Figs. 14.1 & 14.2: The traditional 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 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 竽 *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 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 銅制簧片 *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*, 官子 *guanzi* and 唢呐 *suona*.

The traditional *sheng* has many structures, with the most common being the 圓笙 *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 c¹ – g²
ii. The 21-reed sheng in the key of D has a range of d¹ – f³
iii. The 24-reed sheng in the key of D has the range of a – f⁵
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. 低音声 Diyin Sheng (Bass Sheng) has a range of $C - g^1$

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 ronyin (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 a² and above), 中 zhong (middle, notes between a¹ to a²) and 低 di (low, notes a¹ 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 huangpian (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 7 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 chuida yue (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 gongmingguan (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 a2 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 yingtui (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 天音 liyin and 花音 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 expended 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 EXTENSIONS

**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 *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 *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.

**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.
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 鳳凰展翅 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 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 喊凤 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.

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1 Some of the records include <<尚书•益稷>> Shang Shu • Yi Ji which states, ‘笙镛比间，鸟兽啣啣’, Sheng Yong Bi Jian, Niao Shou Qiang Qiang, which compares the sheng with the镛 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 Xia 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).

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