

Universal Multiple-Octet Coded Character Set
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1. Introduction

This is a preliminary proposal to encode the system of tablature notation used to represent Chinese flute music during the Song (960–1279) and Yuan (1206–1368) dynasties. This system, which is known as *súzìpǔ* 俗字譜 or *bànzìpǔ* 半字譜 in Chinese, is not in modern use, but is required for encoding for the use of scholars studying music texts of these periods. A total of 18 characters are proposed for encoding.

Fig. 1: Female Musicians playing Drum, Transverse Flute, and Clappers



Engraving on a stone panel from a Southern Song tomb at Luoiaqiao 羅家橋 in Sichuan

2. Flute Music

During the Tang dynasty (618–907) and the Northern Song (960–1127) the main musical instrument used for the accompaniment of popular songs was the four-stringed lute (*pípa* 琵琶). However, during the Southern Song (1127–1276) popular songs were more frequently sung to the accompaniment of a flute or other wind instrument. Depictions of popular song performances in tomb murals dating from the Southern Song and the following Yuan dynasty (see Fig. 1 and Fig. 23), as well as in Yuan dynasty book illustrations (see Fig. 2), generally show a trio of performers (male or female): one playing a transverse flute (*dí* 笛), one playing a drum (usually on a stand, but sometimes suspended around the neck), and one singing whilst beating time with bamboo clappers (拍板).

Fig. 2: Popular Yuan dynasty pastimes : Music, Football and Falconry

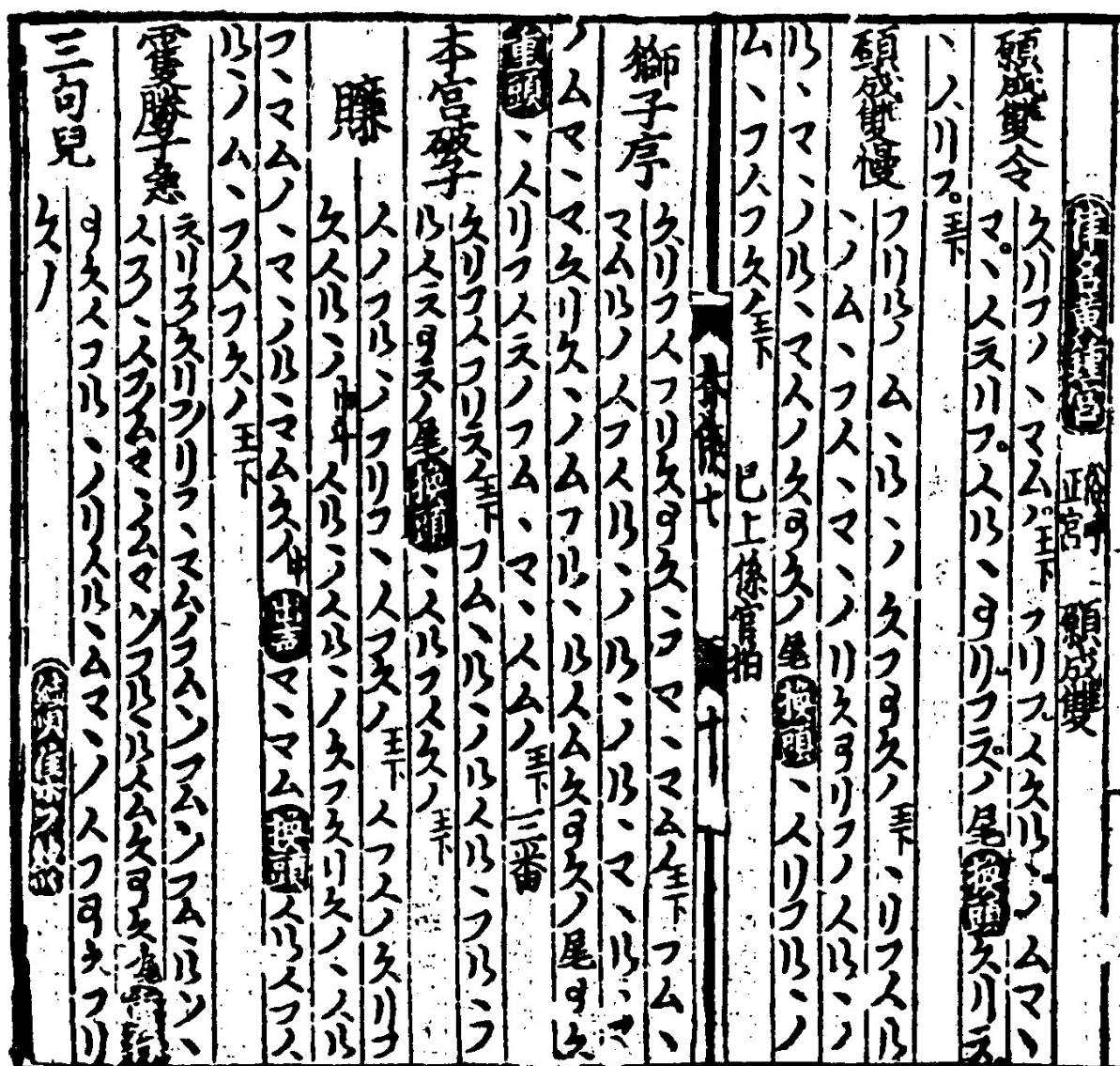


Source : *Shílín Guǎngjì* 事林廣記 (1330–1333 edition) *xuji* ch. 7 folio 2

During the Southern Song, Chén Yuánjìng 陳元靚 compiled an encyclopedic collection of popular knowledge entitled *Shílín Guǎngjì* 事林廣記, (“Broad Record of the Forest of Matters”). The surviving editions of this work, dating from the Yuan dynasty and early Ming dynasty, incorporate much information on popular music forms, including flute scores for a set of seven tunes without lyrics (see Fig. 3):

- Yuànchéngshuāng Lìng 願成雙令 “Willing to become a pair, a short tune”
- Yuànchéngshuāng Mǎn 願成雙慢 “Willing to become a pair, a slow tune”
- Shīzǐ Xù 獅子序 “Lion preface”
- Běngōng Pòzǐ 本宮破子 “Breaking tune in the current mode”
- Zhuàn 賺 (a tune form central to song sets known as chàngzhuàn 唱賺)
- Shuāngshèngzǐ Jí 雙勝子急 “Double victory in quick time” (the title is a mistake for shuāngshēngzǐ 雙聲子 “Double sounds”)
- Sānjù'ér 三句兒 “Three lines” (a wěishēng 尾聲 coda)

Fig. 3: Set of seven flute tunes in *Shílín Guǎngjì*

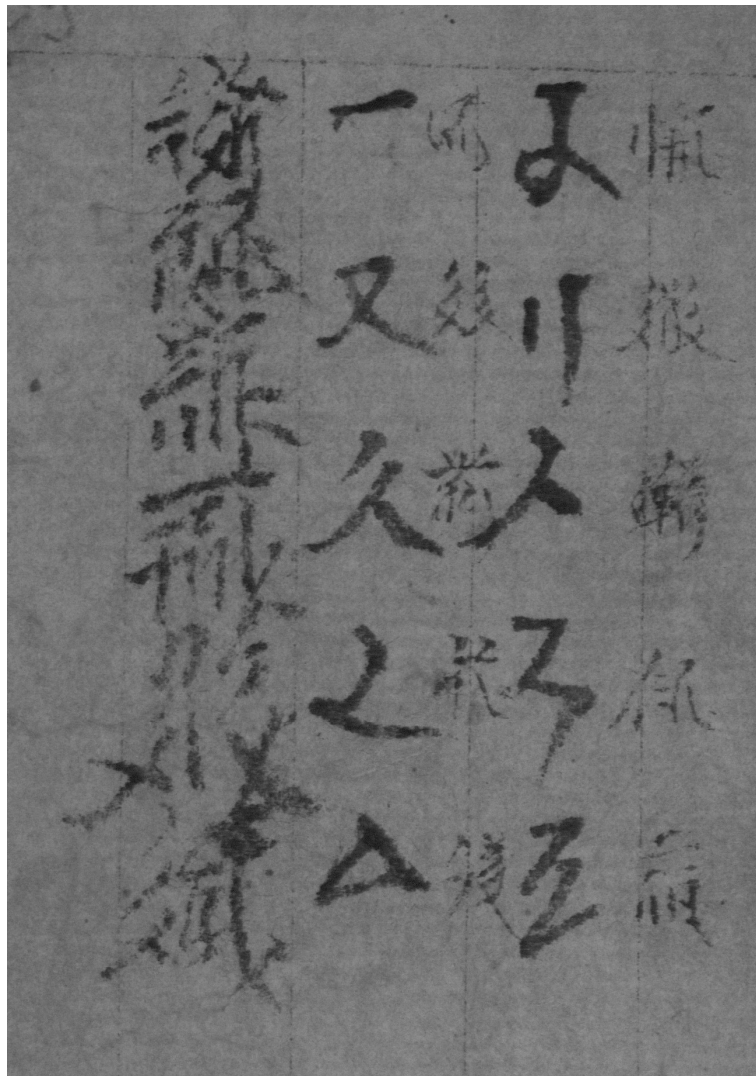


Source: *Shílín Guǎngjì* 事林廣記 (1330–1333 edition) *xuji* ch. 7 folio 10

These seven tunes are written using a set of ten tablature signs that are derived by simplification or cursification from Chinese characters. These ten signs are listed by Zhū Xī 朱熹 (1130–1200) in his *Qínlǜ Shuō* 琴律說, as well as in the *History of the Liao*, and some other sources.

These ten signs are also listed with Tangut transcriptions of their Chinese names at the back of a Tangut manuscript written during the Western Xia (1038–1227) (see Fig. 4), indicating that this system of flute music was also used by the Tangut people. See Fig. 20 (Table 2 in West 2012) for an explanation of the tablature signs and corresponding Tangut characters.

Fig. 4: Flute tablature signs in a Tangut manuscript dated 1173



Source: IOM Танг. 22/1 p. 39a

A detailed description of this system of flute notation is given by Zhāng Yán 張炎 (1248–c. 1314) in his treatise on lyric poetry, *Cí Yuán* 詞源, (“Source of Lyrics”), written during the Southern Song. Zhang Yan's treatise provides a theoretical framework for the form of popular music that uses such flute notation, but this differs significantly from the actual flute music in *Shílín Guǎngjì*. Most notably, in the system of modes defined by Zhang Yan he uses the ten notational signs to represent sixteen notes corresponding to the twelve notes of Chinese classical music and the first four “clear” notes of the higher octave by encircling some of the signs, but encircled signs do not occur in actual flute scores.

Fig. 5: Page from Zhang Yan's treatise on music showing the tonic note for each mode

姑 辰 清 明 正 聲	姑 洗 商	中 管 雙 調
洗 一	姑 洗 角	中 管 中 呂 角
姑 洗 變	中 管 中 呂 變 徵	⑪
姑 洗 徵	中 管 中 呂 正 徵	⑧
姑 洗 羽	中 管 中 呂 調	⊗
姑 洗 閏	中 管 雙 角	⊖
宮 三 月 陽 律 穀 雨 正 聲	仲 呂 宮	俗 名 道 宮
仲 呂 商	仲 呂 角	道 宮 變 徵
仲 呂 徵	道 宮 正 徵	△
仲 呂 變	道 宮 角	フ
呂 リ	道 宮 變 徵	ㄣ
仲 呂 徵	道 宮 正 徵	△

Source: Zhāng Yán, *Cí Yuán shang*:8a

The main surviving examples of flute scores using this system of tablature are a collection of lyric poems set to music that were composed during the Southern Song by Jiāng Kuí 姜夔 (c. 1155 – c. 1221). Jiang Kui was an aficionado of popular music, and, unlike most of his contemporaries, he wrote lyric poetry for actual musical performance, accompanied by a flute or other wind instrument.

Jiang Kui noted that he would often play the end-blown flute (*xiāo* 簫) while a girl sang his lyrics and beat time by clapping her hands. In addition he would sometimes get his lyrics accompanied by a professional musician playing the *bìlì* 篳篥 (a bamboo pipe with a double reed that originated from Kucha) or the mute *bìlì* 啞篳篥 (a version of the *bìlì* with a reduced resonance box), which he considered to have a finer sound than the *xiāo* flute. Jiang Kui not only wrote lyrics, but he also composed the accompanying flute music for some of his lyric poems.

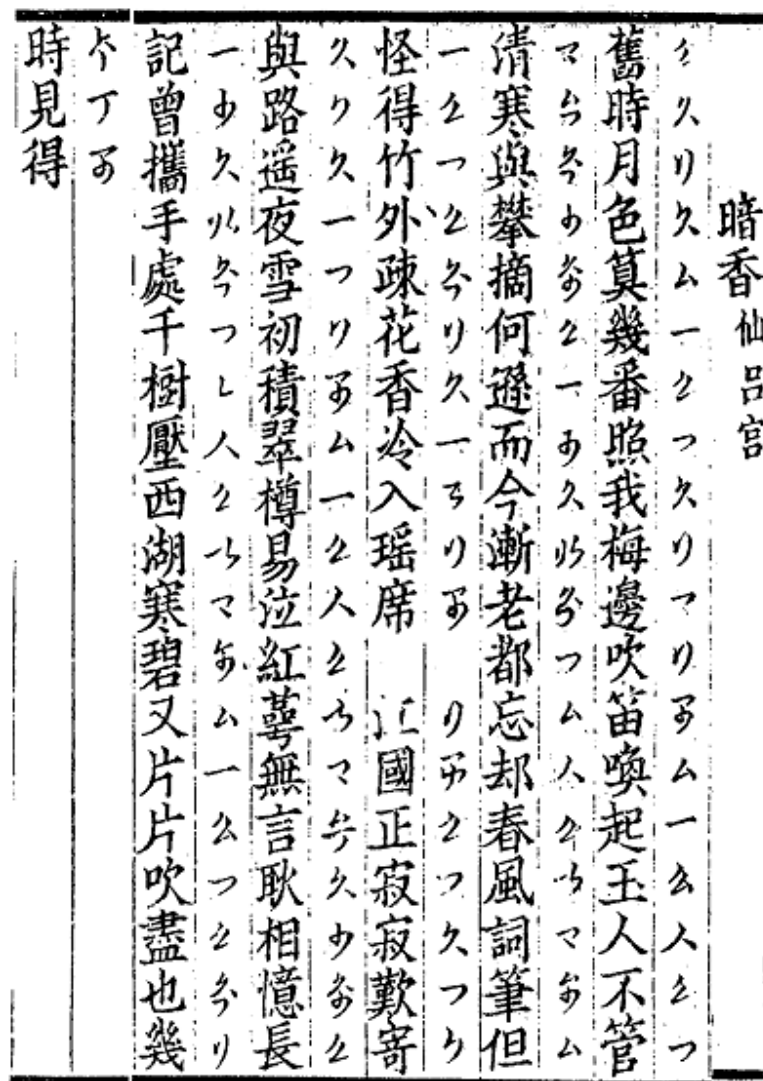
Seventeen lyric poems with flute notation are preserved in the collection of Jiang Kui's songs and poetry, *Báishí Dàorén Gēqǔ* 白石道人歌曲 (“Songs of the White Stone Daoist”). This work was first printed in 1202, but by the late Ming dynasty it was no longer extant, and was only rediscovered during the early Qing dynasty when a late Yuan dynasty manuscript copy of an earlier printed edition came to light. Several copies of this manuscript, which originally belonged to the Yuan scholar Táo Zōngyí 陶宗儀, were published soon after its discovery. All extant editions of *Báishí Dàorén Gēqǔ* are derived from copies of Tao Zongyi's manuscript, but the original manuscript is now lost. Unfortunately, as Tao Zongyi pointed out in a 1360 colophon to his manuscript, the original Yuan dynasty manuscript was not short of mistakes, and the various Qing reprints have only served to compound these errors.

Of the 17 tunes with flute notation in this collection, fourteen were composed by Jiang Kui himself, one was derived from a Tang dynasty tune, one was adapted from an old lute tune, and one was composed by Jiang Kui's friend Fàn Chéngdà 范成大 (1126–1193):

- *Géxīméi Lìng* 鬲溪梅令 “Plum Blossom by the Ge Stream, a short tune”
- *Xīnghuā Tiānyǐng* 杏花天影 “Apricot Blossom Casts Shadows on the Sky”
- *Zuìyín Shāng Xiǎopǐn* 醉吟商小品 “Drunken Sighs, a little ditty in the Shang key” (this tune was adapted by Jiang Kui from an old lute tune)
- *Yùméi Lìng* 玉梅令 “Jade Plum Blossom, a short tune” (lyrics by Jiang Kui, but music composed by Fan Chengda)
- *Nícháng Zhōngxù Dìyī* 霓裳中序第一 “First Part of the Middle Prelude of the Rainbow Skirt” (lyrics by Jiang Kui set to part of the score of a Tang dynasty song sequence in an old manuscript that he came across)
- *Yángzhōu Mǎn* 揚州慢 “Yangzhou, a slow tune”
- *Chángtíngyuàn Mǎn* 長亭怨慢 “Regrets at the Long Pavilion, a slow tune”
- *Dànhuángliǔ* 澹黃柳 “The Peaceful Yellow Willows”

- *Shíhúxiān* 石湖仙 “The Stone Lake Immortal”
- *Àn Xiāng* 暗香 “Hidden Fragrance”
- *Shū Yǐng* 疏影 “Scattered Shadows”
- *Xīhóngyī* 惜紅衣 “Cherishing the Girl clad in Red”
- *Jué Zhāo* 角招 “Invocation in the key of Jue”
- *Zhǐ Zhāo* 徵招 “Invocation in the key of Zhi”
- *Qiūxiāo Yín* 秋宵吟 “Sighs on an Autumn Evening”
- *Qīliáng Fàn* 淒涼犯 “Sad and Lonely, in a crossed mode”
- *Cuìlóu Yín* 翠樓吟 “Sighs in the Turquoise Tower”

Fig. 8: Jiang Kui's lyric poem “Hidden Fragrance” (*Àn Xiāng* 暗香) with flute notation



Source: *Báishí Dàorén Gēqǔ* 白石道人歌曲; in *Sìbù Cóngkān* 四部叢刊 (Shanghai: Shangwu Yinshuguan, 1909) vol. 1296

3.1 Ten Basic Signs

Fig. 9: Names and fingering for flute tablature signs

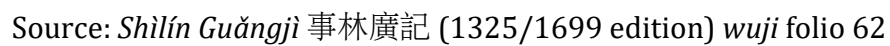


Table 1: Ten basic flute tablature signs

Relative Value	Jiang Kui Sign	SLGJ Sign	Name	Fingering	Notes
1	厶	厶	<i>hé</i> 合	●●●●●●	
2	マ	マ	<i>sì</i> 四	●●●●●○	
3	一	、	<i>yī</i> 一	●●●●○○	
4	厶	ㄣ	<i>shàng</i> 上	●●●○○●	The notes <i>shàng</i> and <i>gōu</i> are mutually exclusive, their usage depending on the mode of the tune.
4 #	厶	く	<i>gōu</i> 勾	●●○●●●	
5	人	人	<i>chě</i> 尺	●●○○●●	
6	フ	フ	<i>gōng</i> 工	●○○●●●	
7	リ	リ	<i>fán</i> 凡	○●●○○●	
1'	久	久	<i>liù</i> 六	○●●●●●	An octave above <i>hé</i>
2'	ㄣ	ㄣ	<i>wǔ</i> 五	●●●●●○	An octave above <i>sì</i>

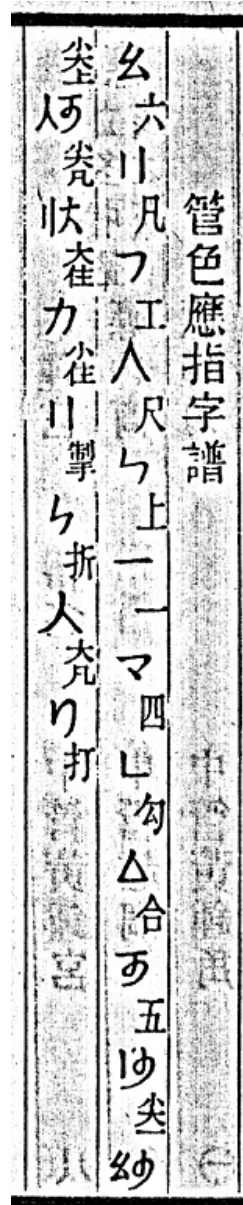
In the fingering above, black circles represent closed holes, and white circles represent open holes; the blow hole is not shown, but would be to the right of the six finger holes.

Nine out of the ten Chinese characters corresponding to these signs are still used today in traditional Chinese musical notation (*gōngchě pǔ* 工尺譜), and some forms of religious and folk music still preserve signs that are the same as or similar to those used for Song and Yuan dynasty flute notation. However, the modern *gōngchě* notation and the notational systems used in religious and folk music are systems of pitch notation, not tablature as was the case for flute notation during the Song and Yuan dynasties.

3.2 Compound Signs

Zhang Yan's treatise on music (*Cí Yuán* 詞源) and the section of *Shílín Guǎngjì* dealing with music theory list some additional compound note signs (see Fig. 9 and Fig. 10).

Fig. 10: Detail from Zhang Yan's treatise on music showing the names of flute signs



Source: Zhāng Yán, *Cí Yuán shang*:10b

Five of these compound signs are composed of the glyph for basic signs 3, 4, 5, 6 and 7 on the left, and a sign which looks like *wǔ* 五 (ㄅ) on the right. However the glyph on the right is glossed as *jiān* 尖 “sharp”, and was presumably taken to be a cursive simplification of this character. Together with *liù* 六 and *wǔ* 五 these five signs represent the octave higher than

the first seven basic signs (excluding *gōu* 勾). The other additional sign, glossed as *dà fán* 大凡 “great *fan*”, represents the octave higher than *liù* 六.

Table 2: Compound signs

Relative Value	Zhang Yan Sign	SLGJ Sign	Standard-ized Form	Name	Notes
1'	久	久	久	<i>liù</i> 六	These are basic signs, not compound signs, but are included in the table for completeness.
2'	ㄅ	ㄅ	ㄅ	<i>wǔ</i> 五	
3'	丨ㄅ	ㄅ	丨ㄅ	<i>sharp yī</i> 尖一	
4'	乚ㄅ	ㄅ	乚ㄅ	<i>sharp shàng</i> 尖上	
5'	ㄥㄅ	ㄥㄅ	ㄥㄅ	<i>sharp chě</i> 尖尺	
6'		ㄅ	ㄅ	<i>sharp gōng</i> 尖工	
7'		ㄅ	ㄅ	<i>sharp fán</i> 尖凡	
1"	ㄥ大	ㄥ大	ㄥ大	<i>dà fán</i> 大凡	Confused with <i>dà zhù</i> 大住 in Zhang Yan.

None of these six compound signs occur in any of the surviving flute scores. However, Jiang Kui's flute scores do have analogous signs with a different construction, which are discussed below.

3.3 Appended Signs

In Jiang Kui's tunes all of the ten basic signs are used freely in non-final positions, but when a sign occurs at a position corresponding to major structural division in the lyrics it has a very strong tendency to be appended below with one of the signs ㄅ (occasionally written ㄅ) or ㄆ. At a position corresponding to a minor structural division a sign is usually appended below with the sign ㄇ (occasionally written ㄇ).

The sign ㄇ or ㄇ is probably derived from *dīng* 丁 as a simplification of *tíng* 停 “stop”. It is normally appended below a sign at a point of minor structural division, on a pause (*dòu* 讀) or at the end of a non-rhyme line, as well two notes before a major structural division (see Fig. 11 and Fig. 12). This corresponds to the term *xiǎozhù* 小住 “minor stop” or *xiǎodùn* 小頓 “minor pause” in Zhang Yan's treatise. It may be appended to any of the ten basic signs.

The signs ㄅ and ㄆ are normally appended below a sign at a point of major structural division, at the end of a rhyme line or at the end of a two-note bridging refrain at the start of the second stanza (see Fig. 11 for ㄆ and Fig. 12 for ㄅ). This corresponds to the terms *dàzhù* 大住 “major stop” or *dàdùn* 大頓 “major pause” in Zhang Yan's treatise. The two signs appear to be functionally identical, and as ㄆ almost exclusively occurs in the first five tunes with flute notation (in vols. 2 and 3 of *Báishí Dàorén Gēqǔ*) whereas ㄅ and ㄅ exclusively occur in the last twelve tunes with flute notation (in vol. 4 of *Báishí Dàorén Gēqǔ*) the difference is likely to be a matter of scribal preference. Both ㄅ and ㄆ are probably derived from the cursive form of the character *jǐn* 緊 “taut”, ㄅ being the cursive form of the bottom of 緊, and ㄆ being the cursive form of the top left of 緊. The tablature sign *wǔ* 五 (ㄅ) may share the same derivation as Zhu Xi writes this sign as ㄅ in his list of signs. The occasional form ㄅ for ㄅ may be a scribal corruption during manuscript transmission, but there may be some unknown difference in usage between ㄅ and ㄅ.

The appended signs ㄅ and ㄆ occur on the basic signs *hé* 合, *sì* 四, *yī* 一, *shàng* 上, *chě* 尺, *gōng* 工, *fán* 凡, and *liù* 六 (but never on *wǔ* 五), and evidently correspond to the compound signs listed by Zhang Yan and in *Shílín Guǎngjì*. Zhang Yan's interpretation of the ㄅ component in the compound signs as *jiān* 尖 “sharp” is erroneous, and it should be interpreted as *jǐn* 緊 “taut”. Zhang Yan's interpretation of the compound sign ㄅ as *dà fán* 大凡 is also incorrect, as it corresponds to ㄅ *taut liù* 緊六 in Jiang Kui's flute tunes, so the left component of ㄅ is “taut” and the right component is *liù* 久 miswritten as *dà* 大. The correspondence between Zhang Yan's compound signs and the appended signs found in Jiang Kui's flute scores is shown in Table 3.

Table 3: Appended signs

Relative Value	Appended Sign	Compound Sign	Compound Sign Name	Corrected Name	Notes
1'	𠂇 𠂇			<i>taut hé</i> 緊合	Equivalent to <i>liù</i> 六
2'	𠂇 𠂇			<i>taut sì</i> 緊四	Equivalent to <i>wǔ</i> 五
3'	𠂇 𠂇	𠂇	<i>sharp yī</i> 尖一	<i>taut yī</i> 緊一	
4'	𠂇 𠂇	𠂇	<i>sharp shàng</i> 尖上	<i>taut shàng</i> 緊上	
5'	𠂇 𠂇	𠂇	<i>sharp chě</i> 尖尺	<i>taut chě</i> 緊尺	
6'	𠂇 𠂇	𠂇	<i>sharp gōng</i> 尖工	<i>taut gōng</i> 緊工	
7'	𠂇 𠂇	𠂇	<i>sharp fán</i> 尖凡	<i>taut fán</i> 緊凡	
1"	𠂇 𠂇	𠂇	<i>dà fán</i> 大凡	<i>taut liù</i> 緊六	

Fig. 11: Jiang Kui's lyric poem *Nícháng Zhōngxù Dìyī* 霓裳中序第一

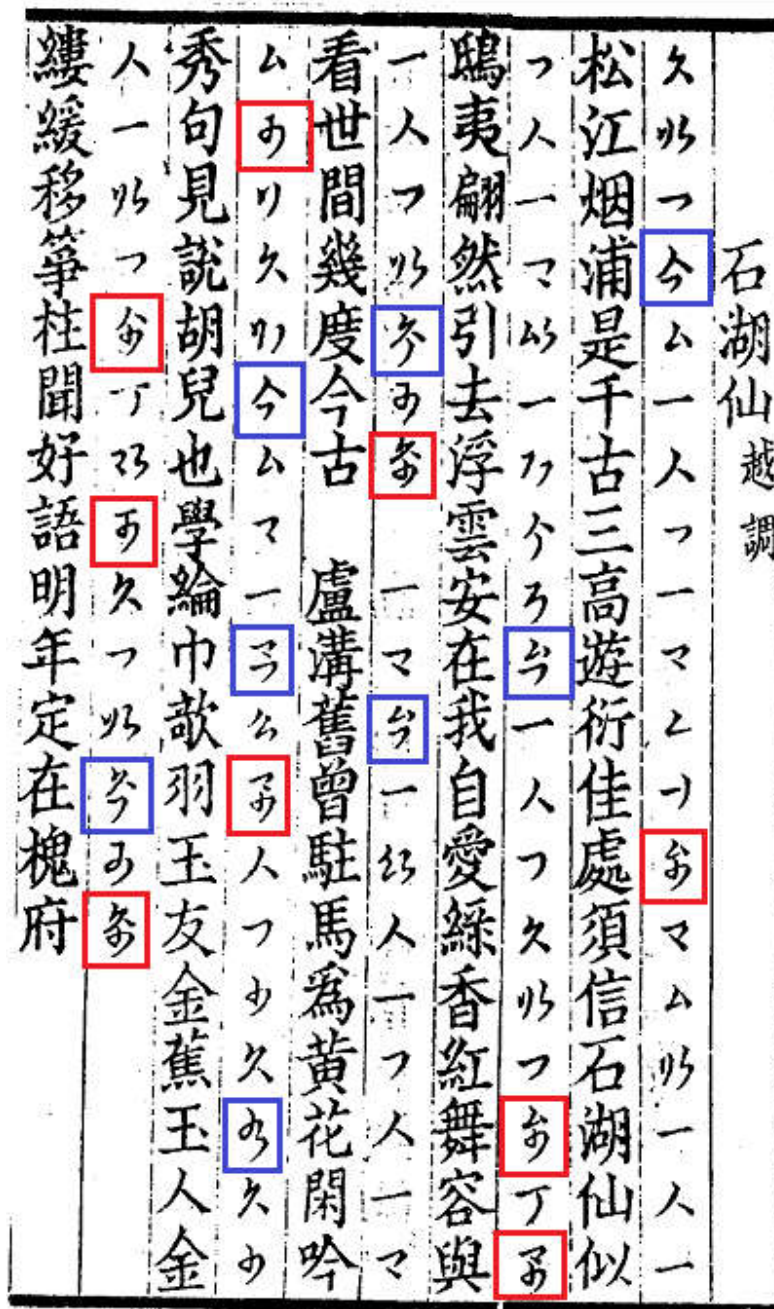
霓裳中序第一

亭臯正望極亂落江蓮歸未得多病却無氣力況
一々々々々々々々々々々々々々々々々々々々々々々々々々
紈扇漸疎羅衣初索流光過隙歎杏梁雙燕如客
つりる人々人り人りくきりくきりるりるりるり
人何在一簾淡月彷彿照顏色幽寂亂蛩吟壁
マムマム一人カ人々々々々々々々々々々々々々々々
動庾信清愁似織沈思年少浪跡笛裏關山柳下
り人りりりりりりりりりりりりりりりりりり
坊陌墜紅無信息漫暗水涓涓溜碧漂零久而今

つムムムりりり
何意醉卧酒壚側

Appended sign \lvert highlighted in red; appended sign \rceil highlighted in blue

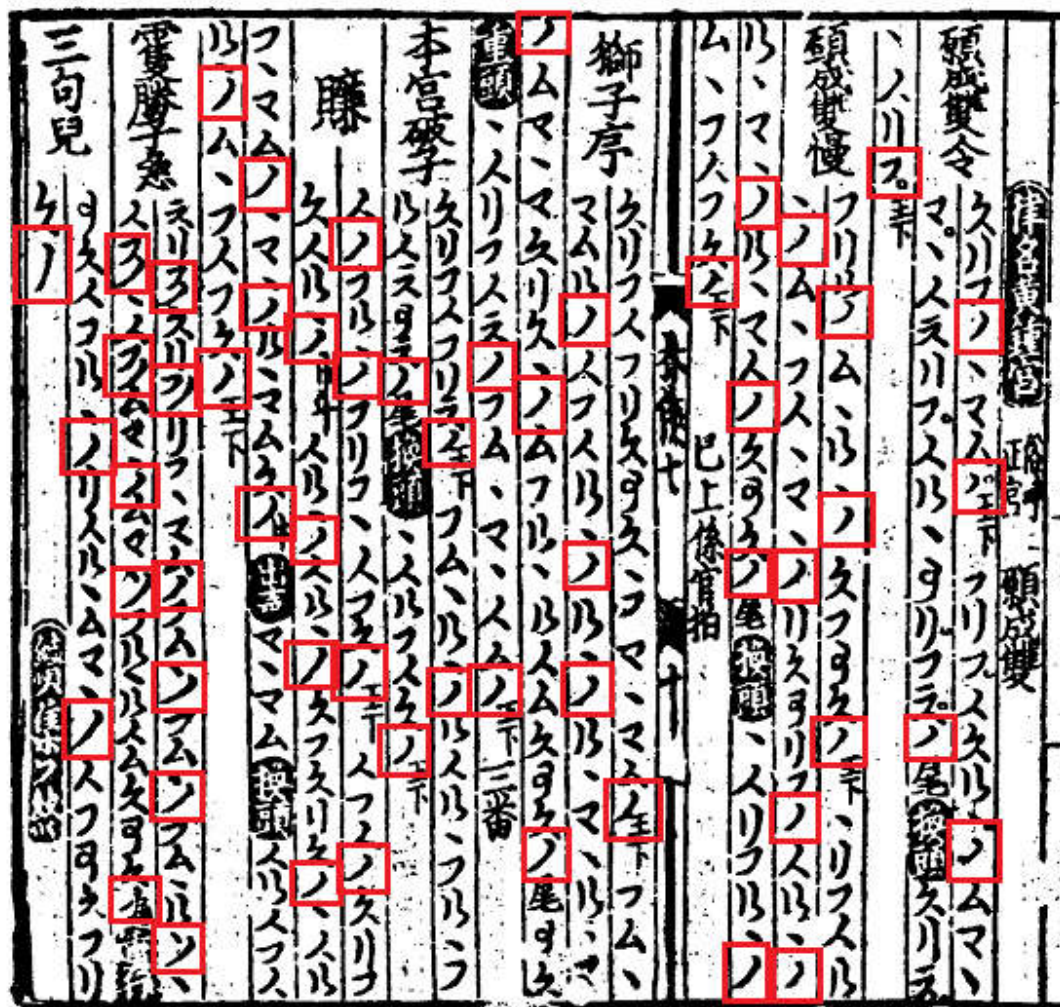
Fig. 12: Jiang Kui's lyric poem *Shíhúxiān* 石湖仙 “The Stone Lake Immortal”



Appended sign \wp highlighted in red; appended sign \succ highlighted in blue

The flute tunes in *Shílín Guǎngjì* do not use the appended signs ㄅ and ㄌ, but use a single sign ㄅ in all positions that ㄅ/ㄌ and ㄆ would be expected in Jiang Kui's tunes (see Fig. 13), which is to say the sign ㄅ corresponds to both *xiǎozhù* 小住 “minor stop” and *dàzhù* 大住 “major stop”, and may be termed a *zhù* 住 “stop”. Except for the penultimate tune (*Shuāngshèngzǐ jí* 雙勝子急), which seems to be squeezed in, this sign is not appended to the preceding sign, but occupies the same space as a basic tablature sign.

Fig. 13: Flute tunes in *Shílín Guǎngjì*



3.4 Circled Signs

Zhang Yan's treatise on music and the tables of modes given in *Shílín Guǎngjì* both show circled forms of the signs *sì* ㄣ, *yī* 一, *gōng* ㄣ, and *fán* 丿 (see Fig. 5 and Fig. 6). These represent an attempt to theoretically correlate the ten basic flute tablature signs with the sequence of twelve notes of classical Chinese music (see Fig. 14). Zhang Yan also lists in one place only circled forms of *wǔ* ㄣ and "high *wǔ*" ㄣ, which together with *liù* ㄣ and "lower *wǔ*" ㄣ are correlated with the first four "clear" (*qīngshēng* 清聲) notes of the higher octave, but circled ㄣ and circled ㄣ are not used in the mode tables. None of the six circled notes occur in any actual flute scores, and they are a theoretical construct only.

Fig. 14: Detail from Zhang Yan's treatise on music showing a theoretical correspondence between flute signs and classical note names



Source: Zhāng Yán, *Cí Yuán shang*:2b

Zhū Xī 朱熹 (1130–1200) also lists sixteen signs corresponding to the sequence of classical notes, but instead of circling six of them he uses slight graphic differences to distinguish two signs corresponding to two adjacent classical notes (see Table 4).

Table 4: Theoretical correspondence between flute signs and classical notes

Relative Value	Zhang Yan Sign	SLGJ Sign	Zhu Xi Sign	Name	Classical Note Name
1	厶	厶	人	<i>hé</i> 合	<i>huángzhōng</i> 黃鐘
2	⊗	⊗	マ	<i>lower sì</i> 下四	<i>dàlǚ</i> 大呂
3	マ	マ	く	<i>(upper) sì</i> 四	<i>tàicù</i> 太簇
4	⊖	⊖	二	<i>lower yī</i> 下一	<i>jiázhōng</i> 夾鐘
5	一	、	二	<i>(upper) yī</i> 一	<i>gūxiǎn</i> 姑洗
6	ㄣ	么	ㄣ	<i>shàng</i> 上	<i>zhònglǚ</i> 仲呂
7	ㄥ	く	厶	<i>gōu</i> 勾	<i>ruíbīn</i> 蕤賓
8	人	人	ㄣ	<i>chě</i> 尺	<i>línzhōng</i> 林鐘
9	ㄟ	ㄟ	フ	<i>lower gong</i> 下工	<i>yízé</i> 夷則
10	フ	フ	ㄗ	<i>(upper) gong</i> 工	<i>nánlǚ</i> 南呂
11	ㄱ	ㄱ	ㄱ	<i>lower fán</i> 下凡	<i>wúyì</i> 無射
12	ハ	リ	ㄱ	<i>(upper) fán</i> 凡	<i>yìngzhōng</i> 應鐘
1'	么	ㄣ	ㄣ	<i>liù</i> 六	<i>clear huángzhōng</i> 黃鐘清聲
2'	ㄣ	ㄣ	ㄣ	<i>lower wǔ</i> 下五	<i>clear dàlǚ</i> 大呂清聲

Relative Value	Zhang Yan Sign	SLGJ Sign	Zhu Xi Sign	Name	Classical Note Name
3'			π	(upper) wǔ 五	clear tàicù 太簇清聲
4'			π	high wǔ 高五	clear jiázhōng 夾鐘清聲

3.5 Other Signs

Jiang Kui's tunes uses two additional signs, ㄣ which is placed to the right of a basic tablature sign, and ㄣ which is either placed to the right or underneath a basic tablature sign (see examples in Fig. 15). These signs also occur in the *Yuěfǔ Húncéngjǐ* fragments, but are not used in any of the *Shilín Guǎngjì* tunes.

Zhang Yan glosses ㄣ as meaning *zhé* 折 “to bend” (see Fig. 10), and according to Yang & Yin 1957 (pp. 20–25) this sign indicates that the note it is attached to should be altered in the same way that *luò* 落 and *huò* 豁 are used in modern Kunqu 昆曲 opera.

It is thought that ㄣ on the right of a sign corresponds to the term *zhuài* 拽 “to pull”, which is mentioned by Zhang Yan together with the term *zhé* 折 “to bend”, but without explanation. According to Yang & Yin 1957 (pp. 25–27) this sign probably functions as some sort of glide between notes. It is not clear what the difference is between the sign ㄣ placed on the right and placed underneath, but the sign ㄣ below tends to occur on a sequence of two or three consecutive signs, whereas the sign ㄣ on the right tends to occur in isolation.

The list of signs given by Zhang Yan (see Fig. 10) also includes two signs ㄣ and ㄣ, called *chè* 掣 and *dǎ* 打 respectively, but it is not clear how these are used, and whether or not they correspond to signs attested in Jiang Kui's music.

Fig. 15: Jiang Kui's lyric poem "Invocation in the key of Jue" (Jué Zhāo 角招)

角招 黃鍾角

丁人可久リフムマム一シ
 爲春瘦何堪更繞西湖盡是垂柳自看烟外岫記
 人久リ一人久フウケケム一リフ
 得與君湖上攜手君歸未久早亂落香紅千畝一
 マーマムウウリ久め久フ人レウ久
 葉凌波縹緲過三十六離宮遺遊人回首猶有
 レ一久フ久リフムマム一リ
 畫船障袖青樓倚扇相映人爭秀翠翹光欲溜愛
 人久リフ人久フウケケム一リフ
 著宮黃而今時候傷春似舊蕩一點春心如酒寫
 マーマムウウリ久め久フ人ムあ
 入吳絲自奏問誰識曲中心花前後

ㄣ highlighted in green; ㄣ on right highlighted in red; ㄣ below highlighted in blue.

4. Encoding Considerations

4.1 Directionality

Traditional flute texts use vertical text layout, but in modern typesetting and internet contexts horizontal left-to-right text layout would be more common. In modern scholarship basic tablature signs with appended signs and marks are treated as a single unit for text layout, so that in horizontal layout the relative placement of appended signs below and on the right of a base sign remains the same as for vertical layout (see Fig. 19 for examples).

4.2 Encoding Decisions

Flute notation is fairly complex, and there are differing interpretations of the meaning of some of the signs, so it is not easy to determine the best way to represent all the notational signs and marks as encoded characters. We present our preliminary suggestions below, but realise that alternative encoding decisions could be considered, and alternative character names could also be considered.

- Encode the ten basic tablature signs as symbol characters (gc=So). There is some variation in glyph forms between sources, but there is no need to represent these variations at the encoding level. We propose to use the glyph forms attested in Jiang Kui's tunes as shown in Table 1.
- Do not encode the variant glyph forms of signs listed by Zhu Xi (see Table 4) as these are only attested in this one source.
- Do not encode the six compound signs shown in Table 2 as these are only attested in discussions of flute music, and not in actual flute scores. These compound signs can be represented as ZWJ sequences if required, i.e. 一 ZWJ ㄣ for 𠄎, 厶 ZWJ ㄣ for 𠄎, 人 ZWJ ㄣ for 𠄎, 𠄎 ZWJ ㄣ for 𠄎, 𠄎 ZWJ ㄣ for 𠄎, 𠄎 ZWJ 久 for 𠄎.
- Do not encode the six circled signs shown in Table 4 as these can be represented using the base sign plus U+20DD COMBINING ENCLOSING CIRCLE, e.g. 厶 + ○ = 𠄎.
- Encode the sign ㄣ (zhù 住) used in the *Shilín Guǎngjì* tunes as a non-combining symbol character (gc=So).
- Encode the appended signs ㄣ and ㄣ (dàzhù 大住) and 𠄎 (xiǎozhù 小住) used in Jiang Kui's tunes as combining marks (gc=Mn). In both vertical and horizontal layout the appended sign would be placed under the base character, e.g. 厶 + ㄣ = 𠄎, 厶 + ㄣ = 𠄎, 厶 + 𠄎 = 𠄎. The signs ㄣ and ㄣ should be subjoined to the base character in both vertical and horizontal layout.
- Encode the variant appended sign 𠄎 separately from ㄣ as the difference between the two signs may be significant, and modern scholars usually distinguish the two signs when transcribing Jiang Kui's tunes.

- Encode the signs ㄣ (*zhé* 折) and ㄣ (*zhuài* 拽) which occur on the right of a basic sign as spacing combining marks (gc=Mc). These marks should be positioned on the right of the base character in both vertical and horizontal layout.
- Encode the sign ㄣ which occurs underneath a basic sign as a non-spacing combining mark (gc=Mn). This mark should be positioned under the base character in both vertical and horizontal layout.
- Do not encode the signs ㄣ (*chè* 掣) and ㄣ (*dǎ* 打) which are only mentioned by Zhang Yan, and it is not sure what they correspond to in actual flute scores.

5. *Unicode Properties*

Block: Chinese Musical Symbols at 1D280..1D2DF

Script: Common

* Flute tablature symbols

1D2B0	ㄣ	CHINESE FLUTE TABLATURE SYMBOL HE
1D2B1	ㄥ	CHINESE FLUTE TABLATURE SYMBOL SI
1D2B2	一	CHINESE FLUTE TABLATURE SYMBOL YI
1D2B3	ㄣ	CHINESE FLUTE TABLATURE SYMBOL SHANG
1D2B4	ㄣ	CHINESE FLUTE TABLATURE SYMBOL GOU
1D2B5	人	CHINESE FLUTE TABLATURE SYMBOL CHE
1D2B6	フ	CHINESE FLUTE TABLATURE SYMBOL GONG
1D2B7	リ	CHINESE FLUTE TABLATURE SYMBOL FAN
1D2B8	久	CHINESE FLUTE TABLATURE SYMBOL LIU
1D2B9	ㄣ	CHINESE FLUTE TABLATURE SYMBOL WU
1D2C0	ノ	CHINESE FLUTE SIGN ZHU
1D2C1	フ	CHINESE FLUTE SUBJOINED SIGN XIAOZHU
1D2C2	リ	CHINESE FLUTE SUBJOINED SIGN DAZHU-1
1D2C3	ㄣ	CHINESE FLUTE SUBJOINED SIGN DAZHU-2
1D2C4	ㄣ	CHINESE FLUTE SUBJOINED SIGN DAZHU-3
1D2C5	ㄣ	CHINESE FLUTE COMBINING MARK ZHE
1D2C6	ノ	CHINESE FLUTE COMBINING MARK ZHAI
1D2C7	ノ	CHINESE FLUTE COMBINING MARK ZHAI BELOW

UCD properties:

1D2B0;CHINESE FLUTE TABLATURE SYMBOL HE;So;0;L;;;;N;;;;;
1D2B1;CHINESE FLUTE TABLATURE SYMBOL SI;So;0;L;;;;N;;;;;
1D2B2;CHINESE FLUTE TABLATURE SYMBOL YI;So;0;L;;;;N;;;;;
1D2B3;CHINESE FLUTE TABLATURE SYMBOL SHANG;So;0;L;;;;N;;;;;
1D2B4;CHINESE FLUTE TABLATURE SYMBOL GOU;So;0;L;;;;N;;;;;
1D2B5;CHINESE FLUTE TABLATURE SYMBOL CHE;So;0;L;;;;N;;;;;
1D2B6;CHINESE FLUTE TABLATURE SYMBOL GONG;So;0;L;;;;N;;;;;
1D2B7;CHINESE FLUTE TABLATURE SYMBOL FAN;So;0;L;;;;N;;;;;
1D2B8;CHINESE FLUTE TABLATURE SYMBOL LIU;So;0;L;;;;N;;;;;
1D2B9;CHINESE FLUTE TABLATURE SYMBOL WU;So;0;L;;;;N;;;;;
1D2C0;CHINESE FLUTE SIGN ZHU;So;0;L;;;;N;;;;;
1D2C1;CHINESE FLUTE SUBJOINED SIGN XIAOZHU; Mn;0;NSM;;;;N;;;;;
1D2C2;CHINESE FLUTE SUBJOINED SIGN DAZHU-1;Mn;0;NSM;;;;N;;;;;
1D2C3;CHINESE FLUTE SUBJOINED SIGN DAZHU-2;Mn;0;NSM;;;;N;;;;;
1D2C4;CHINESE FLUTE SUBJOINED SIGN DAZHU-3;Mn;0;NSM;;;;N;;;;;
1D2C5;CHINESE FLUTE COMBINING MARK ZHE;Mc;0;L;;;;N;;;;;
1D2C6;CHINESE FLUTE COMBINING MARK ZHAI;Mc;0;L;;;;N;;;;;
1D2C7;CHINESE FLUTE COMBINING MARK ZHAI BELOW;Mn;0;NSM;;;;N;;;;;

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無射宮

リ久 么子 人么人 少 么 久 少 人 フ 人 今 人 么 子 么 少 今 行 少 今 ク 人 フ 少 久
 簾枕〔三〕邀涼、琴書換日、睡餘無力。細灑冰泉、并刀破甘碧。牆頭喚酒、誰問訊城南
 多今 多子 人么 人リ 少 久 少 久 少 少 今 多 子 マ 人么 少 久 リ 久 少 フ 人
 詩客。岑寂、高樹〔五〕晚蟬、說西風消息。虹梁水陌、魚浪吹香、紅衣半狼籍。維舟
 一多 フリ 子 么 少 么 人 多 么 多 久 少 么 人 リ 久 多 少 么 人 リ 么 子 人 么 人 少 久 少
 試望故國、眇天北。可惜柳〔六〕邊沙外、不共美人遊歷。問甚時同賦、三十六陂秋色。

黃鱈魚

甲寅春、予與俞商卿燕_(二)游西湖、觀梅於孤山之西邨。玉雪照映、吹_(三)香薄人。已而商卿歸吳興、予獨來、則山橫春烟、新柳被水、游人容與飛花中。悵然有懷、作此_(四)

姜白石詞譜的讀譯和校理

依此譯成的揚州慢譜如下：

旁譜的右旁第一行是宋工尺（如「淮」字旁譜「久」之右的「六」字），第二行是今工尺（如「淮」字旁的「五」字）。

五凡工尺五六七五上工六上尺上工凡工尺四上尺工凡工上凡工五六凡五六五五上四上凡工五
六凡工尺六凡五六一尺凡一上尺工尺上合一上尺工尺一工尺六凡工六凡六尺上一合一工尺六
久凡工尺六凡五六一尺凡一上尺工尺上合一上尺工尺一工尺六凡工六凡六尺上一合一工尺六
淮左名都竹西佳處解鞍少駐初程過春風十里盡蔣麥青青自胡馬窺江去後廢池喬木猶厭言兵漸黃昏清
角吹寒都在空城 杜郎俊賞算而今重到須驚縱豆蔻詞工青樓夢好難賦深情二十四橋仍在波心蕩冷月
凡四上凡工五六五上尺上上
工合一工尺六凡六尺上一上
フ今一フ今久凡冬人凡冬冬
無聲念橋邊紅藥年年知爲誰生

（附注）「黃」旁陸本朱本作「リ」，誤，今依張本改作「フ」；「聲」旁張陸朱三本都作「フ」，誤，今改作「フ」；這調是夾鍾宮，是不用「勾」（ㄣ）音的。

楊蔭瀏主張譯白石譜應該用「凡」字當宮音；「原因由於新舊音階的變遷，目前樂人間流行的「凡」音，實際比姜白石時候所用的「凡」音低了一律。在相對音高的音階排列中，現在的「凡」音，剛合姜白石「上」音的地位，即宮音的地位。」此與陳澧說不同，並記於此，供學者研究。

譯白石譜有一個疑難的問題，就是譜裏爲什麼沒有板眼符號？關於宋詞拍眼，我曾經在「白石歌曲旁譜辨」裏作詳細的考辨，（見燕京學報第十二期）但仍不能了解白石譜沒有拍眼的原因。從前人都

These symbols were evident in the earlier, Sung dynasty style of notation called *chih-tzu p'u* or "character tablature notation" for wind instruments—*hsiao*, *ti* 笛, *kuan* 管, etc. A few words on the characteristics of this early form of *chih-tzu p'u* is prerequisite to understanding its relationship to the pitch notation and key/mode designation of the songs.

Little is known of the Chiang style of *chih-tzu* notation since it has become archaic even before the earliest-existing editions of the late 18th century. However, in all probability, the notational symbols were originally derived from the finger position symbols for playing the *hsiao*, an end-blown vertical flute with five frontal fingerholes and one in the back. Chiang's song are musically and poetically associated with the *hsiao* (Yang and Yin, 1957: 68-69). In the quatrain "Kuo ch'ui hung" 過垂虹 (Passing "Drooping-Rainbow" Bridge) Chiang writes, "Hsiao Hung sang quietly while I played the *hsiao*" (小紅低唱我吹簫). Functioning as tablature symbols, the ten pitch names, *ho* through *wu*,² (refer back to Example 1) have the following definitions: (1) *ho* "厶", 合 (close) means to close all six fingerholes of the *hsiao*; (2) *ssu* "ㄣ", 四 (four) means to close four frontal fingerholes; (3) *i* "一", 乙 (secondary) means to close a subordinate fingerhole thereby producing a neutral pitch (more discussion later on the *i* note); (4) *shang* "ㄥ", 上 (ascending) a homonym of *san* 三 (three), means to open three frontal fingerholes; (5) *kou* "ㄣ", 勾 (hook) means to curve or crook the finger when covering a portion of the fingerhole; (6) *ch'ê* "人", 尺 (foot) means to close the fingerhole which is one foot away from the blowing hole; (7) *kung* "工", 工 (labor), a homonym of *k'ung* 空 (empty) means to keep all frontal fingerholes empty, i.e., open; (8) *fan* "凡", 凡 (all) means to open all fingerholes including the one in the back; (9) *liu* "久", 六 (six) means to cover all six holes (overblown octave of pitch *ho* is produced); (10) *wu* "五", 五 (five) means to close five fingerholes (four frontal and one back fingerholes; hence, overblown octave of pitch *ssu* is produced).³ With a knowledge of the tablature

² The eleventh symbol *i-wu* ㄣ is not a tablature-derived symbol, although it appears to have a pitch meaning. The symbol can be interpreted as *i*—on *wu* ㄣ which would result in another neutral interval, a heightened \tilde{F} , between F^{\sharp} and $F^{\#}$. If indeed Chiang K'uei used the *i-wu* in his seventeen songs, scholarly opinions differ on this point; it could indicate that even during Chiang's time, the transformation from tablature to pitch notation had already begun.

³ The tablature phenomenon of Chiang's seventeen *tz'u* notation has often been overlooked, perhaps obscured by the tendency to regard Chiang's notation as an early form of *kung-ch'ê* 工尺 pitch notation, together with the other known Sung dynasty notations mentioned in the "Ch'in-lü shou" by Chu Hsi and in the *Tz'u Yüan* by Chang Yen. Although these three notational examples have similar notational symbols, that of Chiang is tablature-based while those of Chu and Chang are pitch-based. Furthermore, the functional aspect of the pitch notations cited in the Chu and Chang works is questionable since, for example, it would not be possible to apply the "chro-

matic" scale characteristic of the notation mentioned by Chu and Chang to a fixed-pitch Chinese aerophone instrument. Thus, if Chiang's notation is recognized as a *chih-tzu* tablature notation (idiomatic to the flute), we can probably draw two conclusions regarding Sung notational system. First, Chiang's *chih-tzu* notation is the earliest type of *kung-ch'ê* notation, and that the symbols of the Sung *su-tzu* popular character notational system were originally derived from tablature notation, based on the *hsiao* flute fingering position. Second, both the notations cited in Chu's and Chang's writings are meant to be a general type of notation for pitch reference in theoretical discussions, not for use in applied music. The reader may recall that idiomatic notations existed for the *ch'in* and *sê* zithers during the Sung dynasty. Hence it is most likely that the *kung-ch'ê* notational system (referring to all notations using the *ho*, *ssu*, *i*, *shang*, etc. concept) originated as a tablature notation, idiomatic for the *hsiao* instrument. I thank Prof. Ts'ao Cheng of the Central College of Music in Peking for his verification of the tablature meanings in correlation with a flute type of instrument.

Fig. 19: Liang Ming-yüeh, "The Tz'u Music of Chiang K'uei" (*Renditions* 1979) p. 232

揚州慢
"Yangzhou Man"

中呂宮

Chih-tzu-fu
Text
Ping-chê
Recitative
rhythm

淮左名都，竹西佳處，解鞍少駐初程。
過春風十里，盡齊麥青青。自胡馬
窺江去後，廢池喬木，猶厭言兵。漸黃昏
清角吹寒，都在空城。
杜郎俊賞，算而今重到須驚。
縱豆蔻詞工，青樓夢好，難賦深情。
念橋邊紅藥，年年知為誰生。

Song Six

Fig. 20: Andrew West, “Musical Notation for Flute in Tangut Manuscripts” Table 2

Flute Notation ¹⁶				Tangut Characters ¹⁷				
Manu- script Sign	Standard Sign	Chinese	Pinyin	Tangut	Refs.	Read- ings	Meaning	Transliteration
𐰚	𐰚	五	wǔ	𐰚	L1915 K4305	·u ·u	salt	五吳烏吾
𐰚	𐰚	凡	fán	𐰚	L2476 K2760	xiwa xwâ	flower	翻項
𐰚	𐰚	尺	chě (chī)	𐰚	L3738 K0557	kow kon	merit	工公翁軍 貢功
𐰚	𐰚	工	gōng	𐰚	L4018 K5009	tshji tshje	origin, base, root	尺赤齒滯 痴治持池 直
𐰚	𐰚	上	shàng	𐰚	L0009 K5475	sjwo sjo	to arise, to appear, to raise	
𐰚	𐰚	一	yī	𐰚	L1544	ji	(translit.)	夷依噫
𐰚	𐰚	四	sì	𐰚	L2460 K3107	sə sə	(translit.)	四斯嗣姁 氏司思已 絲死賜
𐰚	𐰚	六	liù	𐰚	L4153 K0151	ljiw ljeu	to gather	六略柳陸 綠錄
𐰚	𐰚	勾	gōu	𐰚	L1429 K4586	kjiw kjeu	(translit.)	鳩驕拘高 究韭九
𐰚	𐰚	合	hé	𐰚	L3540 K3252	xa xa	(surname)	合哈褐皓 闕河和

Fig. 21: British Library Or. 12380/21 showing flute tablature signs on a Tangut manuscript



長慶子 拍子 六
中・テ・火・カ・リ・六・火・テ・リ・カ・リ・六・火・テ・
火・中・リ・テ・火・テ・火・中・火・中・火・中・
火・カ・リ・中・火・リ・テ・リ・テ・火・中・テ・
火・六・リ・火・六・リ・火・中・リ・火・テ・火・
中・火・中・テ・火・六・テ・リ・火・テ・リ・

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Fig. 23: Tomb mural showing musicians playing flute, drum and clappers



7. Bibliography

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8. Proposal Summary Form

ISO/IEC JTC 1/SC 2/WG 2 PROPOSAL SUMMARY FORM TO ACCOMPANY SUBMISSIONS FOR ADDITIONS TO THE REPERTOIRE OF ISO/IEC 10646¹ Please fill all the sections A, B and C below. Please read Principles and Procedures Document (P & P) from http://www.dkuug.dk/JTC1/SC2/WG2/docs/principles.html for guidelines and details before filling this form. Please ensure you are using the latest Form from http://www.dkuug.dk/JTC1/SC2/WG2/docs/summaryform.html . See also http://www.dkuug.dk/JTC1/SC2/WG2/docs/roadmaps.html for latest Roadmaps.
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A. Administrative

1. Title:	Proposal to encode old Chinese flute notation		
2. Requester's name:	Andrew West and Eiso Chan (Chén Yǒngcōng 陈永聪)		
3. Requester type (Member body/Liaison/Individual contribution):	Individual contribution		
4. Submission date:	2017-09-07		
5. Requester's reference (if applicable):			
6. Choose one of the following:			
This is a complete proposal:	YES		
(or) More information will be provided later:			

B. Technical – General

1. Choose one of the following:			
a. This proposal is for a new script (set of characters):			YES
Proposed name of script:			
b. The proposal is for addition of character(s) to an existing block:			NO
Name of the existing block:			
2. Number of characters in proposal:			18
3. Proposed category (select one from below - see section 2.2 of P&P document):			
A-Contemporary	B.1-Specialized (small collection)	X	B.2-Specialized (large collection)
C-Major extinct	D-Attested extinct		E-Minor extinct
F-Archaic Hieroglyphic or Ideographic	G-Obscure or questionable usage symbols		
4. Is a repertoire including character names provided?			
a. If YES, are the names in accordance with the "character naming guidelines" in Annex L of P&P document?			YES
b. Are the character shapes attached in a legible form suitable for review?			YES
5. Fonts related:			
a. Who will provide the appropriate computerized font to the Project Editor of 10646 for publishing the standard?	Andrew West		
b. Identify the party granting a license for use of the font by the editors (include address, e-mail, ftp-site, etc.):	Andrew West		
6. References:			
a. Are references (to other character sets, dictionaries, descriptive texts etc.) provided?			YES
b. Are published examples of use (such as samples from newspapers, magazines, or other sources) of proposed characters attached?			YES
7. Special encoding issues:			
Does the proposal address other aspects of character data processing (if applicable) such as input, presentation, sorting, searching, indexing, transliteration etc. (if yes please enclose information)?			YES

8. Additional Information:

Submitters are invited to provide any additional information about Properties of the proposed Character(s) or Script that will assist in correct understanding of and correct linguistic processing of the proposed character(s) or script. Examples of such properties are: Casing information, Numeric information, Currency information, Display behaviour information such as line breaks, widths etc., Combining behaviour, Spacing behaviour, Directional behaviour, Default Collation behaviour, relevance in Mark Up contexts, Compatibility equivalence and other Unicode normalization related information. See the Unicode standard at <http://www.unicode.org> for such information on other scripts. Also see Unicode Character Database (<http://www.unicode.org/reports/tr44/>) and associated Unicode Technical Reports for information needed for consideration by the Unicode Technical Committee for inclusion in the Unicode Standard.

¹ Form number: N4102-F (Original 1994-10-14; Revised 1995-01, 1995-04, 1996-04, 1996-08, 1999-03, 2001-05, 2001-09, 2003-11, 2005-01, 2005-09, 2005-10, 2007-03, 2008-05, 2009-11, 2011-03, 2012-01)

C. Technical - Justification

1. Has this proposal for addition of character(s) been submitted before?	NO
If YES explain	
2. Has contact been made to members of the user community (for example: National Body, user groups of the script or characters, other experts, etc.)?	NO
If YES, with whom?	
If YES, available relevant documents:	
3. Information on the user community for the proposed characters (for example: size, demographics, information technology use, or publishing use) is included?	NO
Reference:	
4. The context of use for the proposed characters (type of use; common or rare)	Rare
Reference:	
5. Are the proposed characters in current use by the user community?	YES
If YES, where? Reference:	
6. After giving due considerations to the principles in the P&P document must the proposed characters be entirely in the BMP?	NO
If YES, is a rationale provided?	
If YES, reference:	
7. Should the proposed characters be kept together in a contiguous range (rather than being scattered)?	YES
8. Can any of the proposed characters be considered a presentation form of an existing character or character sequence?	NO
If YES, is a rationale for its inclusion provided?	
If YES, reference:	
9. Can any of the proposed characters be encoded using a composed character sequence of either existing characters or other proposed characters?	NO
If YES, is a rationale for its inclusion provided?	
If YES, reference:	
10. Can any of the proposed character(s) be considered to be similar (in appearance or function) to, or could be confused with, an existing character?	NO
If YES, is a rationale for its inclusion provided?	
If YES, reference:	
11. Does the proposal include use of combining characters and/or use of composite sequences?	NO
If YES, is a rationale for such use provided?	
If YES, reference:	
Is a list of composite sequences and their corresponding glyph images (graphic symbols) provided?	
If YES, reference:	
12. Does the proposal contain characters with any special properties such as control function or similar semantics?	NO
If YES, describe in detail (include attachment if necessary)	
13. Does the proposal contain any Ideographic compatibility characters?	NO
If YES, are the equivalent corresponding unified ideographic characters identified?	
If YES, reference:	