

UNESCO INTERNATIONAL MEMORY OF THE WORLD REGISTER

NOMINATION FORM

Title: The Suizhou Bianzhong of Marquis Yi of Zeng

Nominator: Hubei Provincial Museum

Leigudun Cultural Relics Conservation Center of Suizhou City

1.0 Title

The Suizhou Bianzhong of Marquis Yi of Zeng

2.0 Summary

The Suizhou Bianzhong of Marquis Yi of Zeng, numbering 65 in total, is a set of ancient Chinese bronze bells that were discovered in the Tombs of Marquis Yi of Zeng in 1978, in Suizhou City, Hubei Province. (“Yi” is the name of the ruler of the Zeng State in ancient China’s Zhou Dynasty.) The bells date back approximately 2,400 years ago, making them the largest and most well-preserved set of bronze bells in the world.

The bell set bears inscriptions totaling 3,755 characters. The inscriptions on the bells represent the only known musical theory documents of 5th century BCE with such a scale, showcasing ‘one bell with two tones’, a 12-tone musical temperament and tuning system previously unknown. The inscriptions and musical information of The Suizhou Bianzhong of Marquis Yi of Zeng represent the earliest extant archaeological documents that demonstrate the mathematical relationships in music. The correspondence between the sounds of the bells and their inscriptions indicates a rational understanding of the relationships between musical tones during that time.

3.0 Nominator contact details

Hubei Provincial Museum (湖北省博物馆)

Contact Person: Pan Zeng

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Phone: +86 1507 1479 809

Email: zengpanhb@foxmail.com

3.1 Name of nominator (person or organisation)

Hubei Provincial Museum (湖北省博物馆)

Leigudun Cultural Relics Conservation Center of Suizhou City (随州市擂鼓墩文物保护中心)

3.2 Relationship to the nominated material

Being the owner and caretaker of The Suizhou Bianzhong of Marquis Yi of Zeng, Hubei Provincial Museum is the collecting, researching, preserving, and exhibiting institution of the Bianzhong. Since the excavation of Marquis Yi of Zeng’s Tombs in 1978, it has been responsible for protection, maintenance, and academic research of the Bianzhong.

Suizhou City is where the discovery of The Suizhou Bianzhong of Marquis Yi of Zeng took place. Leigudun Cultural Relics Conservation Center of Suizhou City is the administrative agency, responsible for the management of Leigudun ancient tomb group by protecting, managing, studying and exhibiting the unearthed relics from the Leigudun site. The Tomb for Marquis Yi of Zeng is located in the key protection zone within the Leigudun ancient tomb group, and the Marquis Yi of Zeng's Site Museum is built at the Leigudun Center, where the original excavation site, unearthed relics, photos and texts are displayed in the exhibition hall, fully demonstrating the historical aspects and general information of the relics from Marquis Yi's Tomb.

3.3 Address

Hubei Provincial Museum (湖北省博物馆)

160 Donghu Road, Wuchang District, Wuhan City, Hubei Province, China

Leigudun Cultural Relics Conservation Center of Suizhou City (随州市擂鼓墩文物保护中心)

No. 44, Leigudun Avenue, Suizhou City, Hubei Province, China

3.4 Telephone and Email

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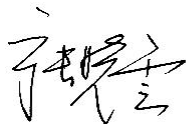
Leigudun Cultural Relics Conservation Center of Suizhou City (随州市擂鼓墩文物保护中心)

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4.0 Declaration of Authority

We certify that we have the authority to nominate the item, or items, described in this document to the Memory of the World Register.

Zhang Xiaoyun 张晓云



Signature !

Position: Director of Hubei Provincial Museum

Date :30th may,2023

5.0 Legal information

5.1 Name of owner (person or organisation)

Hubei Provincial Museum

5.2 Address

160 Donghu Road, Wuchang District, Wuhan City, Hubei Province, China

5.3 Telephone and Email

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Email: zengpanhb@foxmail.com; bangongshi@hbwww.org

5.4 Name and contact details of custodian IF DIFFERENT from the owner

5.5 Legal status

The Bianzhong bells were unearthed using well established archaeological methods and procedures, in accordance with the Laws of the People's Republic of China on the Protection of Cultural Relics. The bell set is considered property of the State, and has been cataloged and collected by Hubei Provincial Museum and documented in the archives of the National Cultural Heritage Administration of the People's Republic of China. In 1994, the Bianzhong was designated as National First-Class Cultural Relics.

5.6 Copyright status

Hubei Provincial Museum is the owner of The Suizhou Bianzhong of Marquis Yi of Zeng, and also holds the copyright of the inscriptions.

5.7 Accessibility (note any restrictions, including cultural restrictions)

The materials listed below are free to use without any restrictions.

(1) The Bianzhong bells are publically displayed in Hubei Provincial Museum ever since they were excavated.

(2) The modern Chinese translation of the inscriptions on The Suizhou Bianzhong of Marquis Yi of Zeng was published in *The Interpretation of the Inscriptions on the Bianzhong and Bianqin in the Marquis Yi of Zeng's Tomb* (随县曾侯乙墓钟磬铭文释文) (*Journal of Music Research* 乐研究, 1981, No. 1), and it is also included in the archaeological report, *Marquis Yi of Zeng's Tomb* (曾侯乙墓) (Beijing: Cultural Relics Press, 1989) .

(3) The original facsimile of the inscriptions on The Suizhou Bianzhong of Marquis Yi of Zeng was published in *The Compendium of Bronze Inscriptions of the Yin and Zhou Dynasties* 殷周金文集成(Beijing: Chung Hwa Book Company, 2000).

(4) All photographs of The Suizhou Bianzhong of Marquis Yi of Zeng have been published in *The Suizhou Bianzhong of Marquis Yi of Zeng* (Beijing: Jincheng Publishing House, 2015).

(5) In March 1986, China Record Group limited Company recorded *Eternal Resonance – The Sound of The Suizhou Bianzhong of Marquis Yi of Zeng* 千古绝响——曾侯乙编钟之声, using the original The Suizhou Bianzhong of Marquis Yi of Zeng. The recording was published both domestically and overseas.

(6) Hubei Provincial Museum has also completed a 3D scan of the complete set of 65 bells, along with their stands and accessories. The images of these scans are now available to the public.

6.0 Identity and description of the documentary heritage

6.1 Name and identification details of the items/collection being nominated

The Suizhou Bianzhong of Marquis Yi of Zeng
Hubei Provincial Museum

6.2 Type of document

Bronze bell set with inscriptions of ancient musical theory.

6.3 Catalogue or registration details

(1) The Suizhou Bianzhong of Marquis Yi of Zeng is registered as collection number 5.188 in the holdings of Hubei Provincial Museum.

(2) The Bianzhong bells are cataloged based on the following grouping:

1 Bottom set bells

1.1 Bottom 1st set bells (nos. 1-3)

1.2 Bottom 2nd set inscriptions (nos. 1-10)

2. Middle set bells

2.1 Middle 1st set bells (nos. 1-11)

2.2 Middle 2nd set bells (nos. 1-12)

2.3 Middle 3rd set bells (nos. 1-10)

3. Upper set bells

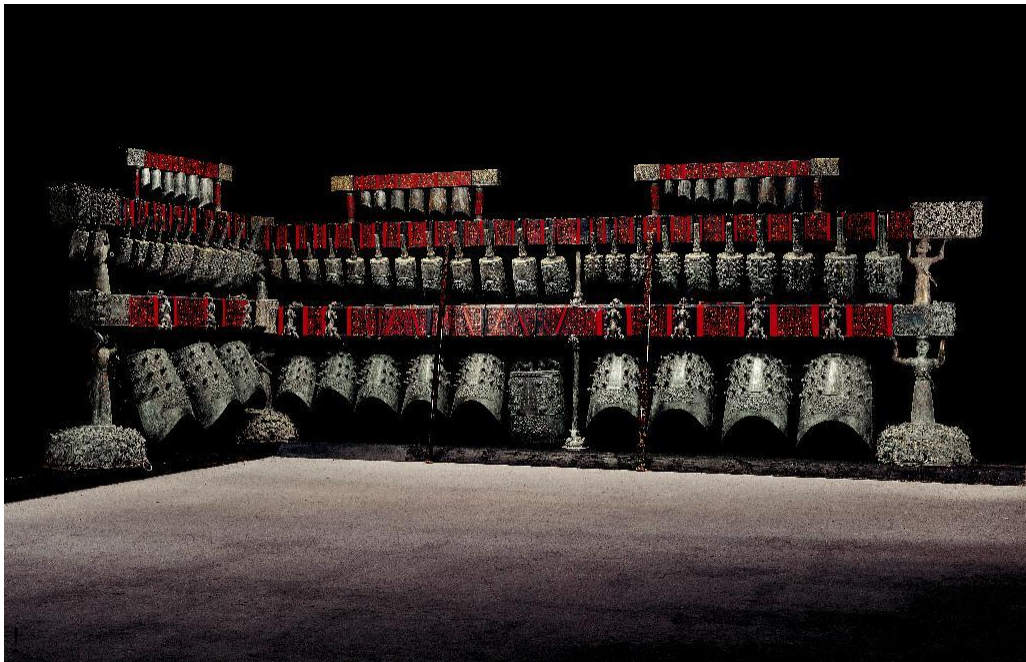
3.1 Upper 1st set bells (nos. 1-6)

3.2 Upper 2nd set inscriptions (nos. 1-6)

3.3 Upper 3rd set bells (nos. 1-7)

6.4 Visual documentation (if available and appropriate)

(1) Photo of The Suizhou Bianzhong of Marquis Yi of Zeng



(2) Photo of the inscriptions on The Suizhou Bianzhong of Marquis Yi of Zeng a. Inscriptions on bottom 2nd set No.5 bell



6.5 History/provenance

The Bianzhong bells are cultural relics unearthed through archaeological excavations in 1978 in the Chinese province of Hubei, as part of the excavation of the Marquis Yi of Zeng Tombs.

6.6 Bibliography

Bianzhong of Marquis Yi of Zeng 曾侯乙编钟 (2015). Beijing: Jincheng Publishing House 金城出版社.

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Hubei Institute of Archaeology and Cultural Relics 湖北省文物考古研究所 (2007). *Bronze Artifacts of the Zeng State* 曾国青铜器. Beijing: Cultural Relics Press 文物出版社.

Huang, Xiangpeng 黄翔鹏. "Musical Systems in the Inscriptions of the Bianzhong of Marquis Yi of Zeng 曾侯乙钟磬铭文乐学体系初探", in *Journal of Music Research* 音乐研究, 1981, No. 1.

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Rao, Zongyi and Zeng Xiantong 饶宗颐, 曾宪通 (1985). *Research on the Inscriptions of the Bianzhong of Marquis Yi of Zeng in Suixian County* (随县曾侯乙墓钟磬铭辞研究). Hong Kong: The Hong Kong Chinese University Press 香港中文大学出版社.

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"Zhong: Chinese Bell". Encyclopedia Britannica. ([Zhong | Chinese bell | Britannica](#)), Retrieved May 21, 2023.

6.7 Names, qualifications and contact details of up to three independent people or organisations with expert knowledge about values and provenance of the nominated material.

(1) Prof. Gabriele Rossi Rognoni

Chair of Material Culture and Music

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(2) Prof. Mei Xiao 萧梅

Professor of Musicology Department of Shanghai Conservatory of Music

Director of Research Institute of Ritual Music in China Director of

Asian-European Music Research Center

Editor of Asian-European Music Research Journal and president of the Association
for Traditional Music in China

Vice President of ICTM study group on Global History of Music

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(3) Prof. Li Ling 李零

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7.0 Assessment against the selection criteria

7.1 Primary criteria - significance value to the world. Comment on one or more of the following significance criteria.

7.1.1 Historic significance

The Suizhou Bianzhong of Marquis Yi of Zeng was discovered and excavated in 1978 in the Chinese province of Hubei, as part of the excavation of the Marquis Yi of Zeng Tombs. This event has been hailed as one of the most significant archaeological discoveries in the 20th century, with the artifacts, including The Suizhou Bianzhong of Marquis Yi of Zeng, well publicized and researched.

The Suizhou Bianzhong of Marquis Yi of Zeng are a complete set of musical instruments and also have on themselves detailed records for the musical practices and theories of ancient China over 2,400 years ago.

The inscriptions on The Suizhou Bianzhong of Marquis Yi of Zeng are currently the only known official pre-Qin Chinese musical theory documents. Pre-Qin society in China was centered around ritual and music, and The Suizhou Bianzhong of Marquis Yi of Zeng served as symbols and representations of state power and noble status, embodying the essence of Chinese ritual and musical culture. The Suizhou Bianzhong of Marquis Yi of Zeng, the largest and most well-preserved set of bells discovered to date, hold significant importance in the fields of world musical history, archaeology, cultural history, as well as technological history.

One of the fascinating phenomena of the Bianzhong bells is their ability to produce two distinctive tones (a third in interval) on a single bell. Prior to the 1978 discovery, such dual-tone structure of the pre-Qin era (before 221 BCE) bronze bells was not known. Although a few surviving ancient texts such as *Kao Gong Ji* (考 记) and *Meng Xi Bi Tan* (梦溪笔谈) briefly mention the metallurgy, acoustics, and the names of different parts of ancient bells, there is no clear record of the tuning mode of the pre-Qin bells. Based on the available historical records and archaeological artifacts, the bells in the Sui Dynasty (AD 581-618) court used the bell sets that had only a single tone for each bell, indicating that as early as the Sui Dynasty, people had no knowledge of the dual-tone structure of the pre-Qin bells.

The discovery of the tuning patterns of The Suizhou Bianzhong of Marquis Yi of Zeng, each capable of producing two tones, has provided the confirmation of such sophisticated craftsmanship and musical theory model that is reflected in the inscriptions. And the ability of producing bells with two distinctive tones also in turn facilitated the development of musical theory and practice, in particular the temperament system.

The inscriptions on The Suizhou Bianzhong of Marquis Yi of Zeng present us with a large number of previous unknown musical temperament definitions and terminologies, and they include those originating from the states of Zeng (曾, where the Marquis Yi of Zeng's Tombs were located), Chu (楚), as well as the Zhou (周) royal court, which apparently was a result of then neighboring states' interactions and exchanges. The tone names inscribed on The Suizhou

Bianzhong of Marquis Yi of Zeng, such as *zhuo gu xi* (浊姑洗), *lv zhong* (吕钟), *zhuo ping huang* (浊坪皇), *ping huang* (坪皇), etc., illustrate a 12-tone musical temperament and tuning system that has the foundation of a third interval on two-tone bells in the bell set. This system is vastly different from the much better known traditional Chinese temperament and tuning method, called “tripartite gain and loss” (三分损益法), which is based on the gain and loss of a fifth in interval. The third interval-based system was unknown before the discovery of The Suizhou Bianzhong of Marquis Yi of Zeng. The Bianzhong bells and their inscriptions have confirmed for us that this system was already in use as early as the Warring States period (475-221 BCE), and played a crucial role in musical theory and practice at that time.

As fixed-pitched instruments, The Suizhou Bianzhong of Marquis Yi of Zeng confirm that the technology of producing "one bell with two tones" had reached a level of precise control over tonal intervals in 5th century BCE China. The design of the bells' pitches, based on five pentatonic tones as the foundation and the presence of a seven-note series, demonstrates the rich musical contents and advanced musical standards of that time.

The inscriptions and musical information of The Suizhou Bianzhong of Marquis Yi of Zeng represent the earliest extant archaeological documents that demonstrate the mathematical relationships in music. The correspondence between the sounds of The Suizhou Bianzhong of Marquis Yi of Zeng and their inscriptions indicates a rational understanding of the relationships between musical tones during that time. The tonal system of the *yong* bells (甬钟) is based on the pentatonic scale similar to the description in the *Book of Guanzi* (管子, written in the 6th century BCE), with the rest of the twelve tonal relationships indicated by suffixes such as *jiao* (角) and *zeng* (曾).

There is another aspect of The Suizhou Bianzhong of Marquis Yi of Zeng and the inscriptions. Extensive archaeological findings have yielded a considerable quantity of bronze bells dating back to the West Zhou Dynasty (西周). Notably, the inscriptions on those bells earlier than The Suizhou Bianzhong of Marquis Yi of Zeng predominantly consist of content dedicated to singing praises and extolling virtues on behalf of the rulers of their respective eras. The Bianzhong inscriptions, on the other hand, exhibit no indication of such contents. Instead, with just a few exceptions (on record keeping and cataloging), they are almost entirely focusing on musical topics – the roles of each bell in given musical settings, the names of tones produced, and the ins and outs of its temperament system. Such a unique aspect of The Suizhou Bianzhong of Marquis Yi of Zeng has provided us with a good understanding of these bells not only as ancient musical instruments, but also as cultural relics carrying historical significance for the society as a whole.

The international academic community has conducted continuous research on The Suizhou Bianzhong of Marquis Yi of Zeng, their inscriptions, and their sound for over 40 years, encompassing fields such as archaeology, history, metallurgy, physical acoustics, astronomy, ancient writing systems, chemistry, music, communication, and education. The study of The Suizhou Bianzhong of Marquis Yi of Zeng, their inscriptions, and their sound is an important topic in Chinese music archaeology, with over five hundred articles dedicated to their study or related research.

7.1.2 Form and style

The inscriptions on The Suizhou Bianzhong of Marquis Yi of Zeng have the highest number of characters among pre-Qin bronze inscriptions. Most of the inscriptions are gilded with gold and well-preserved. They are slender, elegant, highly decorative, and have a well-organized layout, holding aesthetic significance in addition to their informative value.

The method employed specifically is called "layered gold" (错), which involved shallow relief patterns before applying gold on top. There are a total of 3755 characters inscribed on The Suizhou Bianzhong of Marquis Yi of Zeng, a vast majority using such layered method gilded with gold. Apparently, by the time when the inscriptions on The Suizhou Bianzhong of Marquis Yi of Zeng were created, such method had already evolved into a mature and reliable process - The fact that the inscriptions remained in excellent condition when The Suizhou Bianzhong of Marquis Yi of Zeng were discovered in 1978 can speak volumes about the advance in the gilding techniques that has gifted us today such significant ancient text.

The Suizhou Bianzhong of Marquis Yi of Zeng with the inscriptions represent the only set of musical instruments of 5th century BCE that has accurately preserved musical information with inscriptions and the virtually intact instruments, with stable and a wide range of pitches, and a comprehensive tuning system. By comparing the inscriptions with the musical tones, it confirms the accuracy of the inscriptions and combines the two as a unified entity.

7.1.3 Social, community or spiritual significance

The inscriptions are an integral part of the information being carried by The Suizhou Bianzhong of Marquis Yi of Zeng, which also include decorated design patterns and accompanying human and animal figures. Historically, those elements often hold great historical, cultural, and spiritual significance and provide valuable insights into the spiritual beliefs of ancient Chinese society. The Suizhou Bianzhong of Marquis Yi of Zeng were used as musical instruments in important ritual and ceremonial occasions. They were played during sacrificial ceremonies, royal banquets, and other religious and courtly events. The harmonious sounds produced by the bells were believed to communicate with the divine and bring spiritual blessings.

The Suizhou Bianzhong of Marquis Yi of Zeng were unearthed in Suizhou, Hubei Province, which was part of the "southern region" of the Central Plains dynasty during the Shang and Zhou periods. The inscriptions on the bells record the names of musical tones from various states, including Zeng (曾), Zhou (周), Chu (楚), Jin (晋), Qi (齐), and Shen (申), covering a wide geographical area that includes the Yangtze River and Yellow River basins. It reflects the cultural fusion between the northern and southern regions, and serves as an example of the diverse unity of Chinese civilization.

7.2 Comparative criteria. Comment on one or more of the following comparative criteria:

7.2.1 Rarity

The inscriptions on The Suizhou Bianzhong of Marquis Yi of Zeng are official pre-Qin documents on musical tones and are extremely rare among the excavated Chinese bronze inscriptions. Out of the 28 tone names recorded on The Suizhou Bianzhong of Marquis Yi of Zeng, two-thirds of them cannot be found in other existing classical texts. Among the civilizations around the 5th century BCE in other places in the world, no records of similar scale have survived to this day, therefore making it a unique treasure of the world.

7.2.2 Integrity, completeness, condition

When the Zenghouyi bells were unearthed, they were well-preserved, with the order, grouping, and hanging methods remaining in the same state as when they were buried. The bells are fixed-pitch instruments, and the bronze used to make them is the most durable metal material for musical instruments. Over thousands of years, time has not affected the pitch of the bell set. The sound of the bells preserves the musical information of that time, and it is in close correspondence with the inscriptions on those bells. The two coexist as one.

The inscriptions on The Suizhou Bianzhong of Marquis Yi of Zeng along with other forms of texts discovered at the same time – the engraved inscriptions on the stone chimes, ink inscriptions, and the inscriptions on the chime boxes – mutually corroborate one another, and have provided researchers as well as music practitioners a comprehensive and systematic account of the music theory and systems at the time. The tonal pitch range recorded in the inscriptions spans from A1 to D7. This musical system fully reflects the twelve-tone system of that time and the mathematical logic underlying the temperament tuning method. The Suizhou Bianzhong of Marquis Yi of Zeng and their inscriptions serve as a theoretical and practical music treatise, demonstrating mutual confirmation among the bells' sounds and the inscriptions.

The Suizhou Municipal Archives has the collection of the original video/audio recordings and other relevant materials documenting the entire process of the Bianzhong's excavation in 1978. The Suizhou Municipal Museum, a centralized repository of Zeng State bronze artifacts, has a large collection of Zeng State bronze artifacts excavated along with The Suizhou Bianzhong of Marquis Yi of Zeng. The original site of the tomb of Marquis Yi of Zeng and other archaeological sites of Zeng State are well-preserved and protected. These archaeological findings serve as valuable evidence in confirming the authenticity, genuineness, and reliability of the Bianzhong.

7.3 Statement of significance

The Suizhou Bianzhong of Marquis Yi of Zeng and their inscriptions provide valuable insights into ancient musical practices and theories in China, dating back over 2,400 years. The well-preserved instruments along with the inscriptions have had a significant impact on the understanding and appreciation of ancient music, history, and culture of China, and by extension of the world as well.

8.0 Consultation with stakeholders

8.1 Provide details of consultation with relevant stakeholders about this nomination

Professor Wei WANG, a delegate of the 13th National People's Congress of China and the President of the Chinese Archaeological Society, introduced a proposal for an application to the Memory of the World Register for The Suizhou Bianzhong of Marquis Yi of Zeng. This proposition garnered support from the National Cultural Heritage Administration and the National Archives Administration of China. The governments of Hubei Province and Suizhou City also endorsed the application for The Suizhou Bianzhong of Marquis Yi of Zeng to be listed in the Register.

Hubei Provincial Museum has held several meetings with well-known Chinese and International scholars in fields of musicology, Chinese history, and ancient Chinese language. In 2016, the 10th Symposium of the International Study Group on Music Archaeology was held at the site of Hubei Provincial Museum, jointly organized by the Museum and German Archaeological Institute, Committee of Chinese Music Instruments of Museums and Collections, and National Music Archaeology Society. Music archaeologists from various countries attending the conference signed the document supporting the application for The Suizhou Bianzhong of Marquis Yi of Zeng to be listed in the Memory of the World Register.

9.0 Risk assessment

9.1 Detail the nature and scope of threats to the nominated material

If The Suizhou Bianzhong of Marquis Yi of Zeng were to suffer any damage, there are no other excavated sets of bells that can demonstrate their rich system of musical tones and knowledge of music theory. The possibility of discovering similar documents in the future is extremely low. The original sound from over 2,400 years ago in China would be lost forever.

10.0 Preservation and access management plan

10.1 Describe, or attach as a scanned document, any existing plans. If no plans exist, provide details about proposed conservation, storage and access strategies.

The Suizhou Bianzhong of Marquis Yi of Zeng are currently on display in the Marquis Yi of Zeng Exhibition Hall with constant temperature and humidity control, on the first floor of the South Building of Hubei Provincial Museum. The Suizhou Bianzhong of Marquis Yi of Zeng are preserved in specially designed large display cabinets. These cabinets strictly adhere to national standards.

The exhibition case also conforms to the design specifications of civil public buildings. It has a clear height of 4m and an area of 100m². The materials used are non-toxic, non-polluting, and do not release harmful gases. The interior walls of the exhibition space are made of materials that are dust-free and enhance the sealing of the walls. The floor material is anti-slip, wear-resistant, sound-absorbing, non-polluting, and easy to clean. The exhibition facility is equipped with dust-proof, shock-proof, anti-harmful light radiation, and easily removable features. It also includes temperature and humidity monitoring and control equipment, as well as an air purification and filtration system. The temperature is controlled at 20°C, and the humidity is controlled between 0% and 40%. The pollutant concentrations are controlled at formaldehyde ≤ 0.08 mg/m³, benzene ≤ 0.09 mg/m³, ammonia ≤ 0.2 mg/m³, radon ≤ 200 BQ/m³, and total volatile organic compounds ≤ 0.5 mg/m³. The noise level does not exceed 45 decibels. The display cabinet is equipped with a central air conditioning system and air purification equipment. An automatic monitoring and control system or a strict regular monitoring system is established to monitor the temperature, humidity, and air pollutant concentrations of the display cabinet in real time.

Since the excavation of The Suizhou Bianzhong of Marquis Yi of Zeng, it has drawn attention from the general public as well as academia all over the world. In July 1979, the first exhibition of “Cultural Relics Unearthed from Tomb No. 1 of Leigudun in Sui County” was held at Suixian Cultural Center. Afterwards, the Bianzhong bells have been on display at Hubei Provincial Museum, with the condition of the exhibition hall continuously improving. With more than 3 million visitors annually (sometimes as many as 32,000 visitors in a single day). As an extension of the Bianzhong exhibition, Hubei Provincial Museum has successfully replicated a complete set of the Bianzhong bells for musical performance as well as for scientific research. They have travelled around the world for performance, and have become on the world stage China's prominent representative of ancient musical instrument.

11.0 Any other information that may support the nomination

11.1 Note below or attach scanned documents as appropriate.

List of additional materials:

- 1.The inscriptions on The Suizhou Bianzhong of Marquis Yi of Zeng
- 2.Inscriptions on The Suizhou Bianzhong of Marquis Yi of Zeng and their English translation.
- 3.Original sound recording of The Suizhou Bianzhong of Marquis Yi of Zeng (in .wav format).

4. Expert recommendations.

5. Expert recommendations from the 10th ISGMA

Symposium, 2016 6. Agreement Granting Non-exclusive Right

12.0 CHECKLIST

Summary completed (section 2); ☐ c

Nomination and contact details completed (section 3); ☐ c

Declaration of Authority signed and dated (section 4); ☐ c

If this is a joint nomination, section 4 is appropriately modified, and all Declarations of

Authority obtained; ☐ c

Legal information (section 5); ☐ c

Details of custodian if different from owner (section 5); ☐ c

Details of legal status completed (section 5); ☐ c