

Research on the Organology of the Chinese Bamboo Flute

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Abstract: *The Chinese bamboo flute is the oldest wind-blowing instrument and specially popular in China. In the course of thousands of years of development, the Chinese bamboo flute has derived different kinds and forms of expression, but also showed different cultures and characteristics of The Times. But people always tend to pay more attention to its unique timbre and rich stage expression. And the Chinese bamboo flute professionals and learners are also used to focusing on how to practice, and play. Return to the essence of culture, music is not only limited to the intuitive feelings of what we see and hear, but also the product of human activities. In today's rapid development of society, how to correctly view music and the development of the Chinese bamboo flute is a problem worth thinking about.*

Keywords: *culture; history; categories; performance; evolution*

1. Introduction

The Chinese bamboo flute is one the most popular wind instruments and the oldest instrument in China. Figure 1 shows bone flutes from prehistoric times, our ancestors used bird bones as material. By putting holes and blowing to produce bird sounds, it was used to attract prey to be hunted for food.



Figure 1: Bone flute

During the Huangdi period, about 4000 years ago, a large number of bamboo grew in the Yellow River Basin, and people began to choose bamboo as material for the Chinese bamboo flute making. Taking bamboo as the material is a great progress for the Chinese bamboo flute making because bamboo has better vibration than bone and can conduct better timbre.

Since Qin and Han dynasties, the Chinese bamboo flute has become the common name of vertical flute and horizontal flute and has lasted for a long time. During the time of Emperor Wu of the Han Dynasty, Zhang Qian, passed through the Western region and he brought the flute all over China. From that time, the the Chinese bamboo flute became known as a horizontal flute only with the vertical flute being the xiao. The the Chinese bamboo flute occupies a very important position in the music of the Han Dynasty until today.

With the rise of songci (a style of poem in the Sung Dynasty) and the vigorous development of Yuan Opera, the Chinese bamboo flute became the accompaniment of many kinds of operas. The Chinese bamboo flute also became an indispensable instrument in folk operas and in small ensembles.

In 1953, an outstanding the Chinese bamboo flute player named Feng Zicun, participated in the "National Music and Dance Performance," he performed two pieces "Xi Xiang Feng" (joyful meeting) and "Fang Feng Zheng" (flying a kite). From that time, the Chinese bamboo flute became the pioneer of solo instrument.

With the opening of Chinese university music major and the establishment and development of professional conservatory and college of art, the Chinese bamboo flute performance became one of the majors. The development of the Chinese bamboo flute playing was very rapid, a large number of works were created, a large number of flute players appeared in the public eye, and the teaching of flute gradually became scientific and systematic.

With the influence of Western musical ideas, Chinese musicians were no longer limited to playing and teaching traditional music.^[1] Instead, they learned Western orchestral models, form large orchestras and ensemble. The Chinese Bamboo Flute Orchestra was established under such situation. So, the performances we see of the Chinese bamboo flute today are very rich, including solo, duet, ensemble, etc. The orchestra was founded by Professor Zhang Weiliang of the Chinese Conservatory of Music in 2012. As a new product born from the development of Chinese flute art, it is the first flute ensemble orchestra in China. Aside from the the Chinese bamboo flute there are other musical instruments, including xiao and xun.

The performance of Chinese Bamboo Flute Orchestra is different from the traditional ensemble of bamboo flute, and the relationship between the sound part is more complicated in the repertoire specially written for the orchestra, and the kinds of flute involving different shapes and tonality are more abundant. At present, the form of the bamboo flute ensemble is still in its infancy. As a practical base on the two-way exploration of bamboo flute theory and practice, Chinese Bamboo Flute Orchestra is of great significance to the development of Chinese bamboo flute ensemble art. With the aim of scientific innovation, the Chinese Bamboo flute Orchestra provides a practical base for experts and scholars engaged in the performance, creation and theoretical research of bamboo flute instruments. On this platform, bamboo flute players with different styles and genres can show their talents and show their ideas; composers with different styles use this platform to explore deeply in the field of bamboo flute creation. In particular, the orchestra encourages outstanding young players to be able to innovate and improve their talents in the field of bamboo flute instrumental music creation and performance. At the same time, the orchestra welcome the outstanding musicians, whether engaged in theory or performance, who can support the practice of bamboo flute orchestra with their research results, and constantly sum up and explore the experience and rules of the development of bamboo flute art, as well as the characteristics of different styles and schools, so as to promote the communication between bamboo flute and more extensive domestic and foreign musicians. Chinese bamboo flute orchestra has forward-looking vision, based on contemporary, seeking development. The purpose is to continuously open up and innovate the creation and expression space of bamboo flute instrumental music, to examine the style and characteristics of creation and performance from the angle of oriental aesthetics, and to refine and sum up the experience of instrumental music playing and skill training.

2. The Culture and History Of the Chinese bamboo flute

In China, people really like to talk something about traditional culture, just as Europeans like to talk about ballet, opera, and symphonies to show that they are educated and knowledgeable. Obviously, instruments are an important part of music of traditional culture. When musicians and scholars talk about one kind of instrument, they may focus on its history and development of culture at first. The culture of the Chinese bamboo flute is various and complex because this instrument has more than 8000 years history.

The the Chinese bamboo flute originated from the gudi produced during the Neolithic period. Chinese archaeologists discovered the Hemudu ancient cultural site in Yuyao, Zhejiang Province, more than 8,000 years ago. Since then, several bone flutes have been found at the ancient cultural site of Jiahu village in Henan Province. According to relevant experts, the shape and structure of these gudi is very similar to the modern bamboo flute, and their scale and playing method are closely related to the Chinese bamboo flute. Mr. Zhao Songting, an outstanding the Chinese bamboo flute player, said, "The Chinese bamboo flute is not only the oldest musical instrument, but also the originator of all wind instruments."

The the Chinese bamboo flute from 8000 years ago cannot be defined as bamboo flute, because it's not made of bamboo. It's accurate to call it a stone flute because the material of the Chinese bamboo

flute is the leg stone of the crane. The original man used it imitate the sound of birds to attract animals, after that they can hunt the animals and made it as their food. So, it's hardly call the Chinese bamboo flute as an instrument in that time. In my opinion, it's even more can be defined as a tool for hunting. This behavior and phenomenon can be deemed to be one kind of culture, although there was no language and wordage in original society. People may communicate with each other through body language and symbols. As the saying from Dr. Pertierra: "A general definition of culture that can be applied to all cultures is patterns of behavior that are common within a particular population of people. And this kind of culture seemed to be their coherent and shared view of their world exist." Also, the Chinese bamboo flute had the special function in that time, even though it's just a tool instead of instrument, it also can be defined as a part of this original culture.

The the Chinese bamboo flute changed from bone to bamboo system around the time of the Yellow Emperor. According to the ancient literature, Lü Shi Chung Qiu, the Huangdi ordered Linlun, a musician in the court, to cut bamboo to make a the Chinese bamboo flute. Mr. Zhao Songting also believes that "China had a bamboo flute in the Yellow Emperor era at the latest." (reference) In recent years, Chinese archaeologists have found two horizontal bamboo flutes in the Third Han Tomb at Mawangdui in Changsha, Hunan Province. A flute with seven finger holes was found in Luoopowan No.1 Tomb in Guizhou City, Guangxi province (Zhao, 1985). Therefore, it can be concluded that Chinese bamboo flute was not only widely spread in southern China more than 2,500 years ago, but also had great development and was widely popularized.

This change of production material established the formal beginning of the Chinese bamboo flute and created a new era of historical development of the Chinese bamboo flute, which is of great historical significance. Why do people used bamboo instead of stone for the instrument? First is the change of life style. The society has been transforming from original society to agricultural society. So they choose to live near the biggest river of China, the Yellow River. There were many bamboo grass on the both sides of the Yellow River so people can use bamboo to make instruments. Second, bamboo is much easier to achieve than leg stone. They just need to cut bamboo instead of hunting. It is a huge development of the Chinese bamboo flute and also a step of culture, because people started to know how to get more available material for their life. This behavior establishes the sound of Chinese traditional wind instrument.

In the Han and Jin dynasties, the the Chinese bamboo flute of the six-tone hole shape structure was established and consolidated, which was the main characteristics of the historical development period, and provided an important objective basis for the establishment of the historical title of the so-called "ordinary traditional six-tone hole the Chinese bamboo flute". In addition, its appellation is divided into another feature of its development. Ancient the Chinese bamboo flute and xiao collectively referred to as di, however, the the Chinese bamboo flute for horizontal blowing instrument, xiao for vertical instrument, as the Chinese bamboo flute "horizontal" concept positioning gradually established, Chinese bamboo flute began from di title, the title differentiation, both clear the difference with xiao in performance, and in the later history in the further development, change laid an important foundation. Also, the sound has been distinguished. The sound of the Chinese bamboo flute is bright and clear and xiao is dull and elegant. The difference between sound lead the distinction of culture and aesthetic. the Chinese bamboo flute is suitable for folk songs which is full of happiness and joy so it was popular with people. The melody of xiao is inside collect so literati prefer to it. Also it matches the guqin very well.

From the Han Dynasty to the Tang Dynasty, the Chinese bamboo flute further developed in its production and timbre. Cai Yi, a famous musician in the Han Dynasty, dismantled the 16th bamboo flute of Ke Ting, which has beautiful timbre and voice. Later generations praised the flute as Ke Ting di. Accordingly, it can be seen that during the Han Dynasty, the the Chinese bamboo flute has begun to use a unique bamboo material. There is a passage in the Book of Jin dynasty - the Chinese bamboo flute have different sizes, 3.2-feet-long the Chinese bamboo flute can make a deep voice. This indicates that a long bass the Chinese bamboo flute had been made at that time. During the Sui Dynasty, the Chinese bamboo flute had new titles, such as da heng chui (big horizontal blowing), xiao heng chui (small horizontal blowing) and paixiao (pipe), which is enough to prove that the Chinese bamboo flute had reached unprecedented prosperity in production at that time. In the Tang Dynasty, the timbre of the Chinese bamboo flute changed greatly. Liu, musician of the Tang Dynasty, made the seven-star the Chinese bamboo flute, covered with membrane to help the sound, created a new era of the Chinese bamboo flute membrane to change the sound pronunciation principle. In addition, the Chinese bamboo flute is widely used in the accompaniment and ensemble of tang Dynasty song, dance music and other artistic performances.

From the Song Dynasty to the Qing Dynasty, the development period was widely used and popularized by the Chinese bamboo flute in China. During this period, the shape and system of the Chinese bamboo flute has become stable, and it has been widely used in the lead play and accompaniment of various artistic performance forms such as folk art, opera and folk music. For example, in the art performance form of guchuiyuel spread in the Song Dynasty, Chinese bamboo flute is the main instrument, when opera is popular, Chinese bamboo flute is used to accompany Kunqu opera, hence the new traditional title of qudi and bangdi: used to accompany southern Kunqu opera is called qudi, Chinese bamboo flute used to accompany northern Bangzi opera is called bangdi; in Ming and Qing dynasties, Chinese bamboo flute has become an indispensable instrument in a large number of folk music ensemble. During this period, the Chinese bamboo flute expanded this major feature in tone, greatly enriched and improved the expression of its music art, and made the Chinese bamboo flute music art step into a new historical development period. On the one hand, it reflects the wide use and popularization of the Chinese bamboo flute in this period; on the other hand, it lays an important foundation for the development of the Chinese bamboo flute into its stage of solo art performance in the process of modern history.

In the 20th century, the Chinese bamboo flute solo performance form reached the stage of unprecedented development stage. In 1953, an outstanding Chinese bamboo flute player named Feng Zicun, participated in the "National Music and Dance Performance," he performed two pieces Xi Xiang Feng (joyful meeting) and Fang Feng Zheng (flying a kite). And caused a great sensation in the country, since then, the Chinese bamboo flute is not only accompaniment, ensemble and other artistic forms of important instruments, and become an indispensable to the music stage.

In the 1950s and 1960s, the Chinese bamboo flute solo art performance form entered an unprecedented stage of development. The two major schools, represented by Feng Zicun, Liu Guanyue, Wang Tiechui, and Zhao Songting and Lu Chunling, have pushed the development of the Chinese bamboo flute solo art performance form to the peak. In the 1970s and 1980s, a large number of middle-aged and young performers stood out, and batches of new works were constantly produced. At the same time, many Chinese bamboo flute performers and producers began to develop the shape and structure of the Chinese bamboo flute, it has developed multi-tone hole Chinese bamboo flute (including seven hole, eight hole, nine hole, ten hole), jiajian Chinese bamboo flute (key bamboo flute), mouth Chinese bamboo flute. In recent years, it has appeared as a curved Chinese bamboo flute. At this point, the Chinese bamboo flute completely ended the thousands of years of playing a single accompaniment role, completely with the protagonist of the spirit not only on the domestic music industry, but also has been popular in the stage all over the world.

Currently, the culture of the Chinese bamboo flute is diversified because of its development. First is the work. Many concerto, duos, piece of world music have been created by composers because of the cultural crash of Western music. Modern work of the Chinese bamboo flute are difficult to play and some of these works are atonal. These works can help the Chinese bamboo flute be promoted to the world. Second is the reform of instrument. Different sizes of the Chinese bamboo flute can play different keys. Many makers make it beyond the traditional sizes to broaden the areas of tones. So we can see mini or giant Chinese bamboo flute on the stage. Also makers may add the finger holes of the instrument so players can play chromatic scale much more convenient and easier. Third is the performing forms. There are concerto and duos, so the traditional single melody develops and expands including the inclusion of harmony.

The culture of the Chinese bamboo flute has been developed from past to know. It's not just a development of instrument. It's a development of society, people, habits and aesthetic.

3. Categories of the Chinese bamboo flute

Traditional the Chinese bamboo flute is divided into two categories according to the types of accompaniment: bangdi and qudi. The kind of the Chinese bamboo flute that accompany Bangzi opera which is popular in the north of China, like Hebei province, Shanxi province, and Inner Mongolia. The name of bangdi is adopted word "bang" of bangzi opera. The size of bangdi is thin and short, and its sound is loud and sonorous. The sound range of Bangdi is from C5 to A7. Another kind called qudi accompanies the band of Kunqu opera which is popular in the east of China, like Jiangsu province, Zhejiang province, and Shanghai. The name of Qudi adopt word "Qu" of Kunqu opera. The sharp of Qudi is longer and thicker than Bangdi, and it sounds soft and smooth. The sound range of Qudi is from F4 to D7. Actually, we can know from figure 2 that the construction of Bangdi and Qudi have

no difference, the only difference is size.



Figure 2: Bangdi and Qudi, above is Bangdi, under is Qudi

In addition to bangdi and qudi, other different kinds of the Chinese bamboo flute are derived. Due to the wide variety, it cannot be introduced one by one.



Figure 3: Mouth bamboo flute

This kind of the Chinese bamboo flute in figure 3 was made in 1971 by the famous bamboo flute player, Mr. Yu Xunfa. The short bamboo pipe cut off by the Chinese bamboo flute is made into a two-hole mouth the Chinese bamboo flute that can play (d1~d2) an octave scale.

There are several kinds of the Chinese bamboo flute used in modern time. The bass the Chinese bamboo flute has a minimum pitch of F4, the bass the Chinese bamboo flute is lower than the qudi, and the largest bass the Chinese bamboo flute that the figure 4 show us can have a minimum pitch of C4. Part of the bass the Chinese bamboo flute finger hole is different from the traditional the Chinese bamboo flute, for seven finger holes, the purpose is to avoid too large finger range and thus more convenient to play.



Figure 4: Bass the Chinese bamboo flute

We can see double bass the Chinese bamboo flute in figure 5 and 6. The double bass the Chinese bamboo flute has a lower range than bass the Chinese bamboo flute, and the bass the Chinese bamboo flute commonly used are bass the Chinese bamboo flute in G key, C key and D key.^[2] Among them, the lowest pitch of G-pitched bass the Chinese bamboo flute can reach D3, which makes up for the lack of bass in traditional Chinese folk wind blowing music. The shape of the part of the bass the Chinese bamboo flute is different from the traditional the Chinese bamboo flute, and may make the instrument in a curved tube shape, which can reduce the fatigue of the player. The finger hole of the bass the Chinese bamboo flute is generally 8 holes, also to avoid the distance between the holes. The making material of bass the Chinese bamboo flute is not limited to bamboo, wood and acrylic are often used as making bass the Chinese bamboo flute.



Figure 5 and 6: Double bass the Chinese bamboo flute

4. Parts of the Chinese bamboo flute

Figure 7 shows the different parts of the Chinese bamboo flute containing several kinds of holes. Players focus on the blowing hole, mo, and 6 finger holes.

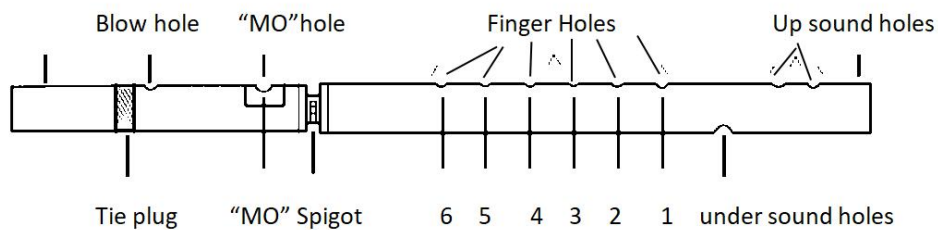


Figure 7: Parts of the the Chinese bamboo flute

Usually, the material of the Chinese bamboo flute is one kind of bamboo which called white bamboo (*Pleioblastus amarus keng*) which is grown large-scale in Zhejiang Province of China. Another kind of bamboo called purple bamboo (*Phyllostachys nigra* (Lodd. ex Lindl.) Munro) which commonly be use for making xiao (another Chinese traditional wind instrument and vertical blowing) also can be used for making the Chinese bamboo flute. Figure 8 shows membrane of reed. It is the part i need to specially introduce because it's the key make the Chinese bamboo flute sound really different from flutes of other countries. Membrane of reed is a natural material ,it's in the membrane in the middle of reed that growing near the river in Anhui province of China.



Figure 8: Membrane of reed

5. Evolution of the Chinese bamboo flute performance

Since Song dynasty, the Chinese bamboo flute has been a member in the band for traditional opera. It's obviously in Kunqu opera because the melody of the Chinese bamboo flute is the same as vocal. The Chinese bamboo flute leads the opera actors to finish their singing and performance. Such forms of expression are still common today, because opera is very popular in China, and the Chinese bamboo flute will naturally appear frequently in opera accompaniment bands.

Mr. Feng Zicun's actions in 1953 put the Chinese bamboo flute on the solo stage situation, and the Chinese bamboo flute went from folk art to specialization, from an accompaniment instrument of a band to a stage solo instrument. At that time also appeared Lu Chunling, Zhao Songting, they are the Chinese bamboo flute pioneer and guide. They made great contributions to the development of the Chinese bamboo flute and trained a large number of outstanding Chinese bamboo flute players, educators and instrument producers, has made great contributions to the research and development of the Chinese bamboo flute music culture. These masters have been in folk life for a long time and have a deep folk art style. However, due to the great differences in life and culture, these differences are naturally brought into the performance and creation of the Chinese bamboo flute. Over time, different the Chinese bamboo flute playing styles in the south and north have been formed. These two styles have made great contributions to the future development of the Chinese bamboo flute art. The northern wooden bangdi represented by Feng Zicun and Liu Guanyue and the southern qudi represented by Lu Chunling and Zhao Songting. The bright and high voice formed the enthusiastic and unrestrained style characteristics. The creation themes of the works mostly come from Inner Mongolia folk songs, duet music, Shanxi bangzi, reflecting the bold characteristics of the northern people. Southern music flute melodious, soft, forming a soft and delicate characteristics. The creation themes of the works are mostly from the Jiangnan sizhu and Kunqu opera, which has the characteristics of pure and beautiful timbre, mellow and mellow, elegant and exquisite. At that time, the performance situation was relatively simple, and there was no very complicated technical skills. Many the Chinese bamboo flute songs in this period came from folk tunes with distinct regional characteristics. The composer integrates his own life experience and experience into the creation and performance of the Chinese bamboo flute works, which is full of very artistic appeal.

With the opening of Chinese university music major and the establishment and development of professional conservatory and college of art, the Chinese bamboo flute performance became one of the majors.^[3] The development of the Chinese bamboo flute playing is very rapid, a large number of works were created, a large number of the Chinese bamboo flute players appeared in the public eye, and the teaching of the Chinese bamboo flute is gradually scientific and systematic.

From 1956 to 1979, was a great development stage of the Chinese bamboo flute music in China. At this stage, while China's economy is developing, music culture is also developing. In this process, the composition skills and performance skills of composers and the Chinese bamboo flute players are also rapidly enhanced, music exchanges have become frequent, and the north and South flute schools have also formed unprecedented exchanges. The beautiful melody they created was deeply loved by the masses. During this period, the Chinese bamboo flute composers and performers also began to compile the textbooks on the Chinese bamboo flute, which to a large extent broke the differences between the North and the South schools. The Chinese bamboo flute performance from a single neglected performance form to a variety of popular instrumental music performance form is inseparable from the Chinese bamboo flute players and composers in this period.

Since the 1980s, China began to learn western composition techniques, injecting new blood into the Chinese bamboo flute art and even Chinese folk music. Western composition theory, concepts, harmony, polyphony and accessories began to appear in Chinese professional education. On the basis of inheriting traditional national music, the Chinese bamboo flute players combined with western composition techniques, and created a large number of popular the Chinese bamboo flute solo songs, these works are deeply loved by the masses. The publication of the Chinese bamboo flute concerto shows that the Chinese bamboo flute performance has entered a higher artistic level. After playing the large the Chinese bamboo flute concerto, for the new performance form and performance power opened up the way. The Chinese bamboo flute concerto is followed by a Chinese bamboo flute and an electric vocal music team ensemble. These new forms not only greatly enrich the field of the Chinese bamboo flute performance, but also make the Chinese bamboo flute really on the international stage.

6. Conclusion

Today, with the rapid development of the Chinese bamboo flute art, the aesthetic appreciation of performance constantly promotes the increasingly diversified performance forms of the Chinese bamboo flute music art. This study provides a detailed overview of the history, structure, classification, and forms of expression of the Chinese bamboo flute. It is hoped that this will assist practitioners and learners of the Chinese bamboo flute in gaining a deep and objective understanding of the instrument. It also hopes to inspire more people to take an interest in the Chinese bamboo flute.

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