

合四→上尺工凡

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Title: Proposal to encode characters for Gongche Notation in SMP

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1. Introduction

Gongche notation (工尺谱/工尺譜) is a traditional musical notation method, once popular in ancient China, and now it's used in Chinese local operas, especially Kunqu Opera (昆曲/崑曲), Peking Opera (京剧/京劇), Yueju Opera (粤剧/粵劇) and so on. It uses the characters like Chinese ideographs to represent musical notes. It was named after two of the Chinese ideographs that were used to represent musical notes, namely "工" gōng and "尺" chě.

Many characters for Gongche Notation have exactly the same appearances with Chinese ideographs, so the vast majority of them could be used isomorphic ideographs to indicate. Hong Kong SAR submitted two ideographs which are just used in the lyrics of Yueju Opera as UNCs in [IRGN1405R](#). (pls see Fig. 1) And Eiso Chan submitted two ideographs which are used in the

lyrics of Kunqu Opera and traditional Gongche Notation in [L2/17-079](#). (pls see Fig. 2)

Fig. 1 H-87D2 & H-87D6 in IRGN1405R

2	𠂔	H-87D2	0365.211	𠂔	4	𠂔𠂔尺	Chinese character used in the lyrics of Cantonese opera (粵曲曲譜字符). Sample is shown in Annex III. Cantonese opera is regarded as a cultural heritage of the People's Republic of China (see http://www.gov.cn/zwgk/2006-06/02/content_297946.htm).
3	𠂔	H-87D6	0365.211	𠂔	4	𠂔𠂔五	- Ditto -

Fig. 2 UTC-03074 & UTC-03075 in L2/17-079

Glyph	IDS	kRSUnicode	FS	U-Source Number
𠂔	𠂔𠂔上 U + 2FF0,U + 5F73,U + 4E0A	60.3	2	UTC-03074
𠂔	𠂔𠂔凡 U + 2FF0,U + 5F73,U + 51E1	60.3	3	UTC-03075

However, some characters' appearances do not conform to the general principles of writing Chinese ideographs. The end strokes of "𠂔", "𠂔", "𠂔", "𠂔", "𠂔", "𠂔", "𠂔" are extended by a tiny slash downward. If these character would be included in CJK Unified Ideographs, some exceptive strokes should be included in the block CJK Strokes, too. These exceptive strokes can't be used in any common CJK ideograph. And these 7 characters are provided IDS and kRSUnicode hardly. Thus, these characters aren't suitable to be included in the blocks CJK Unified Ideograph, we submit to encode these characters in a new block.

The relation of the characters for Gongche Notation & CJK Unified Ideograph is similar with the relation of IPA and Latin script, so we don't submit the isomorphic ideographs to be included in the new block again. We think the name of the new block could be **Gongche Notation Extended**.

According to Fig. 3, when these 7 characters and UTC-03074, UTC-03075 will be included in Unicode, we can get the table for Gongche Notation like this:

Table 1 Characters for Gongche Notation

N/A	N/A	N/A	N/A	合	四	一
1̣	2̣	3̣	4̣	5̣	6̣	7̣
上	尺	工	凡	合	四	一
1̣	2̣	3̣	4̣	5̣	6̣	7̣
上	尺	工	凡	六	五	乙
1	2	3	4	5	6	7
仕	伋	仃	侃	伋	伍	亿
1̣	2̣	3̣	4̣	5̣	6̣	7̣
往	徃	徃	徃	徃	徃	徃
1̣	2̣	3̣	4̣	5̣	6̣	7̣

We can't found the evidences for 4 characters by two tiny slashes downward at this moment.

This document shows their proposed code points, glyphs, proposed character names, Unicode properties and evidences.

2. Proposed Characters








We suggest to add a new block named **Gongche Notation Extended** in SMP. The appearances of these Gongche characters look like Tangut, Khitan Small Script, Khitan Ideographs, Jurchen, too, so we suggest to put them at U+19BD4 through U+19BDA.

There are a character like kana 𐰢 (U+306E) and a character like kana 𐰢 (U+306E) by a tiny slash downward in the evidences, they are same with 𐰢 (U+56DB) and 𐰢 (U+56DB) by a tiny slash downward. Kana 𐰢 (U+306E) looks like cursive form of 𐰢 (U+56DB).

We can know the variant form for 𐰢 (U+51E1) is 𐰢 (U+51E2) by Unihan Database, and some evidences show the glyph is 𐰢 (U+51E2) by a tiny slash downward. According to Fig. 3, 𐰢 (U+51E2) by a tiny slash downward and 𐰢 (U+51E1) by a tiny slash downward are the same character.

These two characters should be normalized to be "𐰢" and "𐰢". (pls see Table 3, too)

Table 2 Proposed Gongche Characters

Code Point	Representative Glyphs	Proposed Character Name	Evidences
U + 19BD4		GONGCHE CHARACTER 5408 BY A TINY SLASH DOWNWARD	Fig. 3, 4, 28
U + 19BD5		GONGCHE CHARACTER 56DB BY A TINY SLASH DOWNWARD	Figs. 3, 4, 15, 22, 23
U + 19BD6		GONGCHE CHARACTER 4E00 BY A TINY SLASH DOWNWARD	Figs. 3, 4, 17, 21
U + 19BD7		GONGCHE CHARACTER 4E0A BY A TINY SLASH DOWNWARD	Figs. 3, 4, 5, 7, 9, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 27
U + 19BD8		GONGCHE CHARACTER 5C3A BY A TINY SLASH DOWNWARD	Figs. 3, 4, 5, 7, 8, 9, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 27, 28
U + 19BD9		GONGCHE CHARACTER 5DE5 BY A TINY SLASH DOWNWARD	Figs. 3 through 28
U + 19BDA		GONGCHE CHARACTER 51E1 BY A TINY SLASH DOWNWARD	Figs. 3, 4, 7, 8, 11, 12, 13, 17, 21, 24, 28

3. Unicode Properties

19BD4;GONGCHE CHARACTER 5408 BY A TINY SLASH
DOWNWARD;Lo;0;L;;;;;N;;;;;

19BD5;GONGCHE CHARACTER 56DB BY A TINY SLASH
DOWNWARD;Lo;0;L;;;;;N;;;;;

19BD6;GONGCHE CHARACTER 4E00 BY A TINY SLASH
DOWNWARD;Lo;0;L;;;;;N;;;;;

19BD7;GONGCHE CHARACTER 4E0A BY A TINY SLASH
DOWNWARD;Lo;0;L;;;;;N;;;;;

19BD8;GONGCHE CHARACTER 5C3A BY A TINY SLASH
DOWNWARD;Lo;0;L;;;;;N;;;;;

19BD9;GONGCHE CHARACTER 5DE5 BY A TINY SLASH
DOWNWARD;Lo;0;L;;;;;N;;;;;

19BDA;GONGCHE CHARACTER 51E1 BY A TINY SLASH
DOWNWARD;Lo;0;L;;;;;N;;;;;

4. Gongche Characters Mapping

Table 3 Unified Gongche Characters Mapping

HEX	Glyphs	Zhao	Chen	WLi	WLiu	Yu	Gu	Zheng
19BD4	合	合	合	absent	absent	absent	absent	
19BD5	四	四	四	absent		absent		absent
19BD6	一	一	一	absent			absent	absent
19BD7	上	上	上					absent
19BD8	尺	尺	尺					
19BD9	工	工	工					
19BDA	凡	凡	凡					

Zhao is for 赵晓楠, Chen is for 陈根方, WLi is for 王锡纯 & 李秀云, WLiu is for 王季烈 & 刘

富梁, Yu is for 俞振飞, Gu is for 顾铁华, Zheng is for 郑剑西. Please see the full name of these

books in Part 6.

5. Evidences

Fig. 3

赵晓楠: 《工尺谱常识与视唱》, 北京:人民音乐出版社 (Beijing: People's Music Publishing House), 2014, ISBN 978-7-103-04558-9, p. 3

工尺谱字	上 _↗	尺 _↗	工 _↗	凡 _↗	合	四	一 _↗
简谱音高	1̣	2̣	3̣	4̣	5̣	6̣	7̣
工尺谱字	上 _↖	尺 _↖	工 _↖	凡 _↖	合	四	一
简谱音高	1̣	2̣	3̣	4̣	5̣	6̣	7̣
工尺谱字	上	尺	工	凡	六	五	乙
简谱音高	1	2	3	4	5	6	7
工尺谱字	仕	伋	仨	侃	伋	伍	亿
简谱音高	ī	ī	ī	ī	ī	ī	ī
工尺谱字	往	徯	徯	徯	徯	徯	徯
简谱音高	ī	ī	ī	ī	ī	ī	ī

Fig. 4

陈根方: 《中国工尺谱的数字实现研究》 (Research on Digitization of Chinese Gongche Notation), 上海大学博士学位论文 (Shanghai University Doctoral Dissertation), 2011, p. 6

降低八度的方法就是在每个基本谱字的最后一个笔划上加向左下方向的尾巴笔画, 降低一个八度加一个尾巴笔画, 降低两个八度加两个尾巴笔画, 尾巴笔画都和谱字的最后一个笔画相连。如表 1.3 所示。

表 1.3 基本谱字和降低一个和二八八度后的谱字

基本谱字	合	四	一	上	尺	工	凡
降低一个八度谱字	合 _↘	四 _↘	一 _↘	上 _↘	尺 _↘	工 _↘	凡 _↘
降低二个八度谱字	合 _{↘↘}	四 _{↘↘}	一 _{↘↘}	上 _{↘↘}	尺 _{↘↘}	工 _{↘↘}	凡 _{↘↘}

Figs. 5 through 6

王锡纯, 李秀云: 《遏云阁曲谱·牡丹亭》, 遏云阁, 1870, p. 1

隨步名園是偶然 娘回轉幽閨窄地教人見無此

朝膳個人無伴怎遊園 畫廊前深深幕見銜泥燕

惜花賺何意 婢 小立在垂花樹邊小姐你纔

過雲閣曲譜 牡丹亭

線恰便是花似人心向好處牽 來粉畫垣元來春心無處不飛懸睡茶藤抓住裙袂

懶畫眉最撩人春色是今年少甚麼低減富

夢夢六字

Fig. 7

王锡纯, 李秀云: 《遏云阁曲谱·长生殿》, 遏云阁, 1870, p. 9

遏云閣曲譜

九

長生殿

是在翠閣中不免進去旦唱
 又招轉關兒心腸難料貼白吓娘
 夾白清早起來不見娘想
 彼邀却怎生步雲頭只思別岫飄將他來假做拋上
 兒串就裝圖套故將咱瞞的牢他似怕我焦只休將
 上

11

王锡纯, 李秀云: 《遏云阁曲谱·长生殿》, 遏云阁, 1870, p. 10

過雲閣曲譜

紫閣

十

長生殿

Fig. 9

王锡纯, 李秀云: 《遏云阁曲谱·邯郸梦》, 遏云阁, 1870, p. 4

過雲閣曲譜

雲陽場

四

邯鄲夢

Figs. 10 through 11

王锡纯, 李秀云: 《遏云阁曲谱·邯郸梦》, 遏云阁, 1870, p. 5

<p>也麼差著俺當朝攔駕咳 省可的慢打商量唱且退</p> <p>荷<small>外白</small> 奉聖旨不許退衙<small>先生</small> 又不容俺退衙<small>先生</small> 吓夫人俺家本山東 有良田數頃足以禦寒餒何苦求祿而今及此思復衣短裘乘青驢而行邯鄲 道中不可得矣吓夫人取俺的佩劍過來<small>正旦</small> 相公要佩劍何用吓<small>先生</small> 阿呀夫</p> <p>遏雲閣曲譜 雲場 五 邯鄲夢</p>	<p>人 吓 顛不喇自裁刮<small>同</small> 顛不喇自裁刮<small>正旦</small> 相公不可如此 外聖上有旨不許自我要明<small>正旦</small> 刑哩<small>正旦</small> 阿呀要明<small>正旦</small> 刑哩<small>先生</small> 吓是吓想 為大臣者生也明白死也明白夫人你領了這班孽種向午門叫冤去<small>正旦</small> 是孩 兒們隨我來<small>先生</small> 點走吓</p> <p>下<small>先生</small> 俺赴市曹去也<small>唱</small> 遲和疾剛刀一下 外夾不要違了聖旨<small>先生</small></p> <p>遏雲閣曲譜 雲場 五 邯鄲夢</p>
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Fig. 12

王锡纯, 李秀云: 《遏云阁曲谱·南柯梦》, 遏云阁, 1870, p. 3

遏云閣曲譜

南柯夢

三

奇哉低待喝采小宮腰控著獅蠻帶粉將軍把旗勢

擺口吟附城上起鼓是晴城上起鼓吓且呀低看俺一朵紅雲

上將靈他望眼孩哈

貼白 上箭答話來也吓哈妙吓真乃楊妃再

Fig. 13

王锡纯, 李秀云: 《遏云阁曲谱·南柯梦》, 遏云阁, 1870, p. 4

遏云閣曲譜

南柯夢

四

來淨 姐姐你可
知我的心事且
小心腸心腸多大止不過領些須魚肉塊

覺些小米頭些怎做在過水裏這些白 唱太子 吓哈哈

他叫我 我是漢子樂殺

我也 太子 吓 你散拼殘生來觸槐 貼白 官主說若要些米頭魚

Fig. 14

王季烈, 刘富梁: 《集成曲谱金集卷五·金雀记》, 上海: 商务印书馆, 1925, p. 6

前行欲借寶庵宿一宵明日就行的。(貼)呀。果是女娘的聲音。待我開門看來。呀。原來是位檀越。(旦)小師父。(貼)檀越請檀越稽首。(旦)小師父有禮。輕造寶庵。幸恕唐突。(貼)好說。請問檀越從那里來。(旦)遠從洛陽至此。偶遭風雨。多蒙相留。(貼)十方所在。何出此言。管家請到外廂土地堂安歇了罷。(旦)是。(下)(貼)

吓。檀越請禪堂少坐。待小尼去取茶來。(旦)不消。(貼)這位姐姐隨我來。(梅)是。(同下)看這所觀音庵。好莊嚴。佛像只索禮拜一番。(六調)

真如境看朵朵曇花靚色嬌。正玉宇無塵香篆裊。金爐不斷光明燈焰沖霄。何幸今宵瞻聖表。(貼)暗上界方纔來的女娘舉止端方。必非小戶。

金集卷五第六 葉

Fig. 15

王季烈, 刘富梁: 《集成曲谱金集卷八·醉菩提》, 上海: 商务印书馆, 1925, p. 76

佛圓 (外上)

閑看彌勒空中戲問向毘盧頂上眠撒手便能欺十聖低頭端不顧三賢貧僧
乃淨慈寺住持是也今乃濟公百日大化之期龕子已發在虎跑寺前松林之
內你看他一生德行教那十六所朝臣二十四路太尉一十八行財主多來拈
香弔送(內開導眾唱外)聽唱導之聲想

有官府來了正是人生自古誰無死留 (凡調)

此奇聞萬古傳(下眾唱末小生上全)勝如花愁思苦秋氣涼正

值山頽安仰聽嘹嘹雁影離群苦滴滴朋情悲愴 (末)

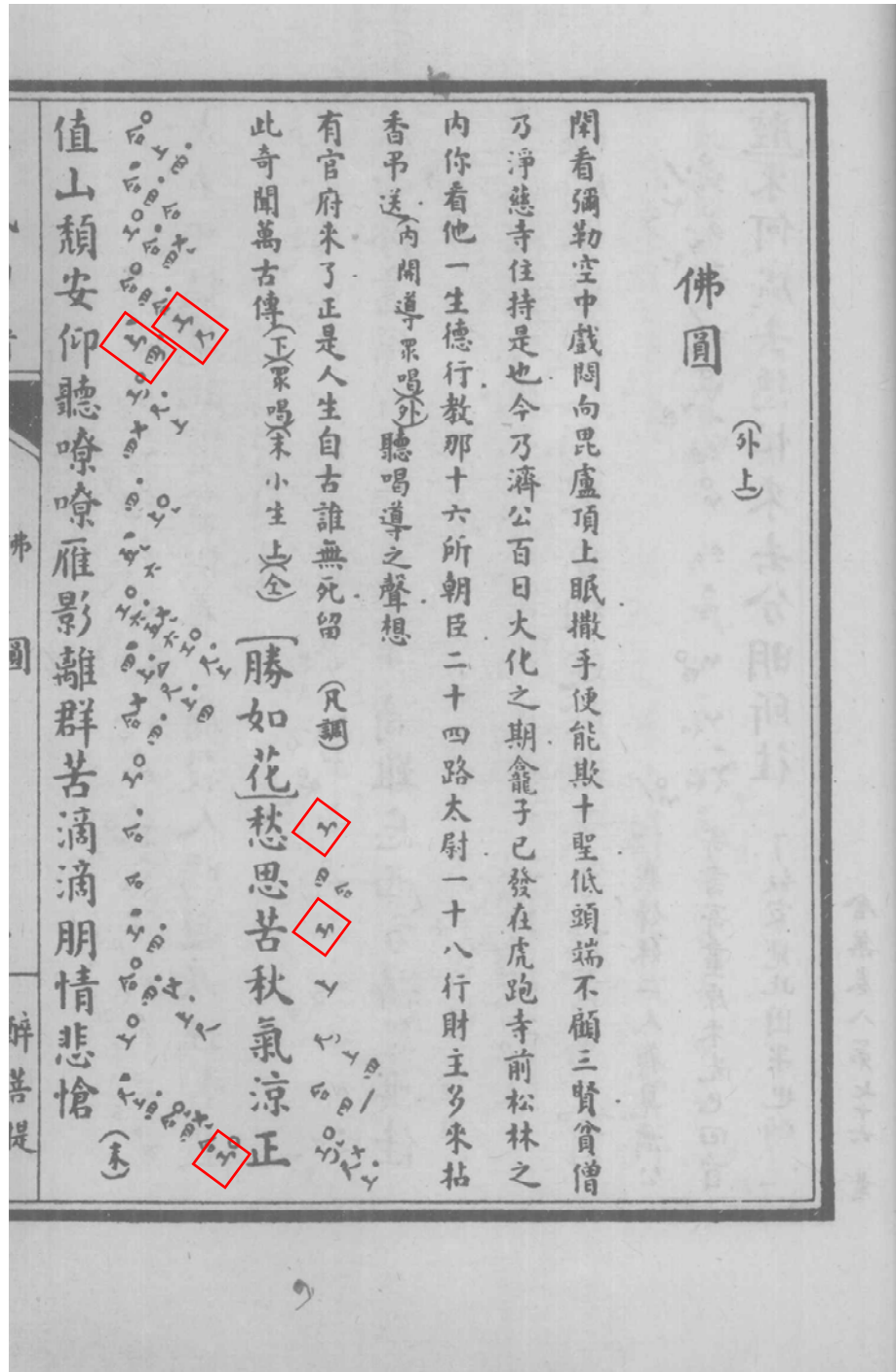


Fig. 16

王季烈, 刘富梁: 《集成曲谱玉集卷六·烂柯山》, 上海: 商务印书馆, 1925, p. 36

會稽太守特到他家報喜再沒處問望大娘子指引(正旦)叮他家麼不住在這
裡了(生末)住在那裡(正旦)哪哪哪住在前面爛柯山下(生末)叮爛柯山下多謝
了我們走吓(正旦)爛柯山下叮原來朱買臣果然做了官咳崔氏吓崔氏你
當初若沒有這節事做出來哪哪哪方纔
報喜的到來沒何等歡喜何等快活這夫
人穩穩是我做的我如今總然要去見他
(鎖南枝)只是形齷齪身
且住我想他也不是
負心的人又道一夜
夫妻百夜思哩
畢竟還想
遺遺衣衫襤褸把人唬殺
枕邊情不說眼前話好似出園菜做了落樹花我細

玉集卷六第三十六葉

Fig. 17

王季烈, 刘富梁: 《集成曲谱玉集卷七·长生殿》, 上海: 商务印书馆, 1925, p. 45

在裏面
做些甚
麼丑唱
愛清幽西閣暫息昏朝偃龍牀靜養神疲守
玉戶不容人到
我進去麼這
個奴婢怎敢唱只因親奉君王命量奴
婢敢行違拗吓唱喜遷鶯休得把虛脾來掉休得把
虛脾來掉
吓唱
婢怎敢
吓唱
嘴喳喳弄鬼粧○妖焦也波焦急
長生殿

Fig. 18

王季烈, 刘富梁: 《集成曲谱玉集卷七·长生殿》, 上海: 商务印书馆, 1925, p. 62

上栊相見。那得心情送巧來。你看星河之下。隱隱香煙一縷。搖颺騰空。却是何處。是唐天子的貴妃楊玉環。在宮中乞巧哩。應生受他一片誠心。仙郎。我和你到彼一看。與他證盟則個。不告有理。全請。合唱

上留佳會。年年在斯。却笑他人。世情緣頃刻時。隨上生 引生丑 全王象

六調

二郎神。秋光淨碧。沈沈輕煙送暝。雨過梧桐微。做冷銀河宛轉。纖雲點綴。雙星順着風兒還細聽。丙笑

久亦蓋

密誓

長生殿

Fig. 19

俞振飞：《粟庐曲谱·牡丹亭》，上海：上海辞书出版社，1953，2011 reprint, p. 141

廊前深深暮見銜泥燕隨步名園是偶然貼娘

旦叮原來如此我知
道了你好生答應夫

回轉幽閨窄地教人見小庭深院人去我隨後就來貼

是閒花傍砌如依主嬌

鳥嫌籠會罵人下旦春

香已去咱好尋夢也

小工調
忒忒令那一答可是湖山石邊

粟廬曲譜
尋夢
牡丹亭

二四一

Fig. 20

俞振飞：《粟庐曲谱·西楼记》，上海：上海辞书出版社，1953，2011 reprint, p. 262

甯夢何如我于鵲為想素徽只願一病而亡到決絕了這段姻緣
誰想癡魂不斷三日後心口還熱被父親救醒依舊相思如今半
生不死吓又悲傷起頭叮都因孽債未完那魔君還不肯饒我嗟

賢賓只道愁魔病鬼朝露捐奈依舊纏綿祇剩

吁吁一線喘鎮黃昏兀首無言看風簾自捲鐙

六字調 集

二六二

Fig. 21

俞振飞：《粟庐曲谱·长生殿》，上海：上海辞书出版社，1953，2011 reprint, p. 285

把虛脾來掉旦下 婢怎敢 丑介 奴
嘴喳喳弄鬼妝妖焦也波
娘曉得 丑介 娘
甚麼 別有個
焦急得咱滿心越惱我曉得
人兒挂眼梢倚著他寵勢高好吓你明欺俺失
粟廬曲譜 絮閣 長生殿

Fig. 22

顾铁华: 《粟庐曲谱外编·浣纱记》, Self Printed, 2002, p. 156

清秋路黃葉飛同為甚登山涉水作旦只因他義

屬君臣外反教人分開父子作旦又未知何日歡

會外料團圓今生已稀作旦要重逢他年怎期外

一五六

Fig. 23

顾铁华: 《粟庐曲谱外编·浣纱记》, Self Printed, 2002, p. 157

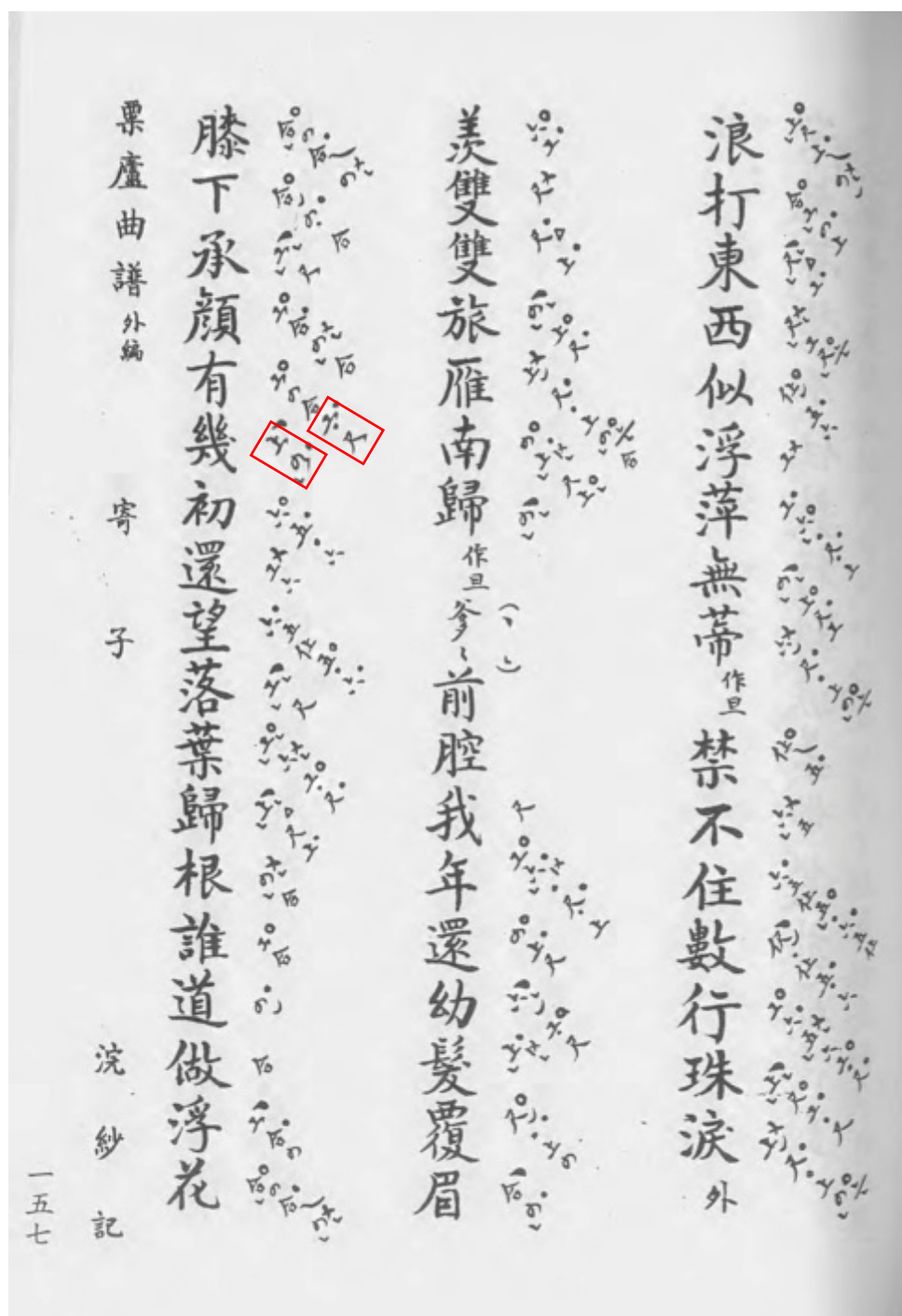


Fig. 24

顾铁华: 《粟庐曲谱外编·长生殿》, Self Printed, 2002, p. 504

天上清歌今日
沿門鼓板好不
頽氣人也唱 一枝花不限防餘年值亂離逼拶得
歧路遭窮敗受奔波風塵顏面黑歎凋殘霜雪
鬢鬚白今日個流落天涯只留得琵琶在揣羞

五〇四

Fig. 25

顾铁华: 《粟庐曲谱外编·长生殿》, Self Printed, 2002, p. 505

臉上長街又過短街那裏是高漸離擊筑悲歌

叮呵倒倒做了伍子胥吹簫也那乞丐梁州第

七想當日奏清歌趨承金殿度新聲供應瑤階

粟廬曲譜外編 彈 詞 長生殿

五〇五

Fig. 26

顾铁华: 《粟庐曲谱外编·长生殿》, Self Printed, 2002, p. 510

只待撥繁絃傳幽怨翻別調寫愁煩慢慢的把

天寶當年遺事彈

末天寶當年遺事好大題目也小生天寶
年間之事一時那裡唱得盡請先把貴妃
娘娘當時怎生進宮請唱來我們一聽老

生聽者

眾請教

老生唱二轉想當初慶皇唐太平天下訪麗色把

五
一
〇

Fig. 27

顾铁华: 《粟庐曲谱外编·长生殿》, Self Printed, 2002, p. 511

蛾眉選刷有佳人生長在弘農楊氏家深閨內

端的是玉無瑕那君王一見了就歡無那把鈿

盒金釵親納評跋做昭陽第一花

票廬曲譜外編 彈詞

貼請問老大那貴
妃娘娘生得如何
淨可有咱家大姐

長生殿

五一一

This figure was provided by 新水令 who was a user on Zhihu.com.



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7. Others

This document is completed by 4 people: Eiso Chan, Wáng Xiǎolěi, Hóu Lè and Jerry You.

Xiǎolěi and Lè found vast part of evidences (pls see their website 崑曲工尺譜數字化/gongchepu.net), Jerry designed the glyphs (pls see his website 古今文字集成/www.ccamc.co),

Eiso wrote this document, and his father wrote the top calligraphy work about these 7 characters.

We have been discussing this issue for a long time.

Xiǎolěi and Lè maintain a website named 崑曲工尺譜數字化 together. This website has made a great contribution for digitization of Gongche Notation used for Kunqu Opera.

Jerry likes to study different types of ancient script in old China. He was invited to the meeting on Khitan Scripts on August, 2016 in Yinchuan, China.

Eiso's dear girlfriend Lin Kangyin returned her parents' home because of Tomb-sweeping Day when he wrote this proposal. Eiso missed her very much at that time. Kangyin once asked Eiso whether he knew why he was chosen to be her boyfriend. Then she told him the reason was that he was being contributing for Unicode. A good man should have a thing which he was keen on, and Unicode could help many people. He felt so happy and well-being because his darling was supporting him to do what he was keen on. Eiso is a man who likes music and Chinese local opera. Kangyin told him she wasn't adept at any music form for their first date, so Eiso always had been hoping that he could help Kangyin when she practiced singing. Unicode complete collection of all characters for Gongche Notation is very useful for them and other Chinese people. Please bless them into the marriage hall as soon as possible.

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