



*Figs. 14.1 & 14.2: The traditional sheng*

## 笙

## SHENG

## HISTORY

The *sheng*, a multi-reed mouth organ, is one of the oldest Chinese reed wind instruments. The instrument's bamboo pipes, each of a different length, have been likened to a phoenix at rest with its wings closed (Figs. 14.1 & 14.2).

As early as the Yin Dynasty (1401 BC – 1122 BC), there were already inscriptions on oracle bones bearing the characters ‘龠禾’ (the character is read as ‘和’ *he*, representative of the 小笙 *xiaosheng* [small *sheng*]).

Numerous historical records<sup>1</sup> have mentioned the *sheng* as an important instrument in ancient music, popular in the imperial palace and in court processions.

Another reed instrument known as the 笙 *yu*, which looked like and was played in a manner similar to the *sheng*, also prevailed in ancient times and for years, both instruments co-existed as China's prevailing reed instruments.

In contrasting the structural differences between the *yu* and *sheng*, <<宋史•乐志>> *Song Shi • Yue Zhi* notes<sup>2</sup> that the *yu* typically had 36 reeds while the *sheng* had 13 or 19 reeds. Historically, studies have stated that instruments with 22, 23 or 36 reeds were classified as *yu*, but those with 19, 17 or 13 reeds fell under the category of *sheng*.

The *sheng* and *yu* co-existed for a long time, but following the demise of the Song dynasty, the *yu* gradually lost its place. Today, most multi-reed mouth organs are known as *sheng* regardless of the number of reeds they possess. This instrument continues to be popular with the common folk for festivities, weddings and celebrations

The *sheng* is a wind instrument but it uses the vibration of 铜制簧片 *tongzhi huangpian* (bronze reeds) attached to bamboo reeds to create sound.

The rich and dynamic sound qualities of the *sheng* make it a popular instrument in the Chinese orchestra as it is complementary with the 吹 *chui* (wind), 拉 *la* (bowed stringed), 弹 *tan* (plucked stringed) and 打 *da* (percussion) sections of instruments. In folk music, it is common for the *sheng* to be used as accompaniment for the 笛子 *dizi*, 管子 *guanzi* and 唢呐 *suona*.

The traditional *sheng* has many structures, with the most common being the 圆笙 *yuansheng* (round *sheng*) with 17-reed pipes, popular in Hebei, Shanxi, Inner

Mongolia, Liaoning as well as Shandong. The 红竹笙 *hongzhu sheng* (otherwise known as the 苏笙 *susheng*) is popular in the Jiangxi region.

After the 1950s, new *sheng* models were introduced, such as the 21, 24 and 36-reed piped *sheng* as well as the 排笙 *paisheng* (keyboard *sheng*), 中音笙 *zhongyin sheng* (alto *sheng*), 次中音笙 *cizhongyin sheng* (tenor *sheng*) and 低音笙 *diyin sheng* (bass *sheng*), for the purpose of the Chinese orchestra.

## TUNING & STRUCTURE

Today the *sheng* can be classified into its two shapes – the rounded *sheng* with a round bottom as a base, and the rectangular *sheng* with an oblong base. The *sheng* has also been classified into 传统笙 *chuantong sheng* (traditional *sheng*) and the reformed *sheng*.

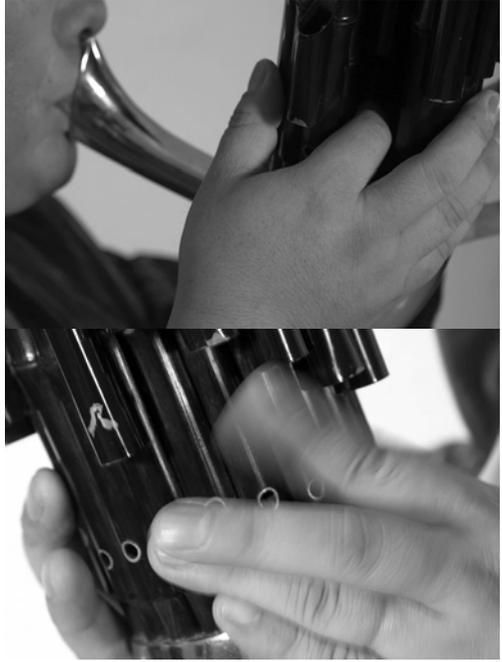
The traditional *shengs* (i.e. 17, 21 and 24-reed piped *shengs*) (Fig. 14.3) are hand held by performers, who are required to learn sets of fingerings and how to cover the air holes while playing (Fig. 14.4). The reformed *shengs* (i.e. the 36-reed piped *sheng*, alto *sheng* etc.) are placed either on a player's lap or on a stand, and the performer is required to press levers or buttons while blowing to emit sounds.

As there is no standard way of arranging the different reed pipes of the *sheng*, the musical range and notes that the *sheng* can play will vary with performer, place and instrument; this is especially relevant to the traditional *sheng*.

### Traditional *Sheng*

It is a known fact that traditional *sheng* players constantly add or remove reed pipes, broadening or reducing their instrument's range at their own discretion. Some provinces in China have particular ways of arranging the reed pipes of a *sheng*, while other provinces take out whole notes for the convenience of the player. Like the *dizi* (See *dizi*), the traditional *sheng* comes in fixed keys (i.e. *sheng* in **C**, *sheng* in **D**), but unlike the *dizi*, the *sheng* cannot bend its pitch with the aid of stronger breath. It can, however, bend pitches (on certain notes only) with the help of fingering techniques. The ranges provided here are among the more common ones used by traditional *sheng* players today:

- i. The 17-reed *sheng* usually has a range of  $c^1 - g^2$
- ii. The 21-reed *sheng* in the key of **D** has a range of  $d^1 - f^3$
- iii. The 24-reed *sheng* in the key of **D** has the range of  $a - f^3$
- iv. The 17, 21 and 24-reed piped *shengs* are classified as traditional *shengs* and are used more prevalently as solo instruments. These *shengs* cannot play all semitones and they are seldom used in the Chinese orchestra due to their limited range and pitches; however, they can be found in instrumental ensembles.



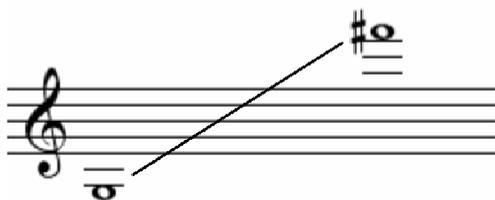
*Figs. 14.3 & 14.4: Hand held*

## Reformed Sheng

The reformed *shengs*, which were created for the Chinese orchestra, are considered to be more scientific as they are able to play all semitones. Fingering techniques here are not as complicated compared to the traditional *shengs*. However, as these instruments come with levers or keys, it is not possible to bend their pitches.

Below are the ranges of the respective reformed *shengs*:

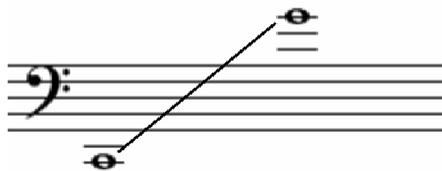
- i. 高音笙 *Gaoyin Sheng* (Soprano *Sheng*), the 36-reed *sheng* with levers, has a range of  $g - f^{\#3}$
- ii. 中音笙 *Zhongyin Sheng* (Alto *Sheng*) has a range of  $c - b^2$
- iii. 低音笙 *Diyin Sheng* (Bass *Sheng*) has a range of  $C - g^1$



*Common Range of the Soprano Sheng*



*Common Range of the Alto Sheng*



*Common Range of the Bass Sheng*

The *sheng* is the only polyphonic wind instrument in the Chinese orchestra. It has a fixed pitch and hence, it is commonly used to give the tuning pitch of 'A' or

‘D’ for the orchestra. It can play chords and counterpoint. Similar mouth techniques apply on both traditional and reformed *shengs*.

The techniques involved in playing the *sheng* include 单音 *danyin*, 和音 *heyin* (chords), 花舌 *huashe* (flutter tonguing), 揉音 *rouyin* (*vibrato*), 喉音 *houyin*, 滑音 *huayin* (*portamento*) among others.

The body of the *sheng* has 3 main segments – the first is the 笙斗 *shengdou*, the metallic base of the *sheng* and an attached 笙嘴 *shengzui* (mouthpiece) (Fig. 14.5); the second is the 笙苗 *shengmiao*, which contains bamboo pipes of different lengths and sizes that extend from the base (Figs. 14.6 & 14.7); the third region is the 笙簧 *shenghuang*, which is the vibrating reed found at the bottom of each bamboo pipe. Sound is produced through vibration of the *shenghuang*, causing vibration of the air within the columns in the bamboo pipes. Each bamboo pipe has a 音窗 *yinchuang* (note window) with a free beating reed. The window determines the amount of space that air can vibrate within the columns in the bamboo pipes, thus creating a pitch range for the pipe. The accuracy of the pitch is then decided based on the quantity of 红蜡 *hongla* (red wax) dotted on the reed. The more wax on the reed, the heavier the reed becomes, causing lower vibrations and a resultant lower pitch. Similarly, the lighter the wax dot, the higher the pitch (Fig. 14.8). Tuning for the instrument, is thus, rather inconvenient.

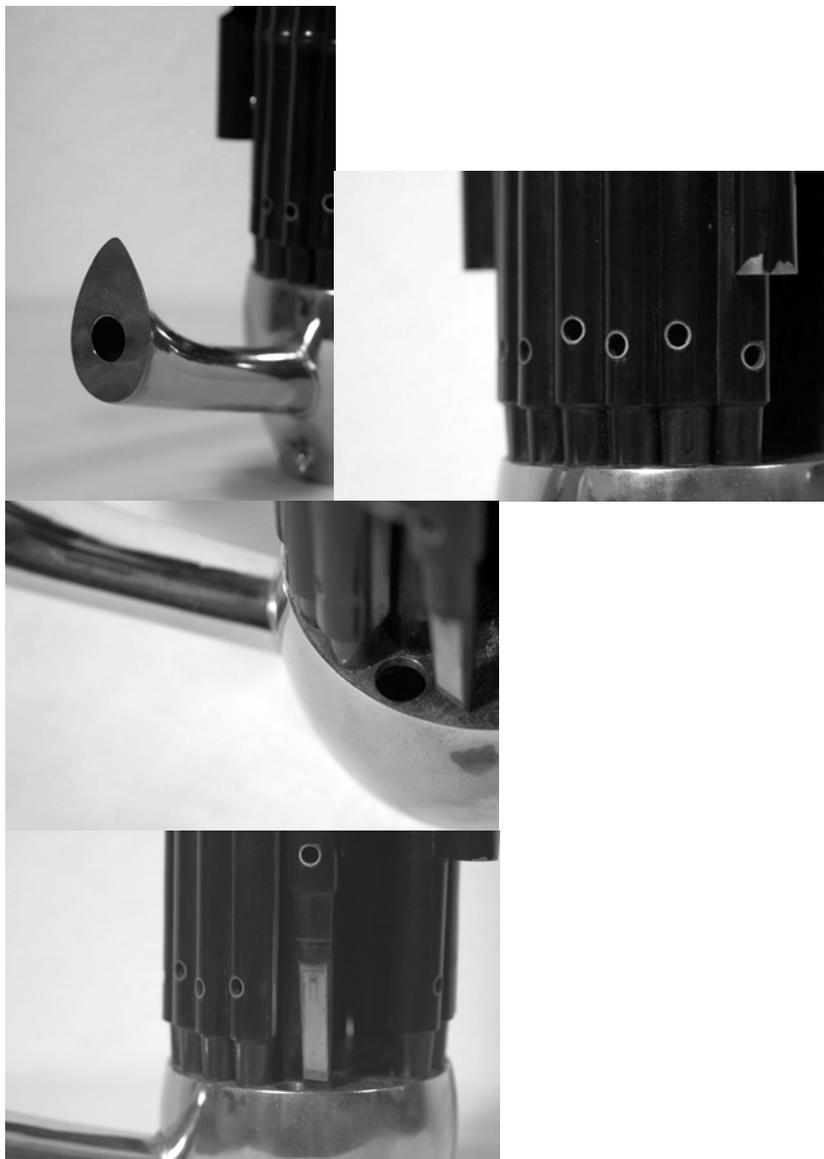
## TECHNIQUES & TONAL COLOUR

Unlike other instruments, the *sheng's* tonal colour is very much dependent on the instrument itself. The quality of materials and craftsmanship of a *sheng* will determine how good a *sheng* will sound. The *sheng's* pitches are usually split into three regions – 高 *gao* (high, notes  $a^2$  and above), 中 *zhong* (middle, notes between  $a^1$  to  $a^2$ ) and 低 *di* (low, notes  $a^1$  and below). The high regions have been described as well defined, the middle regions as rich and strong, and the lower regions as soft and delicate.

### Breathing

The breathing techniques used to play the *sheng* are unique due to the make-up of the *huangbian* (reeds). As such, the *sheng* can be played through sucking or blowing. When blowing on the *sheng* with the aim of playing on just one tube, it is inevitable that air will escape through the other tubes of the *sheng*; for this reason, a lot of air is required, and an amateur performer might find it tiring to play the *sheng*.

Recent improvements in the *sheng* claim to allow air to escape only from the reed pipe that is being played, consequently reducing the loss of air and prolonging the span of time one can play a note. However such improvements have yet to be fully ascertained. It is a known fact that the better the *sheng*, the fewer the gaps that allow air to escape.



*Fig. 14.5 (Top-Left): Mouthpiece*

*Figs. 14.6 & 14.7 (Top-Left & Bottom): Bamboo pipes extending from base*

*Fig. 14.8: Wax dotted on reed defines pitch*

The *sheng* requires a certain amount of blowing force from the performer to be able to vibrate its reeds. It is noted that the higher the note, the greater the amount of force required.

The traditional folk use of the *sheng* in 吹打乐 *chuīdǎ yuè* (wind and percussion ensembles) does not show great variations in volume. Traditionally, its notes are blown loudly in short lengths, providing a contrast to wind ensembles of *dizi*, *suona* and *guanzi*, hence adding greater variation to the melodies produced. Traditionally, the *sheng* needs to be blown loudly, as gentle blowing of the instrument might not produce any sound.

Due to its construction, the *sheng*'s volume is imbalanced, with the volume of the middle to lower notes usually sounding louder than those of the higher notes.

In recent years, the *sheng*'s higher registers have been fixed with 共鸣管 *gōngmíngguǎn* (amplification pipes), to moderate the instrument's volume.

Advancements in both the instrument and its playing techniques have allowed changes in volume (generally *p – f*), as well as *crescendos* or *diminuendos* to be played on chords.

Techniques employed by the *sheng* can be split into finger techniques and mouth techniques; both finger and mouth techniques are not mutually exclusive.

## Finger Techniques

Finger techniques encompass the pressing of leavers, covering of holes and the use of different fingerings to produce different sound effects.

### 单音 *Danyin* (Single Notes)

It is rare for *danyin* to be used in folk music as the traditional *sheng* has always been a chord-centred instrument. It was only after the liberalisation of China that new variations of *sheng* were created and *danyin* gained greater importance. It was also during this period that different *danyin* were joined together to form the *sheng*'s first *arpeggios*.

In the piece 草原巡逻兵 *Cao Yuan Xun Luo Bing* (Soldiers Patrolling on The Grassland), the *danyin* melody is representative of a soldier singing proudly. In 海南春晓 *Hai Nan Chun Xiao* (Dawn of Spring in Hainan), 轻声单音 *qingsheng danyin* (muted *dan yin*) is used to lead in a portrayal of a seaside scene in the morning.

The different *shengs* in the Chinese orchestra use *danyin* more commonly now, especially when playing leads; however, chords are still very much a staple in *sheng* scores.

### 和弦 *Hexian* (Chords) and Polyphony

Chords have always been an important and integral part of playing the *sheng* as they are associated with the *sheng*'s character. The arrangement of reed pipes in the traditional *sheng* is perfectly suited to playing traditional harmonies. Traditional chords

vary from region to region in China, but the *sheng* usually practices thirds, fourths or fifths lower or higher from root notes.

Traditional chords used on the *sheng* are used in solo pieces and also in traditional ensembles like 吹打乐 *chuida yue* (wind and percussion music) and 丝竹乐 *sizhu yue* (silk and bamboo music) as a form of accompaniment.

Due to emphasis on chord training among *sheng* players, some traditional performers may feel that it is easier to play chords than to play single notes.

Previously, *sheng* scores possessed only a skeletal melody and performers would often embellish in the form of chords, harmonizing the skeletal melody according to their personal habits. It was only after the liberalisation that non-traditional chords were introduced to the *sheng* and the practice of writing out all notes in a chord began.

Chords usually comprise three to four notes on a *sheng*, with the revolutionised *shengs* being able to play chords of up to six notes. On the traditional *sheng*, it is difficult to make a clear definition of what chords can be played due to the non-uniform nature of the reed pipe arrangement.

Among Chinese wind instruments, polyphony is native only to the *sheng*, and the instrument's nature renders it capable of being a powerful solo and accompanying instrument.

Composers often like to use ornamental trills like 叠音 *dieyin* (*acciaccatura*) and 打音 *dayin* (*mordent*) to be played alongside harmonies.

Counterpoint, previously unheard of, are becoming more common among *sheng* repertoire, and it has become common for main melodies to be played among the lower registers and for accompaniments to be played on the higher registers of the instrument.

A notable point is that pieces suitable for one *sheng* (e.g. the traditional 24-reed piped *sheng*) may not be suitable for another (the 36-reed piped soprano *sheng*).

Greater development in the polyphonic composition technique of the *sheng* will surface only when a more systematic and standardised model of *sheng* evolves.

#### 滑音 *Huayin* (*Portamento* / *Gliding*)

For the *sheng*, gliding is defined as the gradual closing up or opening of the holes in the instrument. Coupled with the control of breathing and fingering techniques, a musician can play a 上滑音 *shanghuayin* (upward glide) and a 下滑音 *xiahuayin* (downward glide). Notes are usually glided a third (e.g. Mi – So) higher or lower. The higher the note, the easier it is to glide. Notes above  $a^2$  exhibit a clear huayin; however, although the lower registers are able to utilise gliding techniques, there is usually little or no sound emitted.

*Huayin* applies to the traditional *shengs* only and cannot be executed on the reformed *shengs*.

## Mouth Techniques

Mouth techniques fulfil two aims – to create different sound textures using breath and to beautify a sound.

To achieve the former, the *sheng* creates different sound textures through 吐气 *tuqi*, or different variations of breath. The *sheng*'s breath techniques are rather similar to the *dizi*. 平吹 *Pingchui* (plain playing), 轻吐 *qingtu* (light breaths) and 硬吐 *yingtu* (heavy breaths) are common to the *sheng* and *dizi* (See **Dizi**). The different breath techniques are usually left to the discretion of the players in accordance to the piece that is being played.

Tonguing is also utilised on the *sheng* with the most common being 单吐 *dantu* (single tonguing), 双吐 *shuangtu* (double tonguing) and 三吐 *santu* (triple tonguing). It is acknowledged that tonguing on the *sheng* requires a greater force than on the *dizi* and it is easier to tongue repeatedly on the *sheng* than to tongue running notes. Tonguing on the *sheng* is used to mimic the sound of drums, footsteps, cymbals and even plucked stringed instruments.

Like the *dizi*, the *sheng* also utilises techniques like *dayin*, 历音 *liyin* and *huayin*, to add ornamentation to its music.

### 花舌 *Huashe* (Flutter Tonguing)

*Huashe* uses the vibration of the tip of the tongue and the throat to induce continuous columns of air to produce rapid spurts of breath. The lungs are, however, not involved in *huashe* as the technique only uses the air in the throat. The more air that is expounded while executing the technique, the thicker the *huashe*. Speed in using this technique comes with constant practise. The faster the *huashe*, the more intense the sound produced and vice versa. The *huashe* can be played to long lengths among accomplished performers depending on how much air can be released constantly by a performer in one breath. This technique is scored with a ‘★ …’ symbol above the note.

### 呼舌 *Hushe*

The *hushe*, otherwise known as 来回气 *laihuiqi* (loosely translated means ‘to and fro air’), is a difficult technique to master. As the nose breathes, the tongue will move back and forth, creating a constant air column between the reed and the mouth that will make the reed vibrate, hence producing a gentle tidal sound. The sound produced in this manner is usually not loud. 凤凰展翅 *Feng Huang Zhan Chi* (Phoenix Spreading Wings) uses this technique in its first thematic display. This technique is scored with the words ‘呼舌’ above the note.

### 喉舌 *Houshe*

*Houshe* utilises the columns of air that is forced out by the vibrations caused by the platelet in the throat. This technique is scored with the words ‘喉舌’ above the note.

### 揉音 *Rouyin* (*Vibrato*)

There are various sub-techniques to *rouyin* that use the diaphragm, throat and tongue to vibrate a played note to different extents.

## THE *SHENG* AND ITS EXTENTIONS

### 中音笙 *Zhongyin Sheng* (Alto *Sheng*)

The *zhongyin sheng* was created due to demands that arose from the lack of alto sounds from the wind section upon the formation of the Chinese orchestra. Upon creation, it gained popular support and it is used by most orchestras today.

The instrument comes in two structures – the round alto *sheng* (also known as 抱笙 *baosheng*) and the keyboarded alto *sheng*.

The fingerings are essentially the same for both instruments, with only the key pads being placed differently. The panel of keys of the round alto *sheng* is found at the base of the instrument while the panel of keys of the keyboarded *sheng* is in the front. The round alto *sheng* can be played resting on a performer's legs while the keyboard version requires a stand.

The alto *sheng* has about 36 keys with every key being able to play a single note. The keys (usually white) are arranged in rows of three but a fourth black row is present. Depressing a black key will depress all three octaves of the same key.

Some *shengs* have an added peddling called 风箱 *fengxiang* (wind box) to help push air through the pressing of the pedal, allowing the notes to be played for a longer period of time even though no blowing has been effected. Such a device is rarely used in modern Chinese orchestras.

The alto *sheng* has a larger pitch range, making it easy to play chords of up to eight notes.

The alto *sheng* has a different mechanical construction from the traditional *sheng* and the 36-reed piped *sheng*, and it demands more strength from the player.

### 低音笙 *Diyin Sheng* (Bass *Sheng*)

The round bass *sheng* is similar in shape and structure to the round alto *sheng*. It is placed on a stand when playing. The instrument requires more strength from the player compared to the alto *sheng* because of its lower range and larger reeds. Thus it requires more air to make the reeds vibrate. Each key on the instrument corresponds with a note.

This *sheng* is one of the most commonly used low-pitched wind instruments in the Chinese orchestra.

## REPRESENTATIVES & REPERTOIRE

As not many composers are as familiar with the *sheng* as with other wind instruments, and given the *sheng*'s unreliability in pipe arrangements, *sheng* performers have undertaken the task of writing most repertoire for themselves.

*Sheng* repertoire is divided into modern and contemporary compositions. Unlike most other instruments, the *sheng* has little traditional solo repertoire to speak of as it was mainly used as an accompanying instrument.

Modern pieces include 凤凰展翅 *Feng Huang Zhan Chi* (Phoenix Spreading Wings), written by 董洪德 *Dong Hongde* and 胡天泉 *Hu Tianquan*, 晋调 *Jin Diao*, arranged by 阎海登 *Yan Haideng*, 林海新歌 *Lin Hai Xin Ge* (New Tune of *Lin Hai*) by 高扬 *Gao Yang* and 唐富 *Tang Fu*, and 白蛇传 *Bai She Zhuan* (Legend of Madam White Snake) by 张之良 *Zhang Zhiliang*.

Contemporary *Sheng* pieces include 孔雀 *Kong Que* (The Peacock) by 关迺忠 *Guan Naizhong*, 凤 *Feng* (Phoenix) by 徐超铭 *Xu Chaoming*, and 唤凤 *Huan Feng* (Calling the Phoenix) by 赵晓生 *Zhao Xiaosheng*.

Representatives in the *Sheng* include 徐超铭 *Xu Chaoming*, 胡天泉 *Hu Tianquan*, 张之良 *Zhang Zhiliang*, 杨守成 *Yang Shoucheng* and 牟善平 *Mu Shanping*.

<sup>1</sup> Some of the records include <<尚书·益稷>> *Shang Shu • Yi Ji* which states, ‘笙鏞比间, 鸟兽仑仑’, *Sheng Yong Bi Jian, Niao Shou Qiang Qiang*, which compares the *sheng* with the 鏞 *yong*, an ancient instrument for rhythm, likening the playing of the *sheng* to the breathing of the birds. In 诗经 *Shi Jing* (Book of Psalms), the section 小雅中 *Xiao Ya Zhong* <鹿鸣> *Lu Ming* states ‘鼓琴吹笙, 吹笙鼓簧’ *Gu Qin Chui Sheng, Chui Sheng Gu Huang*, paralleling the *sheng* and its reeds with the drums, and in <<尔雅·释乐>> *Er Ya Shi Yue* (Book of Musical Explanations) it writes, ‘大笙之巢, 小者谓之“和”’ *Da Sheng Zhi Chao, Xiao Zhe Wei Zhi He*, stating the names of the large *sheng* (巢 *Chao*) and the small *sheng* (和 *He*).

<sup>2</sup> <<宋史·乐志>> *Song Shi • Yue Zhi* writes, ‘宫管在中央, 三十六簧日管; 宫管在左旁, 十九簧至十三簧日笙’ *Gong Guan Zai Zhong Yang, San Shi Liu Huang Ri Yu, Gong Guan Zai Zuo Pang, Shi Jiu Huang Zhi Shi San Huang Ri Sheng*.