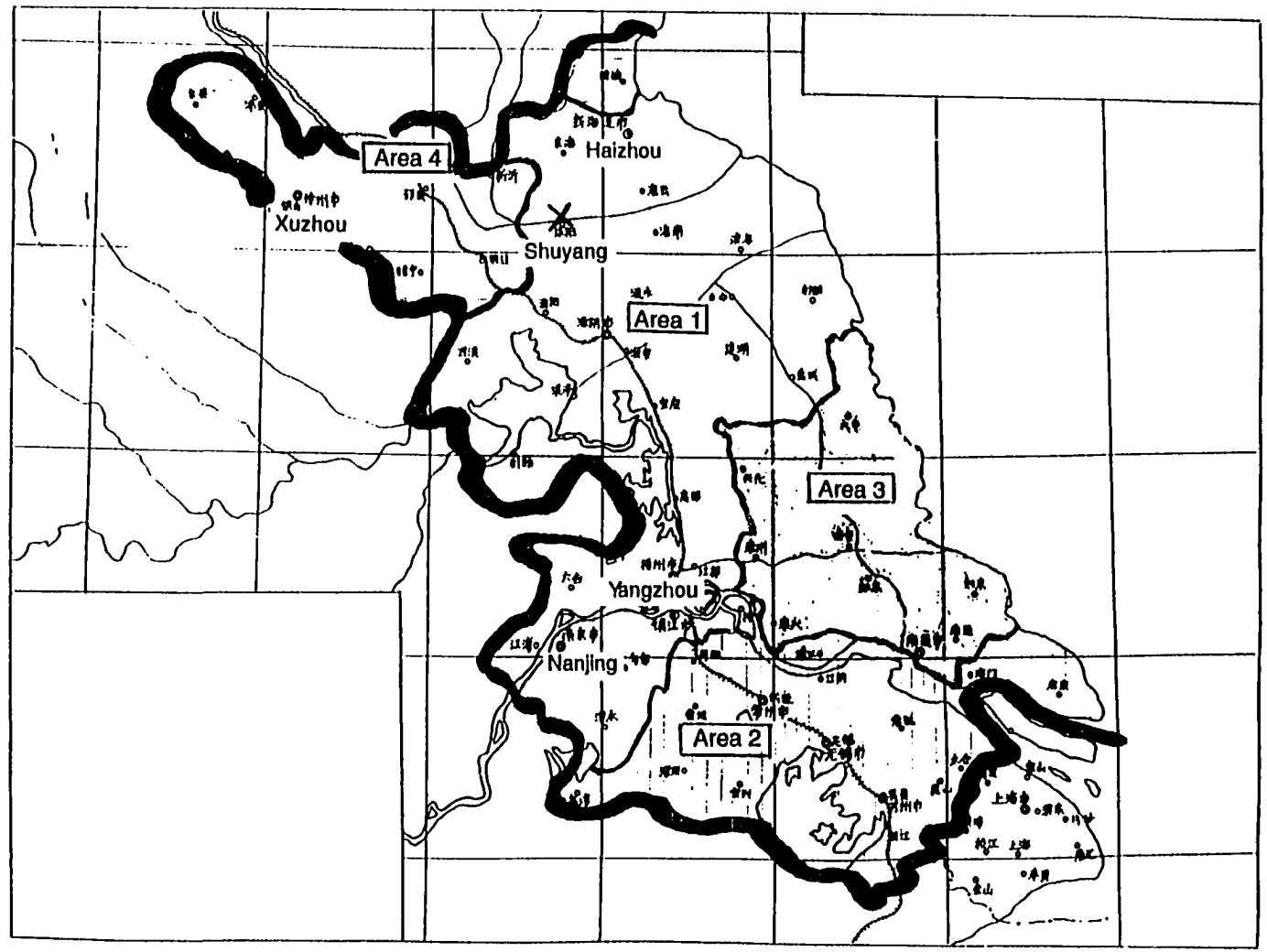
Following Prof. Zhou Zumo's study, I started by assuming that HJ represents an earlier stage of Central Mandarin, but my own study, still tentative in nature, has made me rather skeptical. Now I feel it perhaps reflects Shao Yong's native dialect which belongs to Northern Mandarin. Naturally , more intensive study of the book has to be made before we can reach a more definite conclusion. I intend to make it my next research project.

6.4. Concluding remarks

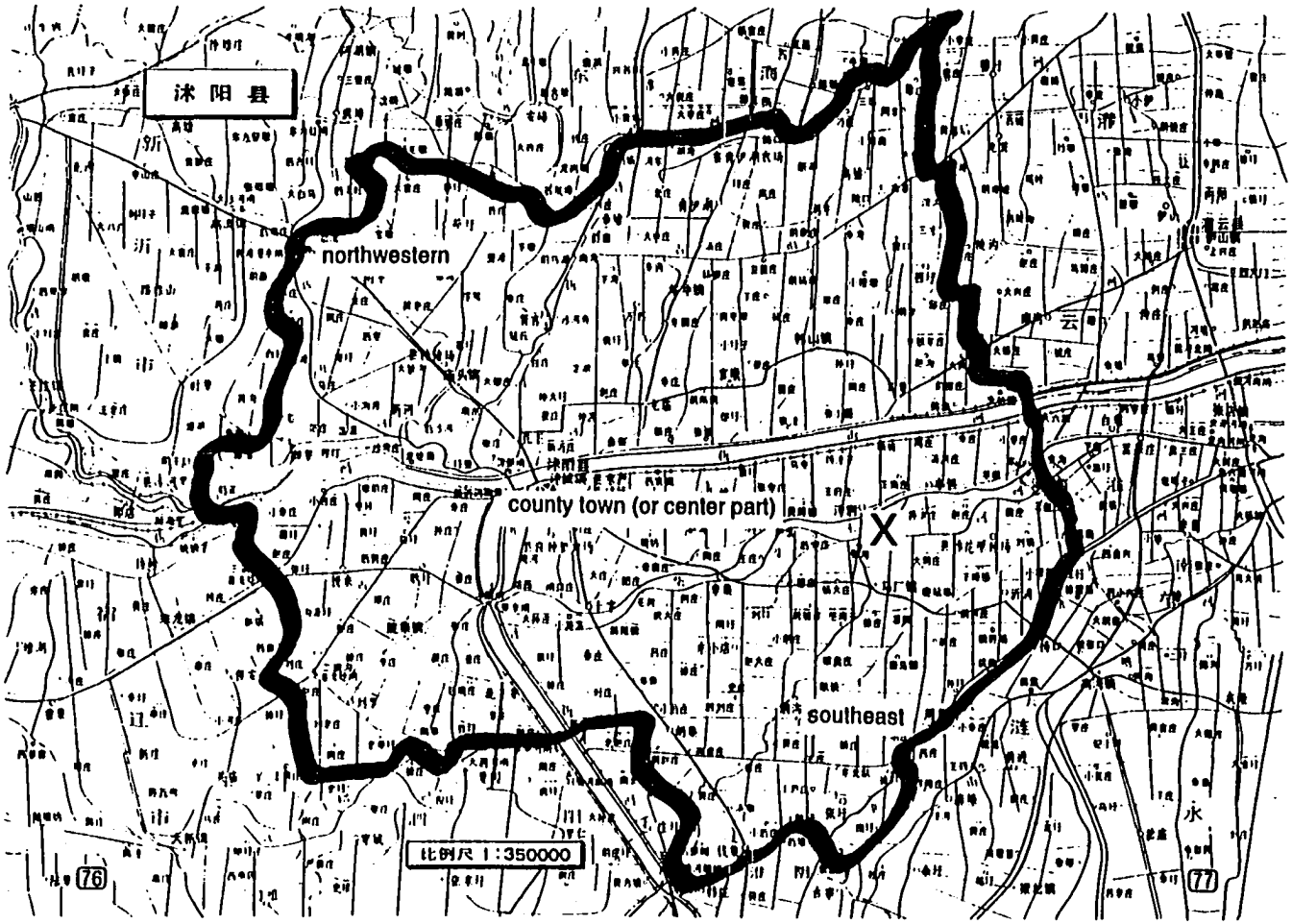
The evolution of a Chinese dialect is mainly related to the change of the protolanguage and the history of the standardization of the national language. The Shuyang dialect is the object dialect of this study because it is located on the border between Southern Mandarin and Central Mandarin, which were once standard speeches in the history of the language standardization. I hope this work of mine has convincingly argued for distinguishing the three major old Mandarin dialects. When a historical development of a Mandarin dialect or the phenomenon of colloquial readings versus literary readings is studied, I hope this work will in some way contribute to a better understanding of this distinction, which I believe has been insufficiently appreciated in most diachronical studies of Chinese dialects.



Map 1. The geographical locations of Northern Mandarin, Central Mandarin and Southern Mandarin (The borders of these three areas are tentative based on my observation.)



Map 2. Dialects in Jiangsu province (from Jiangsu 1960)



Map 3. Shuyang county (from Jiangsu Cehui 1990)

Appendix A

Zhi-xi rhyme 知希韵

I / F	p p‘ m f	t t‘ l	c c‘ s	cr cr‘ sr r	k k‘ x	ø
i			资 雌 思 祠 紫 死 字 次 四	知 痴 诗 池 时 纸 耻 屎 治 翅 是		
yi	× 批 眯 皮 弥 比 痞 米 币 屁	低 梯 提 泥 底 体 你 地 剃 利			鸡 欺 西 旗 几 起 喜 寄 气 细	衣 沂 椅 义
ywi		吕 滤			居 蛆 虚 渠 举 娶 许 巨 去 序	吁 鱼 雨 遇

x: female genital

Appendix B

Pu-su rhyme 普 苏 韵

I / F	p p‘ m f	t t‘ l	c c‘ s	cr cr‘ sr r	k k‘ x	ø
wi	夫 蒲 符 补 普 亩 斧 布 铺 父	都 徒 炉 睹 土 鲁 杜 兔	租 粗 苏 祖 醋 素	猪 初 书 锄 如 煮 处v 数 乳 住 处n 树	姑 枯 呼 胡 古 苦 虎 顾 裤 护	乌 吴 五 务

Appendix C

Zhe-ye rhyme 遮野韵

F \ I	p p‘ m f	t t‘ l	c c‘ s	cr cr‘ sr r	k k‘ x	ø
yə		爹			遮 车 奢 茄 蛇 姐 扯 舍 借 社	爷 野 夜

Appendix D

Po-suo rhyme 坡 梭 韵

I / F	p p‘ m f	t t‘ l	c c‘ s	cr cr‘ sr r	k k‘ x	ø
wə	菠 坡 婆 模 簸v 母 否 簸n破 墓	多 拖 驮 奴 躲 妥 努 惰 唾 摞	搓 蓑 左 锁 坐 锉		哥 棵 河 果 可 火 过 课 货	窝 鹅 我 饿
ywə					靴 瘸	

Appendix E

Jiao-shao rhyme 焦稍韵

I / F	p p‘ m f	t t‘ l	c c‘ s	cr cr‘ sr r	k k‘ x	ø
uw	包 抛 ×	刀 掏 孬	糟 操 臊	招 超 烧	高 蒿	
	袍 猫	桃 牢	槽	巢 韶 饶	豪	熬
	宝 跑 y	倒 讨 脑	澡 草 扫	找 炒 少 扰	稿 考 好	袄
	抱 炮 帽	稻 套 闹	灶 糙	赵 绍 绕	告 靠 号	傲
yuw	膘 漂	雕 挑 撩			交 敲 宵	妖
	瓢 苗	条 疗			桥	摇
	表 秒	了			饺 巧 小	舀
	票 庙	吊 跳 料			叫 孝	要

x zi: southerners
y: one tenth Chinese yuan

Appendix F

Pai-huai rhyme 排 怀 韵

I / F	p p‘ m f	t t‘ l	c c‘ s	cr cr‘ sr r	k k‘ x	ø
æ	牌 埋 摆 买 拜 派 卖	呆 胎 台 来 歹 奶 带 太 赖	栽 猜 腮 材 宰 彩 在 菜 赛	斋 差 筛 柴 债 晒	该 开 孩 改 凯 海 盖 慨 害	哀 矮 爱
yæ					街 鞋 解 蟹 界	
wæ				揣 衰 拽 帅	乖 淮 拐 × 怪 快 坏	歪 歲 外

x: to scratch (an itch)

Appendix G

ma-sha rhyme 马沙韵

I / F	p p‘ m f	t t‘ l	c c‘ s	cr cr‘ sr r	k k‘ x	ø
a	巴趴妈 爬麻 把马 霸怕骂	他拉 拿 打 大	擦 洒	渣叉沙 茶	哈 卡	儿 耳 二
ya					家虾 假 嫁下	丫 牙 哑 亚
wa					瓜夸花 寡刮 挂跨话	娃 瓦 洼

Appendix H

Pei-hui rhyme 呸 灰 韵

I / F	p p‘ m f	t t‘ l	c c‘ s	cr cr‘ sr r	k k‘ x	ø
ay	杯 呸 飞 赔 霉 肥 美 匪 被 配 妹 废	堤 推 颓 雷 腿 队 退 累	催 尿 贼 随 嘴 × 醉 脆 岁			
way				追 吹 锤 谁 水 坠 睡 瑞	归 亏 灰 葵 回 鬼 傀 毁 贵 溃 会	威 围 委 位

x: to loosen

Appendix I

Chou-niu rhyme 丑 牛 韵

I / F	p p‘ m f	t t‘ l	c c‘ s	cr cr‘ sr r	k k‘ x	ø
əw		丢 偷 搂 头 牛 抖 柳 豆 透 馏	邹 馊 走 叟 奏 凑 嗽	州 抽 收 × 绸 揉 肘 丑 手 皱 臭 瘦 肉	沟 抠 猴 够 扣 厚	沤 藕
yəw	谬	六			纠 秋 修 求 九 丬 朽 舅 锈	忧 油 有 又

x: to swing around
y: worn and torn

Appendix J

Tian-xian rhyme 天 仙 韵

I / F	p p‘ m f	t t‘ l	c c‘ s	cr cr‘ sr r	k k‘ x	ø
yan	边 偏 便 棉 匾 免 变 骗 面	颠 天 黏 田 年 点 舔 脸 店 念			肩 千 仙 前 贤 检 浅 闪 战 歉 扇	烟 盐 染 验

Appendix K

Pan-huan rhyme 盘桓韵

I / F	p p‘ m f	t t‘ l	c c‘ s	cr cr‘ sr r	k k‘ x	ø
wun	搬 潘 盘 馒 满 半 判 漫	端 团 × 短 暖 断 乱	钻 蹿 酸 蒜	砖 穿 船 y 喘 软 转 串	官 宽 欢 桓 管 款 缓 罐 换	丸 碗
ywun					捐 圈 宣 全 玄 卷 犬 选 眷 劝 楦	冤 圆 远 院

x: to stop sb.
y: to cheat

Appendix L

Gan-dan rhyme 甘单韵

F \ I	p p‘ m f	t t‘ l	c c‘ s	cɾ cɾ‘ sɾ ɾ	k k‘ x	ø
æn	班 攀 翻 蛮 烦 反 办 盼 慢 饭	单 滩 谈 蓝 胆 毯 懒 蛋 探 烂	簪 餐 三 残 惨 伞 暂 灿 散	搀 山 馋 盏 铲 蘸	肝 勘 酣 含 赶 砍 罕 干 看 汗	安 岸
yæn					间 铅 闲 简 喊 间 馅	淹 颜 眼 雁
wæn				闩 赚	关 环 还 惯 患	弯 玩 晚 万

Appendix M

Gong-sun rhyme 弓 孙 韵

I / F	p p‘ m f	t t‘ l	c c‘ s	cr cr‘ sr r	k k‘ x	ø
əŋ	崩 喷 瞢 风 盆 门 缝 本 捧 猛 讽 笨 碰 梦 凤	墩 吞 疼 轮 等 冷 顿 × 嫩	增 村 孙 层 笋 寸	蒸 秤$_v$ 生 扔 成 绳 人 整 逞 省 忍 阵 秤$_n$ 胜 认	根 坑 亨 耿 啃 狠 更 ㄚ 恨	恩
yəŋ	冰 拼 瓶 明 饼 品 暝 病 并 命	钉 听 拎 停 铃 顶 挺 领 腚 令			金 轻 腥 情 刑 井 请 擤 劲 庆 兴	鹰 银 印 硬
wəŋ		冬 通 同 龙 懂 桶 拢 冻 痛 弄	鬆 葱 松 从 总 纵 宋	中 春 虫 荣 准 蠢 冗 重 冲 顺	弓 空 昏 红 滚 孔 哄 棍 困 横$_v$	温 文 稳 问
ywəŋ					军 倾 胸 穷 熊 窘 俊 讯	拥 容 允 用

x: throat
y: to hold

Appendix N

Chang-sang rhyme 昌 桑 韵

I / F	p p‘ m f	t t‘ l	c c‘ s	cr cr‘ sr r	k k‘ x	ø
uŋ	帮 乓 方 旁 忙 房 榜 蟒 纺 棒 胖 放	当 汤 糖 狼 挡 躺 曩 荡 烫 浪	脏 仓 桑 藏 嗓 葬	张 昌 伤 长 瓤 掌 场 晌 嚷 丈 唱 上 让	缸 糠 夯 扛 航 港 虹 抗 巷	昂
yuŋ		凉 两 亮			江 枪 香 强 详 讲 抢 响 酱 向	秧 羊 养 样
wuŋ				庄 窗 霜 床 闯 爽 撞 创	光 筐 荒 狂 黄 广 谎 逛 矿 晃	汪 王 网

Appendix O

Qi-li rhyme 泣 立 韵

	yi
p p‘ m f	壁 碧 逼 笔 弼 劈 僻 匹 觅 密
t t‘ l	滴 笛 敌 踢 历 力 栗 立 逆
c c‘ s	
cr cr‘ sr r	
k k‘ x	绩 脊 击 鲫 极 吉 集 戚 七 泣 乞 锡 席 惜 夕 息 习 吸
ø	益 译 翼 抑 一 逸 揖

Appendix P

Lu-zhou rhyme 鹿 轴 韵

	wi	ywi
p p‘ m f		
t t‘ l	督 毒 独 秃 突 绿 六 鹿	 律
c c‘ s	足 族 卒 促 俗 肃 缩 速	
cr cr‘ sr r	烛 竹 祝 轴 触 畜 出 束 叔 术 辱 肉 入	
k k‘ x	谷 骨 国 哭 酷 窟 忽 获 惑	局 菊 橘 曲 屈 蓄
ø	屋 物 勿	玉 欲 育 域 役

Appendix Q

Tie-xue rhyme 铁雪韵

	ə	yə	wə	ywə
p	百白北不剥博拨	别憋鳖		
p‘	拍朴泼	撇		
m	目木麦陌没莫末	灭蔑		
f	福服佛			
t	德	跌碟	踱夺	
t‘	特	铁帖	托 脱	
l	勒	列捏聂劣	落	略
c	责择则		作	
c‘	测策			
s	色塞		索	
cr	只摘窄直织侄		桌浊捉镯着	
cr‘	尺吃			
sr	石食式实失十		勺说	
r	日入		弱	
k	革格	哲浙杰节接	各割郭角国	觉嚼脚角绝决
k‘	客刻	彻切妾	扩阔渴磕壳	确雀却缺
x	吓黑核	舌歇屑协涉	霍鹤活获惑盒	学削穴雪
ø	扼额	热噎业叶役	握恶	月药乐阅域

Appendix R

kuo-da rhyme 括达韵

	u	yu	wu
p	八拔		
p‘			
m	抹		
f	发罚法乏		
t	达答		
t‘	獭踏塔		
l	辣捺纳腊		
c	杂		
c‘	擦		
s	撒		
cr	铡闸		刷
cr‘	察插		
sr	杀		
r			
k	割	甲夹	刮郭括
k‘		恰	
x		瞎峡	滑
ø		鸭轧	袜挖

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