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***The Water Mill: Authentication and  
Analysis of an Ancient Chinese *Jiehua*  
Painting***

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## Abstract

*The Water Mill*, currently held in the Shanghai Museum, is a famous *jiehua* painting which for a long time was believed to have been created by the Five Dynasties artist Wei Xian. At present, most scholars hold the view that it was created around the Northern Song Dynasty (960–1127). This dissertation tries to use a sociological approach, material culture study and iconographical analysis to illustrate the painting's content, as well as research on the cultural biography of the whole handscroll, with the purpose of finding the potential artist and the time of creation. Alongside, with authentication, politics, economics and aesthetics are also discussed in the thesis to explore their effect on the development of *jiehua* and the specific theme of the water mill in the Chinese history of art.

Through the analysis of the cultural biography of *The Water Mill*, which presents a full collection history of the handscroll since the Northern Song Dynasty, its authenticity could be proved. From historical records and a residual signature, the son-in-law of the Yingzong Emperor Zhang Dunli can be established as the artist of *The Water Mill* and the painting may have been created around 1068–1100. The interpretation of the painting image supports this conclusion and the hypothesis from the cultural biography – the construction, costumes, climate, culture, military system, etc. – all reflect the characteristics of the Northern Song Dynasty. Therefore, *The Water Mill* can be seen as a representative architectural painting of the golden age of *jiehua* and an image representing Song culture. On this basis, this dissertation also researched the particular background to find the reasons why *jiehua* was popular during the 10th to 13th centuries, as well as why the water mill was a popular theme during the Song Dynasty. Further research is needed to identify faded seals in the handscroll and confirm the possibility that Zhang Dunli was the artist of *The Water Mill*.

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## Abbreviations

- CXZHJSZLBYBC* – *Chongxiu zhenghe jingshi zhenglei beiyong beicao* 重修政和經史證類備用本草
- DJMHL* – *Dongjing menghua lu* 東京夢華錄
- HWCSJSHL* – *Haiwangcun suojian shuhua lu* 海王村所見書畫錄
- LDMHJ* – *Lidai minghua ji* 歷代名畫記
- NZYBBW* – *Nanzong yibo bawei* 南宗衣鉢跋尾
- QDSKQS* – *Qinding siku quanshu* 欽定四庫全書
- SCMHP* – *Shengchao minghua ping* 聖朝名畫評
- THJWZ* – *Tuhua jianwen zhi* 圖畫見聞誌
- WDMHBY* – *Wudai minghua buyi* 五代名畫補遺
- WYYYZDHS* – *Wuyi youyizhai duhua shi* 無益有益齋讀畫詩
- YWSY* – *Yinshuwu shuying* 因樹屋書影
- YYGYL* – *Yunyan guoyan lu* 雲煙過眼錄
- ZGFSMXS* – *Zhongguo fushi meixue shi* 中國服飾美學史
- ZGGDFSJY* – *Zhongguo gudai fushi yanjiu* 中國古代服飾研究
- ZGGDSHJDBJ* – *Zhongguo gudai shuhua jianding biji* 中國古代書畫鑒定筆記
- ZGGDSHJDSL* – *Zhongguo gudai shuhua jianding shilu* 中國古代書畫鑒定實錄
- ZGGDSHML* – *Zhongguo gudai shuhua mulu* 中國古代書畫目錄
- ZGHHMP* – *Zhongguo huihua mingpin* 中國繪畫名品
- ZGHHQJ* – *Zhongguo Huihua Quanji* 中國繪畫全集
- ZGLDHMDD* – *Zhongguo lidai huamu dadian* 中國歷代畫目大典
- ZGMHJSCD* – *Zhongguo minghua jianshang cidian* 中國名畫鑒賞辭典
- ZGMSQJ* – *Zhongguo meishu quanji* 中國美術全集
- ZGSHQS* – *Zhongguo shuhua quanshu* 中國書畫全書

## Introduction

### Basic information on *The Water Mill*

*The Water Mill* (Figures 1 and 2), which is currently in the collection of the Shanghai Museum, is a hand scroll painting in ink and colours on silk, whose image size is 124.1cm in length and 55.4cm in width.<sup>1</sup> It bears a traditional attribution to the Southern Tang of the Five Dynasties court painter Wei Xian 衛賢 (around the 10th century). The painting's name comes from its main content – a water mill, which is located at the middle of the painting, under a large wooden ancient building. At the bottom right corner, a two-storey tavern with its decorative structure looks over the water mill across a river, a poster with the words “新酒 (new alcohol)” is pasted on the screen of the entrance of the restaurant. Another flag with the word “酒 (alcohol)” is settled at the centre of the decorative structure. The water mill hall and the tavern constitute the main subject of the painting so that was why it was classified as *jiehua*<sup>2</sup> in Chinese painting terms.

Among the architectural structures in the painting, dozens of workers are doing their jobs in an orderly way. A daily scene of an official water mill workshop, it shows several processes such as grinding grain, sifting grain, carrying grain, picking up grain, delivering grain, etc. It is called an “official workshop” because under the small pavilion on the left, some officials in formal wear are supervising the beginning or the end of the milling process. The tattoos on the labourers imply that they were soldiers or governmental labours rather than common workers.<sup>3</sup> Although the water mill and the tavern are located on different sides of the river, the boats on the river and the cart teams at the

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<sup>1</sup> The size is based on the book *Songhua quanji. Songhua quanji* 宋畫全集 (Song Paintings Collection), vol 2–1. Hangzhou: Zhejiang University Press, 2009. In other references, the painting size is slightly different. *Zhongguo meishu quanji* 中國美術全集 (Chinese Art Collection, ZGMSQJ) records the same painting size as *Songhua quanji* but in *Zhongguo huihua mingpin* 中國繪畫名品 (The Chinese Famous Paintings, ZGHHMP) series, vol 21 – Wei Xian *The Water Mill* and Guo Zhongshu *Traveling on the River in Snow*, the painting size is 119.3 cm in length and 53.2cm in width. However, in the official website of the Shanghai Museum, it is 119.2 cm in length and 53.3cm in width. In this dissertation, the painting size will refer to the standard of *Songhua quanji* and ZGMSQJ.

<sup>2</sup> *Jiehua* 界畫: Literally, it means to draw paintings by *jiechi* 界尺 (ruler). In Chinese history of art, artists used special rulers to draw the straight lines of buildings and architectural structures, and *Jiehua* equals to architectural painting to some extent. More information about *Jiehua* and architectural paintings will be introduced in the Chapter 1, in the section on History of *Jiehua* and its position in History of Chinese Art.

<sup>3</sup> This argument will be discussed in Chapter 3, in the section on Tattoo and Song Soldiers.

bottom left road link these subjects as a whole.

This painting is in a *Xuanhe* mounting style. *Xuanhe* is the 6th reign title of the Huizong Emperor (r. 1100–1126), used from around February 1119 to 1125, of the Northern Song Dynasty. Paintings and calligraphy which were listed in the official inventory during this period would be mounted in a specific format with seven fixed seals<sup>4</sup> (Figure 3). Six of the seven seals, although two of them are fragmentary, still exist on the painting.<sup>5</sup> At the top right corner, beside the official inventory seal of the Yuan imperial collection that was used about 1328–1330, an evaluation “*shenpin shang* 神品上 (inspired class, upper)” is written in standard calligraphy (Figure 4). Each dynasty has at least one seal on the painting since the Northern Song Dynasty until the Qing Dynasty and there are four inscriptions from different viewers recorded on colophon paper after the image. From the inscriptions, seals and other first-hand records, it can be gathered that after it was collected in the Northern Song and the Yuan dynasties’ official inventories, this painting was successively owned by princes and private collectors during the Ming and Qing dynasties.<sup>6</sup> Until the end of the Qing Dynasty, it was held at one of the curio shops at Liulichang<sup>7</sup> for a while before it was acquired by the Shanghai Museum in the 1960s.

For a long time, this painting was believed to be by Wei Xian, a famous artist of the Five Dynasties, who was good at *jiehua* and portrait paintings, because there is half of his signature at the end of *The Water Mill* (Figure 5). But with further research based on stylistic analysis and some iconographical studies, most scholars such as Heping Liu,<sup>8</sup>

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<sup>4</sup> The *Xuanhe* mounting styles and the stamped seals are different between painting and calligraphy collections, this dissertation will only discuss the mounting style of painting and more information will be given in Chapter 2, in the section on Seals.

<sup>5</sup> The lost seal is at location a. in Figure 3 and the two fragmentary seals are b. and c.

<sup>6</sup> During the Ming Dynasty, *The Water Mill* was owned by the Prince of Jin around 1368–1398 and the Prince of Yi around 1580–1603. In the Qing Dynasty, the owners of the painting were Cao Rong, Liang Qingbiao, Jihana, Ulgungga, Ni Xiaofang, and Sun Zhuang or his grand uncle. More information and specific dates can be found in the diagram in Chapter 2, in the section on Seals, and the collection history will be discussed in the Historical Documents section.

<sup>7</sup> Liulichang 琉璃廠 is the name of a street in Beijing where there are many famous stores engaged in the curio business. More information about Liulichang will be discussed in Chapter 2, in the section on Historical Documents.

<sup>8</sup> Liu, Heping. “*The Water-Mill* and Northern Song Imperial Patronage of Art, Commerce and Science”, *Art Bulletin* vol 4 (December 2002), 565–595.

Zheng Wei,<sup>9</sup> Yu Hui,<sup>10</sup> Roderick Whitfield,<sup>11</sup> as well as a team related to authenticating ancient Chinese paintings and calligraphy including Xie Zhiliu, Xu Bangda, Yang Renkai and Fu Xinian<sup>12</sup> stand by the view that it is the work of a Northern Song Dynasty painter. In addition, Wei Xian's signature was proved to be a forgery according to subsequent research, so the author and date of *The Water Mill* are still undefined.

## Research Significance

Why is the authentication of *The Water Mill* significant and why choose this painting as the main example in this dissertation? The following reasons may explain it to some degree.

First, *The Water Mill* is a rare *Xuanhe* mounting style painting, particularly, a *jiehua* painting. Although all paintings and calligraphy which were collected in the late Northern Song official inventory should be mounted in *Xuanhe* style, due to the time and sample quantity, the surviving *Xuanhe* mounting pieces are few. Even the famous *Along the River During the Qingming Festival* (Figure 6), another masterpiece which was attributed to the Northern Song Dynasty, does not have full *Xuanhe* seals. Since the Tang Dynasty, *jiehua* became popular and reached its peak around the Northern Song Dynasty. Therefore, if the *Xuanhe* mounting is genuine, *The Water Mill* can be seen as a precious example, representing the highest achievement in the history of architectural painting.

The second reason is the painting content itself, which shows the milling process around a water mill, delivering and other activities. Although as a *jiehua* painting, architecture is the main subject of *The Water Mill*, it is also a genre painting which presents water mill

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<sup>9</sup> Zheng Wei 鄭為. “閘口盤車圖卷 (*The Water Mill* Handscroll)”, *Yiyuan Chuoying* vol 2 (1978), 38–46.

<sup>10</sup> Yu Hui 餘輝. “地質學在古畫鑒定中的作用 (Function of Geology in Identification Ancient Paintings)”, *Art Observation* vol 3 (2004), 93–96.

<sup>11</sup> Whitfield, Roderick. “Material Culture in the Northern Song Dynasty – The World of Zhang Zeduan”, in *Bright as Silver, White as Snow: Chinese White Ceramics from Late Tang to the Yuan Dynasty – Examples from the Kai-Yin ho Collection*, Kai-Yin Lo, eds. Hong Kong: Yungmingtang, 1998, 49–70.

<sup>12</sup> Zhou Jiyin 周積寅 and Wang Fengzhu 王鳳珠 ed. *Zhongguo Lidai Huamu Dadian* 中國歷代畫目大典 (Chinese Painting Catalogue Dictionary, *ZGLDHMD*), vol. The Warring States Period to the Song Dynasty. Nanjing: Jiangsu Province Education Press, 2002, 207.

technology, groups of people's activities, costumes of that period and seasonal landscape, etc. These seem like the epitome of the history and general way of life of that time. Compared with landscape paintings, birds-and-flower paintings or portrait paintings, *jiehua* and genre paintings have greater social content. For instance, we can learn what the Northern Song Dynasty's capital city looked like and what sort of objects the shops sold during a particular festival as in *Along the River During the Qingming Festival*. In other words, people may experience ancient society face to face through *jiehua* and genre paintings. In this way, *The Water Mill* has high value for research on architecture, sociology, folklore, mechanical engineering, and so on.

Third, although *jiehua* has important research value because of its sociological function, neither *jiehua* nor *jiehua* artists were paid much attention by connoisseurs of painting, particularly after the Song Dynasty.<sup>13</sup> By the standard of ancient Chinese aesthetics, the Six Principles (*Liufa* 六法) of Chinese painting<sup>14</sup> may show the reason, which placed spirit resonance as the most significant element in connoisseurship while the painting skills and artists' practice were secondary. However, *jiehua* has many artificial aspects from theme to painting method and it requires fundamental knowledge of mathematics and architecture. In some cases, *jiehua* is more like an architectural drawing than an artwork.<sup>15</sup> It hardly reflects the natural spirit resonance and nature's beauty, which perhaps expresses the opposite opinion to the literati.<sup>16</sup> Hence, most famous literati artists would

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<sup>13</sup> This tendency can be found in every artistic theory and the private notes of connoisseurs, such as *Huajian* 畫鑒 of Tang Hou 湯垕 (Yuan Dynasty), *Minghua Lu* 明畫錄 (Records of the Ming Dynasty Paintings) of Xu Qin 徐沁 (Qing Dynasty), etc.

<sup>14</sup> Xie He 謝赫 (The Southern Dynasties). Pan Yungao 潘運告, eds. *Guhua Pinlu* 古畫品錄 (The Record of the Classification of Old Painters). Changsha: Hunan Province Fine Arts Publishing House, 1997.

<sup>15</sup> There is a story in *Tuhua jianwen zhi*: Zhao Zhongyi 趙忠義, a *jiehua* artist of the Five Dynasties, once painted a temple image for the emperor. He built a small model before drawing and each tiny structure of the model was accurate to the real building. From this story, we learn that an eligible *jiehua* artist is not only an artist but also an architect. Guo Ruoxu 郭若虛 (Song Dynasty). *Tuhua jianwen zhi* 圖畫見聞誌 (Experiences in Painting, *THJWZ*), 1080. In Lu Fusheng 盧輔聖 *et al.*, eds. *Zhongguo Shuhua Quanshu* 中國書畫全書 (The Collection of All Chinese Paintings and Calligraphy Treatises, *ZGSHQS*). Shanghai: Shanghai Calligraphy and Painting Publishing House, 2009, 482.

<sup>16</sup> Ancient Chinese literati used plum blossom, orchid, bamboo, chrysanthemum and jade to describe gentlemen. Some qualities of these plants or natural stone were praised by them. Taking the bamboo as an example, in *The Book of Bamboo* by I-Hsiung Ju, he described this plant: "The Bamboo is strong, upright, and dependable. He may bend with the wind, the storm and the rain, but he never breaks. He is a true gentleman of courage and endurance." There are so-called "bamboo painters" who all their lives paint only bamboo. Some famous scholars and literati were also fans of bamboo, such as Su Shi



not paint *jiehua* and few scholars have done research on it. *The Water Mill* is a *Xuanhe* mounting painting but only has several seals and four colophons which shows how neglected it was in collectors' eyes. In recent years, some great scholars including Zheng Wei, Yu Hui, Roderick Whitfield, Heping Liu, Jerome Silbergeld<sup>17</sup> and Anita Chung,<sup>18</sup> did research on this painting; based on the previous research, this dissertation will carry out a comprehensive analysis of *The Water Mill*.

Last but not least, no matter what kind of art works, authentication is necessary and is one of the essentials when doing research. Taking paintings as an example, on the one hand, knowing an object's authorship and time of creation can help to understand the content and background of a painting; on the other hand, a painting with certain authorship and age can reveal characteristics of an era in different ways.

## Research Questions

This dissertation will address the time of creation and the potential authorship of *The Water Mill*, and at the same time, analyse the painting from the point of view of architecture, costume, social activities and cultural biography. Furthermore, although interdisciplinary research is not a new approach in history of art, introducing mechanical engineering, architectural standards and mathematics into authentication is a new approach, especially compared to traditional methods of stylistic analysis. This

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(1037–1101) and Zheng Xie (1963–1766). Moreover, when literati artists created a work, personal desire and self-expression were always added in. “No bamboo painting is a photographic copy of some bamboo at some particular place, seen from a particular angle; instead it is a suggestion of the true essence of the bamboo, an expression of the qualities of a true Chinese gentleman, whom the bamboo symbolizes” (Ju, I-Hsiung. *The Book of Bamboo* Eikenhof: The Art Farm, 4th edition, 1989). In this case, to present a bamboo painting with its characteristics such as endurance and courage but not like a photographic copy is the successful expression of the spirit resonance. But *jiehua*, as a painting type, has a special subject and theme, requiring the artist to draw the painting following the standard of architecture from particular angle. Furthermore, the beauty of artificiality does not like the symbol or essence of bamboo, the anthropomorphic qualities, which also hindered the expression of the spirit resonance.

<sup>17</sup> Silbergeld, Jerome. “All Receding Together, One Hundred Slanting Lines: Replication, Variation, and Some Fundamental Problems in the Study of Chinese Paintings of Architecture”, in The Shanghai Museum, ed., *Qiannian danqing* 千年丹青：細讀中日藏唐宋元繪畫珍品 (Masterpieces of Ancient Chinese Paintings: Paintings from the Tang to Yuan Dynasty in Japanese and Chinese Collections). Beijing: Beijing University Press, 2010, 131–150.

<sup>18</sup> Chung, Anita. *Drawing Boundaries: Architectural Images in Qing China*. Honolulu: University of Hawaii Press, 2004.

dissertation will also discuss the significance that comprehensive research methods can bring to authentication and the history of Chinese art.

This dissertation begins with *jiehua*, and I begin by addressing background issues including the history of *jiehua* and its position in Chinese history of art. Architectural elements have appeared in art almost from the beginning but it became an independent painting type far later and the name “*jiehua*” was created even after that. The first section in Chapter One, on the history of *jiehua* and its position in the history of Chinese art will follow the history of architectural painting and discuss its historical position in each dynasty.

Whether analysing the sociological issues behind the painting or its architectural and mechanical history, authentication of *The Water Mill* is the foundation thus is the key point of Chapter 2 and 3. No matter which period’s characteristics it reflects, a comprehensive analysis is necessary. The section on the history of forgeries examines traditional methods of authentication and approaches to forgery. As there is a forged signature on the painting, we cannot exclude the possibility that there are more forged parts.

Additionally, the primary sources include both historical documents and visual materials. The water mill was a rare theme in *jiehua* but *The Water Mill* was not unique. Both *The Water Mill in Valley* (Figure 7) and a Jin Dynasty mural (Figure 8) of Yanshan Temple, Shanxi province depicted similar water mills. The architecture, decorative structures and folk activities of *Along the River During the Qingming Festival* provided a reference point to study *The Water Mill* as well. Although *The Water Mill in Valley* does not have a confirmed artist and date, *Along the River During the Qingming Festival* and the Yanshan Temple mural have reliable information, especially the mural which recorded the artist’s name and specific time of creation.

In Chapter Three, architecture in painting is the focus. As a *jiehua* painting, architecture is the main part of *The Water Mill*. This section will discuss wooden structures, their

standard during the Song Dynasty, time characteristics, including water mill technology and decorative building. Moreover, it will compare the architecture of *The Water Mill* to other *jiehua* paintings around the 9th to 13th centuries, such as the Five Dynasties, the Yuan Dynasty and the Jin Dynasty. *Along the River During the Qingming Festival* and *The Water Mill in Valley* will also be used as important examples to support the argument. Additionally, ancient architectural treatise such as *Yingzao fashi* is also the important reference.

Another noticeable aspect is the figures. In *The Water Mill* they can be divided into two categories – officials and workers. In ancient China, people had a strict dress code, especially for officials, each grade having their own pattern and colour, and different dynasties always having their unique style. The tattoos of workers and etiquette shown in the painting also support arguments for research on ancient culture. In addition, not only historical documents will be taken as the reference, burial objects and the tomb mural paintings also will be used. Recently the concept of “art archaeology” was introduced to Chinese history of art research although it is not a new approach in Western history of art study. What is found in tombs can provide a visual supplement to historical documents. Moreover, this section will also discuss other activities in the painting, such as the milling process, cart group, worker’s activities and banquet in the restaurant. *The Water Mill* consists of all of these objects, making it a vivid picture.

Research will also examine the cultural biography of *The Water Mill*. According to Chris Gosden and Yvonne Marshall, the central idea of cultural biography is that, as people and objects gather time, movement and change, they are constantly transformed, and these transformations of person and object are tied up with each other. At the heart of cultural biography are questions about the links between people and things; about the ways meanings and values are accumulated and transformed.<sup>19</sup> The image content sometimes may not reflect real circumstances for various reasons, for instance, artists used to replicate earlier paintings for practice or business purposes, and in those cases, their

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<sup>19</sup> Gosden, Chris, and Yvonne Marshall. “The Cultural Biography of Objects”, *World Archaeology* vol 2 (1999), 169, 172.

pieces cannot indicate their own style. However, each era has its own style which may provide evidence to us in authentication, and combining cultural biography with image content can reduce the possibility of making mistakes. As mentioned before, *The Water Mill* has a *Xuanhe* mounting style, so *Xuanhe huapu*<sup>20</sup> may have recorded this painting. Besides, other seals and colophons on this painting and the records in historical documents can also give us a timeline of collection. This information is as important as the painting image itself.

After the authentication and analysis, the conclusion will try to answer why *jiehua* was only popular for a while during the Chinese history of art, why it was neglected by both artists and art historians, and why the painter chose the water mill to be the main theme. The historical causes should be avoided by current academia because *jiehua* has high research value on many aspects, such as ancient architecture, traditions, social culture, etc.

To sum up, this dissertation will take *The Water Mill* as an example, using multiple methods to discuss its potential authorship and time of creation. In the process, we will see a snapshot of Chinese society of the 10th to 12th centuries and *jiehua*'s vicissitudes.

### **Literature Review of *The Water Mill***

In ancient China, there were no galleries and museums, precious pieces were owned by the imperial storehouse, upper classes and wealthy businessmen.<sup>21</sup> Only a few people could see these artworks and even fewer of them did intensive research on them. For *The Water Mill*, except the four colophons on the hand scroll, only a few records mentioned this painting directly until the middle of the 20th century, including Zhou Mi's (1232–1298)

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<sup>20</sup> *Xuanhe huapu* 宣和畫譜. 1120. In *ZGSHQS*, 60–131.

<sup>21</sup> A famous example is the Taizong Emperor of the Tang Dynasty and *Lantingji xu*. *Lantingji xu* was a piece of Chinese calligraphy by the well-known calligrapher of the Eastern Jin Dynasty (317–420), Wang Xizhi (303–361). It was said that the original work was buried together with the Taizong Emperor (598–649, r. 626–649) in Zhao Mausoleum of the Shanxi province. (*Suitangjiahua* by Liu Su, underneath volume) Currently, the textual research on the authenticity of the story and the burial object is impossible but the story itself proves that emperors had a monopoly on art.

*Yunyan guoyan lu* 雲煙過眼錄 (Record of Clouds and Mist Passing Before One's Eyes, YGYL),<sup>22</sup> Tang Hou's (around 1270s–1340s) *Huajian* 畫鑒 (Connoisseurship of Paintings),<sup>23</sup> Zhou Lianggong's (1612–1672) *Yinshuwu shuying* 因樹屋書影,<sup>24</sup> Li Baoxun's (1859–1915) *Haiwangcun suojian shuhualu* 海王村所見書畫錄 (Records of Seeing Calligraphy and Paintings in the Neptune Village, HWCSUJHL)<sup>25</sup> and *Wuyi youyizhai duhua shi* 無益有益齋讀畫詩 (Poem from reading paintings in the room named Profitless and Advantageous, WYYYZDHS),<sup>26</sup> etc.<sup>27</sup> With the collapse of the Qing Dynasty, the emperor's art treasures leaked out of the Forbidden City. Most studies of *The Water Mill* were produced after the establishment of the People's Republic of China. However, after *The Water Mill* was exhibited in a public museum, the Shanghai Museum, around 1961, more viewers both scholars and general audiences can observe it close up and a great number of researchers have put forward different views as to the authorship and the time of creation of *The Water Mill*.

After the Qing Dynasty but before *The Water Mill* was collected by the Shanghai Museum, Bicaizhai 筆彩齋 once owned this painting for a while. It was a store located in Liulichang Cultural Street that dealt antiques, calligraphy and paintings. And as a shop was invested by the House Zheng<sup>28</sup> in 1865, it had *The Water Mill* which was one of the

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<sup>22</sup> Zhou Mi 周密 (Song Dynasty). *Yunyan guoyan lu* 雲煙過眼錄. In Wang Yunwu 王雲五 *et al.*, ed. *Congshu jicheng* 叢書集成. Shanghai: The Commercial Press, 1935, and Weitz, Ankeney. *Zhou Mi's Record of Clouds and Mist Passing Before One's Eyes – An Annotated Translation*. Brill: Leiden, 2002.

<sup>23</sup> Tang Hou 湯垕 (Yuan Dynasty). *Huajian* 畫鑒 (Connoisseurship of Paintings). 1 vol. In *Qinding siku quanshu* 欽定四庫全書 (QDSKQS), zibu eight 子部八, art category.

<sup>24</sup> Zhou Lianggong 周亮工 (Qing Dynasty). Zhang Chaofu 張朝富, eds. *Yinshuwu shuying* 因樹屋書影 (YSWSY). Nanjing: Fenghuang Publishing House, 2018.

<sup>25</sup> Li Baoxun 李葆恂 (Qing Dynasty). *Haiwangcun suojian shuhua lu* 海王村所見書畫錄 (Records of Seeing Pieces in the Neptune Village, HWCSJSHL). Block Printing by Mr Li of Yizhou, The Qing Dynasty.

<sup>26</sup> Li Baoxun 李葆恂. *Wuyi youyizhai duhua shi* 無益有益齋讀畫詩 (Poem from reading paintings in the room named Profitless and Advantageous, WYYYZDHS). Jingshi block-printed edition, 1916.

<sup>27</sup> Actually, *Xuanhe huapu* is the first document which recorded Wei Xian's *The Water Mill* but I do not list it here because it did not describe the painting content or provide any information to prove *The Water Mill* in *Xuanhe huapu* is same as the one in this dissertation. All documents listed have reasonable proof related to this painting, for instance, the author had seen or owned *The Water Mill* and provided details of the handscroll. However, as Wei Xian's signature was forged, the original name of *The Water Mill* may different from the one that was widely known and accepted. This argument will be discussed in Historical Documents of the Chapter Cultural Biography. Nevertheless, apart from the listed literature, some documents also mentioned *The Water Mill*, such as Bian Yongyu's (1645–1712) *Shigutang shuhua huikao* 式古堂書畫匯考, Wang Yuxian's (about the 17th century) *Huishi beikao* 繪事備考, Sun Yueban's (1639–1708) *Peiwenzhai shuhua pu* 佩文齋書畫譜, etc. All of these catalogues only repeated the content of *Xuanhe huapu*, so I do not list these documents either.

<sup>28</sup> Prince Zheng was one of the princes of the Qing Dynasty. The relationship between *The Water Mill*

collections of the House Zheng was not a strange thing. The author Hu Jinzhao briefly mentioned this history in *Bainian Liulichang* 百年琉璃廠 (A Hundred Years of Liulichang).<sup>29</sup>

Hu Jinzhao does not pretend to appraise *The Water Mill* and his record only looked at the history of Liulichang where *The Water Mill* happened to be one artwork owned by the shop. Strictly, what both Li Baoxun and Hu Jinzhao record about *The Water Mill* cannot be called a monograph but only provides information on it. After the Qing Dynasty, some art historians noticed this *jiehua* and several academic research articles were published in *Wenwu*, *Yiyuan Chuoying*, *Art Bulletin*, etc. In this period, their studies show a tendency for comprehensive analysis.

After Li Baoxun found the signature “reverently painted by Wei Xian” on the painting, for a long while researchers believed it to be a Five Dynasties *jiehua*. In 1966, Zheng Wei wrote an article about *The Water Mill*, analysing its style, authorship, painting content, the water mill technique, colophons and related primary sources, which was the first academic article to introduce this *jiehua* and involved almost all aspects related to the painting.<sup>30</sup> This article references many historical documents and most of them are first-hand literature. He uses stylistic analysis methods to compare *The Water Mill's* ink and line with another painting by Wei Xian – *Gaoshi Tu* (Figure 9) and other paintings of the Five Dynasties such as *The Mount Lu* (Figure 10) and *Passing Through Mountains* (Figure 11).

*Gaoshi Tu* was widely believed to be an authentic work by Wei Xian.<sup>31</sup> This was not only because the handscroll has the full *Xuanhe* mounting style including seven seals and the

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and the House Zheng will be discussed in the Chapter Cultural Biography – Seals.

<sup>29</sup> Hu Jinzhao 胡金兆. *Bainian Liulichang* 百年琉璃廠 (A Hundred Years of Liulichang). Beijing: Contemporary China Publishing House, 2006, 90.

<sup>30</sup> Zheng Wei 鄭為. “開口盤車圖卷 (*The Water Mill* Handscroll)”, *Wenwu* vol 2 (1966), 17–25.

<sup>31</sup> Zhou Jiyin and Wang Fengzhu ed. *ZGLDHMDD*, vol. The Warring States Period to the Song Dynasty, 206., Yang Renkai 楊仁愷. *Zhongguo gudai shuhua jianding biji* 中國古代書畫鑒定筆記 (The Notes of Authentication on Ancient Chinese Paintings and Calligraphy, *ZGGDSHJDBJ*). vol 2. Shenyang: Liaoning People's Publishing House, 2015, 612., and Lao Jixiong 勞繼雄. *Zhongguo gudai shuhua jianding shilu* 中國古代書畫鑒定實錄 (A Complete Authentication and Documentation of Classical Chinese Calligraphy and Paintings, *ZGGDSHJDSL*). vol 2. Shanghai: Orient Publishing Centre, 2011, 1016.

painting's name is recorded in *Xuanhe huapu* under the entry of Wei Xian but also the painting content reflects the characteristics of the Five Dynasties.<sup>32</sup> This painting was recorded in *YYGYL* by Zhou Mi,<sup>33</sup> *Qinghe shuhua fang* 清河書畫舫 by Zhang Chou,<sup>34</sup> *Gengzi xiaoxia ji* 庚子消夏記 by Sun Chengze,<sup>35</sup> *Moyuan huiguan* 墨緣匯觀 by An Qi<sup>36</sup> and *Shiqu suibi* 石渠隨筆 by Ruan Yuan.<sup>37</sup> These books showed the painting's collection history which supported the authenticity of *Gaoshi Tu*. However, in most art historians' opinion, *The Mount Lu* is an imitation painting of the Jing Hao style by the imperial art academy of the Northern Song Dynasty and the hanging scroll *Passing Through Mountains* probably belongs to a later generation following the Guan Tong style in terms of its slightly simplified and awkward texturing of the mountains.<sup>38</sup> As the signature of Wei Xian was proved to be a forgery, these comparisons seem not that convincing.

Zheng Wei's research was based on material culture study. From the artist's introduction to the water mill's structure, he used abundant examples to explain his opinion that *The Water Mill* is a Five Dynasties to early Song painting by the famous *jiehua* artist Wei Xian. Moreover, from the historical position of *jiehua* and content of the water mill, it was affected by a sociological viewpoint. Zheng Wei thought the water mill theme related to the historical background that the governor wanted to re-establish the agriculture destroyed by the continuous wars that happened in the Five Dynasties, so such themes were welcomed and encouraged by the ruling class. He was the first to analyse the architecture of *The Water Mill* and used archaeological materials to compare objects in the painting. Overall, Zheng Wei's research on *The Water Mill* is an integrated study, especially in methodology. Finally, he concludes it is Wei Xian's work painted around the end of Tang and early Song Dynasty. But in this article, all researches based on an

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<sup>32</sup> This dissertation will not *Gaoshi tu* further, but anyone who is interested in this painting can find more information in Wang Xin 王欣. "Wei Xian's *Gaoshi Tu*", *Forbidden City* vol 1 (1985), 10–11.

<sup>33</sup> Zhou Mi, *YYGYL*.

<sup>34</sup> Zhang Chou 張醜 (Ming Dynasty). Xu Deming 徐德明, eds. *Qinghe shuhua fang* 清河書畫舫. Shanghai: Shanghai Ancient Books Press, 2011.

<sup>35</sup> Sun Chengze 孫承澤 (Qing Dynasty). *Gengzi xiaoxia ji* 庚子銷夏記. Hangzhou: Zhejiang People's Fine Arts Publishing House, 2012.

<sup>36</sup> An Qi 安岐 (Qing Dynasty). *Moyuan huiguan* 墨緣匯觀. Guangzhou: Lingnan Fine Arts Publishing House, 1994.

<sup>37</sup> Ruan Yuan 阮元 (Qing Dynasty). *Shiqu suibi* 石渠隨筆. Hangzhou: Zhejiang People's Fine Arts Publishing House, 2011.

<sup>38</sup> Watson, William. *The Arts of China 900–1620*. New Haven: Yale University Press, 2000, 3.

established presupposition that he believed the author is Wei Xian. Some typically characteristics of the middle even late Song was ignored by Zheng Wei, for instance, the style of *ang* of the main water mill hall is lute-face *ang* which was used since the late Song Dynasty.<sup>39</sup>

Nevertheless, he overturned his original research after 12 years. In another article with the same title,<sup>40</sup> he corrected his point of view that *The Water Mill* was painted by Wei Xian. Although the short paper only has half a page of text, he also had a significant find when remounting the painting – there has another signature above the one of Wei Xian. It seemed to belong to a person whose surname was Zhang. But Zheng Wei still held his opinion that the creation time of *The Water Mill* was no later than the early of the Northern Song Dynasty.

Dai Liqiang speculated that *The Water Mill* was painted by Zhang Zeduan based on Zheng Wei's observation. The current painting size is not the same as that recorded by Li Baoxun. Here, Dai Liqiang had a different opinion from Zheng Wei. He did not accept Zheng Wei's conclusion that the different size was because of Li Baoxun's false memory. Dai Liqiang held the view that *The Water Mill* was once cut down so its former separator and some images were lost and the trace lines of two Xuanhe seals were forged. Dai Liqiang also compared costumes, architecture, water mill and painting structure between *The Water Mill* and *Along the River During the Qingming Festival*, and gave his suggestion that *The Water Mill* was created by Zhang Zeduan.<sup>41</sup>

Another who believed the word “Zhang” on this *jiehua* means Zhang Zeduan is Roderick Whitfield. He suggested that Zhang Zeduan once learned from Wei Xian and *The Water Mill* is a piece by Wei Xian but presented by Zhang Zeduan.<sup>42</sup>

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<sup>39</sup> More information about *ang* will be discussed in Chapter 3 – The Hall of the Water Mill.

<sup>40</sup> Zheng Wei. “*The Water Mill* Handscroll”, (1978) 38–46.

<sup>41</sup> Dai Liqiang 戴立強. “《開口盤車圖》作者為張澤端說 (Zhang Zeduan is the author of *The Water Mill*)”, *Weekly of China's Cultural Relics* 7th edition (4 July 2007).

<sup>42</sup> “Zhang Zeduan's relationship to his master [Wei Xian] is much like that of Bernardo Bellotto (1720–80) to his uncle Antonio Canal (Canaletto, 1697–1768), adopting similar subject-matter but with a distinctive style, ... Zhang Zeduan was active much earlier than was previously thought possible, and



Furthermore, a team involved in authenticating ancient Chinese paintings and calligraphy including Xu Bangda, Yang Renkai, Xie Zhiliu and Fu Xinian believed it is a Song Dynasty painting.<sup>43</sup> Heping Liu holds the similar opinion to the authentication team for the creation period of *The Water Mill*, the early Song Dynasty, by analysing the water mill and its historical documents, especially hydrological and geological evidence. He paid more attention to discussing commercial and economic aspects, using this image as an example of Song genre painting.<sup>44</sup>

Yu Hui also used geology and hydrology documents to identify the era of *The Water Mill*.<sup>45</sup> He proved it was an official water mill which is recorded in *Songshi* 宋史 (History of The Song Dynasty), in the chapter “River and Canals”.<sup>46</sup> According to this material, the water mill on the *jiehua* was located on rivers outside the eastern gate of Bianjing 汴京 (current Kaifeng city of the Henan province, the capital city of the Northern Song Dynasty). In addition, his paper is one of those which discussed the background and history behind *The Water Mill*. Yu Hui related the water mill theme to political reform activities<sup>47</sup> of the Northern Song Dynasty, presenting an art history insight.

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that he almost certainly learnt his trade not merely at the capital but from Wei Xian himself, early in the eleventh century. With this understanding, even the tantalizing scrap of inscription discovered on the edge of *Zhakou panche tu*, ‘Zhang...jin...’ invites interpretation as recording Zhang Zeduan’s presentation to the Song court of his teacher Wei Xian’s masterpiece, from whom and from which he had learnt so much.” From Roderick Whitfield. “Material Culture in the Northern Song Dynasty”, 63–64.

<sup>43</sup> Ancient Chinese Painting and Calligraphy Research Centre of Zhejiang University, *SHQJ*, vol 2–1., Zhou Jiyin *et al.*, ed. *ZGLDHMDD*, vol The Warring States Period to the Song Dynasty, 206–207., Connoisseurs Group for The Ancient Chinese Paintings and Calligraphy. *Zhongguo huihua quanji* 中國繪畫全集 (Chinese Paintings Collections, *ZGHHQJ*). vol Five Dynasties, Song, Liao and Jin 2. Beijing: Cultural Relics Press, 2014, 12–13., and Connoisseurs Group for The Ancient Chinese Paintings and Calligraphy. *Zhongguo gudai shuhua mulu* 中國古代書畫目錄 (The Catalogue of Ancient Chinese Paintings and Calligraphy, *ZGGDSHML*). Beijing: Cultural Relics Press, 1987.

<sup>44</sup> Liu, Heping. *Painting and Commerce in Northern Song Dynasty China, 960–1126*. PhD Dissertation, Faculty of the Graduate School of Yale University, 1997, and Liu, Heping. “*The Water-Mill*”, 565–595.

<sup>45</sup> Yu Hui 餘輝. “Function of Geology in Identification”, 93–96.

<sup>46</sup> Tuo Tuo 脫脫 (Yuan Dynasty) *et al.*, ed. *Songshi* 宋史 (History of The Song Dynasty). Beijing: Zhonghua Book Company, 1979, vol 44–50.

<sup>47</sup> The conflict between the Old and the New Parties (*xinjiu dangzheng* 新舊黨爭). In Yu Hui’s article, he pointed out that Li Ding (1028–1087) can get benefit from the water mill, who was the disciple of Wang Anshi (1021–1086), the leader of reformers. Li Ding had accused Shushi (1037–1101), the leader of the Old Party, of his poems that complained and calumniated the emperor, which caused convicting of Shushi, also implicated his brother Su Zhe (1039–1112). After 1086 when Li Ding died, Su Zhe began to denounce Li Ding and the water mill, which was the counterattack from the Old Party to the New Party. (Yu Hui 餘輝. “Function of Geology in Identification”, 93.)

In comparison, Li Chongzhou paid more attention to the technology in the painting. In his paper, he discussed the history of the development and evolution of the flour sieve technique. As a paper from an engineering view, it provides more professional knowledge about the machine than other researchers. By comparing the flour sieve powered by water of *The Water Mill* and a still used example in Yichang city, Hubei province, which keeps the tradition of the Song Dynasty, he drew the conclusion that they used the same technique.<sup>48</sup> This is an article to authenticate painting from mechanical engineering and to provide an interdisciplinary research between the engineering science and the humanities. In this dissertation, more study from geographical, mathematical and phytological views will be used to discuss the image content of *The Water Mill* in Chapter 3.

Recently, Jerome Silbergeld mentioned this *jiehua* in his chapter “All Receding Together, One Hundred Slanting Lines: Replication, Variation, and Some Fundamental Problems in the Study of Chinese Paintings of Architecture” and found some problems.<sup>49</sup> He pointed out that the *Xuanhe* mounting style and *Xuanhe* seals are key to authenticate *The Water Mill*'s era and the position of the seals provides the original size of this painting but he added “although the painting may be longer at each side when it was created”.<sup>50</sup> In the thesis, he asks several questions about architectural details to query the time of *The Water Mill* but does not give answers. Finally, he came to the conclusion that we cannot treat *jiehua* painting as a photograph and it cannot reflect reality entirely. I agree with his opinion that each painting was added to by the artist's creativity and knowledge, the relationship between paintings and the reality is not like photographic technique. But an analysis of painting and its details still needs to be done.

The latest research on *The Water Mill* is Mei Hao's paper in *Art Market*.<sup>51</sup> The author

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<sup>48</sup> Li Chongzhou 李崇州. “《開口盤車圖》中水擊面羅的興衰演變及歷史發展 (Development, Evolution and Vicissitude of The Water Flour Sieve in *The Water Mill*)”, *Agricultural Archaeology* vol 3 (2015), 198–206.

<sup>49</sup> Silbergeld, Jerome. “All Receding Together, One Hundred Slanting Lines”, 131–150.

<sup>50</sup> Ibid. 136.

<sup>51</sup> Mei Hao 梅豪. “國寶《開口盤車圖》是衛賢作品? (The National Treasure *The Water Mill* was painted by Wei Xian?)”, *Art Market* vol 2 (2019), 74–77.

compared the *chiwen* 鴟吻<sup>52</sup> of *The Water Mill* to an excavated item from Shangjing Longquanfu 上京龍泉府<sup>53</sup> and the *chiwen* of paintings by Ma Yuan and Li Song,<sup>54</sup> then concluded that the *chiwen* of *The Water Mill* was more like the Tang style than the Southern Song style. From other comparisons of *xuanyu* 懸魚,<sup>55</sup> *erfang* 耳房,<sup>56</sup> *tadao xiangyan* 踏道象眼,<sup>57</sup> etc., this comprehensive article provides some new material to support the author's conclusion that this is a copy of Wei Xian's original painting by an artist of the middle or late Northern Song Dynasty. However, this paper does not explain the signature by the person whose surname was Zhang.

To summarise, from the time *The Water Mill* was created until the Qing Dynasty, not much was written about it. But in recent years, more scientific research has been done by both eastern and western outstanding art historians. Some use stylistic analysis and material culture methods relying on visual materials, while others focus on geology, hydrology and sociology to explore historical issues behind the painting itself. Whatever the conclusion, each discovery promotes understanding of *The Water Mill* and facilitates further research. In spite of the fact that there is still no result for the authorship and date of *The Water Mill*, this thesis attempts to produce another study with interdisciplinary approaches based on previous research.

## Methodology

According to the Oxford Dictionary, the definition of authentication in English is: The process or action of proving or showing something to be true, genuine, or valid.<sup>58</sup> While in its technical art-historical sense, it means the determination of the authorship, date or place of origin of an art object on the basis of close examination and comparison. Based

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<sup>52</sup> *Chiwen* 鴟吻/螭吻 or *chiwei* 鴟尾 is the fish-like, hornless dragon with a truncated body and a large, wide mouth, which usually found along roof ridges (as if swallowing the roof beams). Its presence on roofs is also said to guard against fires (Welch, Patricia Bjaaland. *Chinese Art: A Guide to Motifs and Visual Imagery*. North Clarendon: Tuttle Publishing, 2013).

<sup>53</sup> Shangjing Longquanfu 上京龍泉府, an archaeological site of the Bohai Kingdom (698–926) which was a regime that existed at the same time as the Tang Dynasty, in Ning'an, Heilongjiang province.

<sup>54</sup> Unfortunately, the paper does not provide the name of the specific paintings nor any image.

<sup>55</sup> *Xuanyu* 懸魚 (hanging fish): Architectural ornament which looks like a hanging fish.

<sup>56</sup> *Erfang* 耳房 (ear rooms): Appentice, sideward rooms of the main building.

<sup>57</sup> *Tadao xiangyan* 踏道象眼 (elephant eyes of steps): The triangular portion of the side of the step.

<sup>58</sup> <https://en.oxforddictionaries.com/definition/authentication> accessed 6 May 2017.

on Schwartz, what the connoisseur does is to define a relation between an existing work and a historical category. But the disappearance from sight of the entire oeuvre of many documented masters distorts the record, so that the connoisseur's categories do not correspond to historical reality. In this position, poetry, government records, contracts, inventories, testaments, treatises, biography or other historical information can all be used to aid authentication.<sup>59</sup>

This section mainly focuses on the methodologies used in the dissertation. Although each research method has its own advantages and disadvantages and one paper cannot use them all, this thesis still tries to use the following in an inter-disciplinary approach to discussing *jiehua* and *The Water Mill*. (The following content ranked in no particular order.)

### **Stylistic analysis**

Stylistic analysis is the most traditional and the oldest method in authentication and it was also the mainstream method before the late 20th century. Meyer Schapiro defines style as “the constant form – and sometimes the constant elements, qualities and expression – in the art of an individual or a group” and adds an assumption that “works in the style of one time could not have been produced in another”.<sup>60</sup> The early publications of Wen Fong such as *Summer Mountains*<sup>61</sup> and *Images of the Mind*<sup>62</sup> are two examples of stylistic analysis applied to authentication. In Gary Schwartz's *Connoisseurship: The Penalty of Ahistoricism*, he provides a concept that, in essence, authentication is comparing an object with its historical category. In other words, there are two elements: “One, the categories are formed by works whose authorship is firmly documented. Two, defining the relation is an analytic technique whose intricacies can be explained.”<sup>63</sup> Art historians

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<sup>59</sup> Schwartz, Gary. “Connoisseurship: The Penalty of Ahistoricism”, *Artibus et Historiae* vol 9 (1988), 203.

<sup>60</sup> Schapiro, Meyer, *et al. Theory and Philosophy of Art: Style, Artist, and Society*. vol 4. New York: George Braziller, 1994.

<sup>61</sup> Fong, Wen. *Summer Mountains: The Timeless Landscape*. New York: Metropolitan Museum of Art, 1975.

<sup>62</sup> Fong, Wen C., and Art Museum of the Princeton University. *Images of the mind: selections from the Edward L. Elliott Family and John B. Elliot collections of Chinese calligraphy and painting at the Art Museum, Princeton University*. New Jersey: Princeton University Press, 1984.

<sup>63</sup> Schwartz, Gary. “Connoisseurship: The Penalty of Ahistoricism”, 201–206.

established an artist's style by his oeuvre and each artist's style consisted of a dynasty style. This approach was created and widely accepted by ancient Chinese art historians and connoisseurs. Almost no existing scholarly aesthetic and art historical books denied stylistic analysis until the modern times. In fact, it was an effective approach that was used in the period when people could not get enough information and could not readily compare paintings. Even now, authentication of landscape paintings still mainly depends on stylistic analysis.

But here lies a paradox – “Without knowledge of styles, we cannot judge authenticity of individual works and without convictions about authenticity, we cannot form concepts of style.”<sup>64</sup> It was common that an artist has only a few surviving pieces and in this case, there is no “oeuvre” to reference. However, as Gary Schwartz points out, “if the connoisseur establishes the relation between a work and a category by ad hoc means and if the categories themselves are demonstrably inaccurate, of what value can a connoisseur's attribution be?”<sup>65</sup>

Additionally, ancient Chinese connoisseurs always used vague words to describe or distinguish splendid work from common pieces or pastiche. Xie He (479–502) placed “spirit resonance” as the most important element in *The Six Principles of Chinese Painting*<sup>66</sup> but no one can be exactly sure what it is for a given painting. In essence, the vital resonance or what these artists emphasized in the paintings is a subjective feeling, like the literal meaning, “spirit resonance” related to the subjectivity of our faculty of perception which is better to sense rather than analyse. And for people who have a

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<sup>64</sup> Loehr, Max. “Some Fundamental Issues in the History of Chinese Painting”, *The Journal of Asian Studies* vol 2 (February 1964), 185, 187.

<sup>65</sup> Schwartz, Gary. “Connoisseurship: The Penalty of Ahistoricism”, 203.

<sup>66</sup> *The Six Principles of Chinese Painting* was first presented by Xie He in his *Guhua pinlu*. Victor H. Mair has transferred the six principles into English, the text is: What are these Six Laws? First, Vital Resonance (*qi yun* 氣韻), that is, the engendering of movement (*shengdong* 生動); second, Bone Method (*gufa* 骨法), that is, the usage of the brush (*yongbi* 用筆); third, Correspondence to the Object (*yingwu* 應物), that is, the imaging of form (*xiangxing* 象形); fourth, Accordance to Type (*suilei* 隨類), that is, the application of colour (*fucai* 賦彩); fifth, Arrangement and Construction (*jingying* 經營), that is, positioning and placement (*weizhi* 位置); sixth, Transmission and Transfer (*chuanmo* 傳模), that is, modelling an depiction (*yixie* 移寫). More content can be found in Victor H. Mair, “Xie He's ‘Six Laws’ of Painting and Their Indian Paralels”, in *Chinese Aesthetics: The Ordering of Literature, the Arts, and the Universe in the Six Dynasties*. Cai Zongqi ed. Honolulu: University of Hawaii Press, 2004, 81–122.

different experience, age, class, they may not feel the same subjective emotion as the artist or connoisseur. Based on this subjective judgement criteria and the more subjective approach of connoisseurship, an all too hypothetical opinion,<sup>67</sup> it is hard to authenticate on paintings from long ago, because of a lack of documentary materials and contemporaneous pieces.

However, *jiehua* and architecture have standards, which present precise buildings that can be authenticated by other methods such as cultural biography research, material culture study, etc. In other words, they can withstand intellectual scrutiny in the history of art field. Therefore, the stylistic analysis method will be used but only in a limited way when researching *The Water Mill*.

### **Iconographical analysis**

A branch of art history, iconographical analysis can be seen as a visual study, based on the image content, with researchers focusing on the identification, description and interpretation of the image. In the early period, it was used to interpret religious art works but since the 20th century, iconographical analysis had more meanings. Erwin Panofsky provided his famous idea of three levels of art historical understanding: natural meaning, iconographical meaning and contextual meaning.<sup>68</sup> Specific to *The Water Mill*, the natural meaning is the painting itself and its mounting. Namely, the first level is the most basic information, what we see by looking without any cultural observation. The iconographical meaning will include material culture study such as interpreting of phenomena and symbol. In this painting, the symbolic meaning of the decorative structure and the words “new alcohol” are a conventional subject matter and most cultural biography analysis also belongs to this step. The third level is the intrinsic meaning of an art piece in a specific historical context. Although personal experience will affect how and what the art historians to do with the work, contextual analysis still provides more points of view for understanding paintings. Yu Hui’s research relating *The Water Mill* to the agricultural

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<sup>67</sup> Schwartz, Gary. “Connoisseurship: The Penalty of Ahistoricism”, 205.

<sup>68</sup> Panofsky, Erwin. *Studies in Iconology: Humanistic Themes in the Art of the Renaissance*. New York: Routledge, 1972.

status of the early Song Dynasty is an illustration of the third level of understanding. In Marjorie Munsterberg's opinion, iconographical analysis

establishes the meaning a work of art had at the time it was made. ... Any particular time or place provides different possible audiences, each of which will demand specific kinds of information and make certain assumptions. The iconographic argument always depends upon assembling historical evidence to reconstruct these things.<sup>69</sup>

### **Material culture study**

This is the analysis of material objects appearing in the painting. In the development of studies of Chinese art history, evidence-based judgement has been paid increasing attention. A great number of scholars have conducted their research using this method, for example, Hung Wu,<sup>70</sup> Roslyn Lee Hammers<sup>71</sup> and Huang Xiaofeng.<sup>72</sup> This kind of inter-disciplinary methodology came from the Western history of art, related to sociology, archaeology, anthropology and folklore. As mentioned before, material culture study can be seen as a tool which not only supports iconographical study but also sustains the cultural biography. For instance, the hydrological and geological view of Heping Liu's dissertation and mechanical engineering research of Li Chongzhou are all subparts of material culture study of *The Water Mill*. Whatever methods are used in this thesis, historical materials, documents and literature are necessary to decode most objects and activities of the painting. But in this process, how one can distinguish and balance different information is another challenge. It cannot be denied that material culture study has superiority in its research of detail, but at the same time, one should avoid over-interpretation. When artists create original artworks, they always add to their own experience, knowledge and observation, and an art piece, even a still life painting or realistic painting, cannot be treated as a photograph. So material culture study can be

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<sup>69</sup> Munsterberg, Marjorie. *Writing about art*. www.writingaboutart.org, 2009.

<sup>70</sup> Wu, Hung. *The Wu Liang Shrine: The Ideology of Early Chinese Pictorial Art*. La Vergne: Stanford University Press, 1989.

<sup>71</sup> Hammers, Roslyn Lee. *Pictures of Tilling and Weaving: Art, Labor, and Technology in Song and Yuan China*. Hong Kong: Hong Kong University Press, 2011.

<sup>72</sup> Huang Xiaofeng 黃小峰. 張萱《虢國夫人游春圖》(Zhang Xuan's *Spring Outing of the Tang Court*). Beijing: Cultural Relics Publishing House, 2010.

used in analysis of detail but if each detail is over-interpreted, no conclusion will be produced.

## **Cultural biography**

The cultural biography or object biography of an art piece begins as soon as it is created. According to Gerog Simmel, value is never an inherent property of objects, but is a judgement made about them by subjects.<sup>73</sup> Taking *The Water Mill* as an example, who has owned it; who has seen it; who has written colophons or inscriptions on it; whose seals are stamped on it; all of these are cultural biography and they become part of the value of this painting. Sometimes, a cultural biography can be the key point in authentication; and sometimes the cultural biography of a painting can be more significant than the piece itself. *The Night Banquet* by De-Nin D. Lee is a good example of using cultural biography in Chinese painting study.<sup>74</sup> From a historical perspective, the creative purpose of painting was different and when present-day researchers or audiences are viewing the pieces, this issue should be considered. In *The Night Banquet*, they are two ways to view it – a hedonistic pleasure or a moral lesson. Besides, the unique way of viewing a handscroll presents a successional experience and different from Western collectors, Chinese collectors like to leave their own trace on a painting – an inscription, a stamp, or a signature. There is also a difference between the framed style and handscroll model – the size of a framed painting has been settled but a handscroll can be added to with unlimited trailer paper. A famous artwork may have dozens of colophons and seals while a positive evaluation from a reputable collector or an art historian may increase awareness of a painting.<sup>75</sup> From *The Water Mill's* cultural biography, we can establish its collection history and comments from previous viewers and owners which also could support authentication.

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<sup>73</sup> Simmel, Georg. *The Philosophy of Money*. New York: Routledge, 2004, 68.

<sup>74</sup> Lee, De-nin Deanna. *The Night Banquet: A Chinese Scroll Through Time*. Seattle: University of Washington Press, 2010.

<sup>75</sup> "The reading of ... colophons is for the Chinese a part of the experience of seeing the picture, since they reveal how it was enjoyed and evaluated by earlier connoisseurs." From Cahill, James. *Chinese Painting*. New York: Rizzoli International Publications, 1978 (New edition), 95.



## **Sociological view**

The sociological view used in art history was a popular method. Although iconographical analysis and material culture study also reference the sociological aspect to some extent, for this thesis, discussing the position of *jiehua* in Chinese history of art cannot avoid considering the background of a particular period. When discussing *jiehua* rather than *The Water Mill*, a development history and a more macroscopic context should be considered. In this case, the primary sources play a significant role. From the first appearance of architectural painting, each dynasty's art historians and aestheticians worked on evaluating it. They compared it with other types of painting such as landscape, birds and flowers, portrait and religious. They tended to judge different paintings from a Chinese ideology and this ideology had an effect on the popularity of *jiehua*. Moreover, the theme of carts and a water mill is an unusual topic and it was only popular for a short time in history which may represent a policy or economic condition of a particular dynasty. Using the sociological view to analyse *The Water Mill* and *jiehua* provides an art historical perspective to authentication.

## **Archaeological view**

Strictly speaking, this should belong to the material culture study method but I would like to emphasize it separately. Using archaeological objects to authenticate ancient pieces is not new. Particularly for unattributed and undated work such as *The Water Mill*, unearthed objects can supply references for authentication because archaeological relics usually have a source. In this painting, costume is a good example of archaeological objects. The official costumes of a period, for example, can be compared to what people wear in *The Water Mill*. From the shape, standard and grade of different dynasties, we could find out when it depicted, although this would also require supporting historical documents. The archaeological objects are supplementary evidence of the literal material and this information could support or correct a researcher's assumption. Unfortunately, there is little existing architecture of the Song Dynasty, but there still exist some murals, in tombs and temple frescos. Despite not being representational paintings, not presenting objective architecture as foundational function, in the main, these artworks may offer an

artistic way to observe *jiehua* – treating artworks as subjective expression. One thing to take into consideration is that occupants of surviving tombs were nobility, therefore, their burial objects may not reflect all situations. In addition, we should still pay attention to cases between the changes of dynasties, characteristic of the remote region, may show a hysteretic phenomenon.

Overall, the current authentication of ancient Chinese paintings and calligraphy is still primarily based on non-destructive approaches. This is not only to protect the objects but also due to the possibility of error in high-technology methods of authentication, especially in some complicated cases such as using ancient silk and paper to make a forgery or piecing more than one genuine painting together into a pastiche.<sup>76</sup> Although methodologies depending on human observation cannot avoid subjectivity, in this thesis I would like to try an inter-disciplinary way to reduce the influence of this. Therefore, to authenticate *The Water Mill*, a rare unique architectural painting, stylistic analysis is not the main method but I use material culture study, iconographical analysis and cultural biography study, aided by sociological and archaeological views. Also, the thesis will avoid treating artwork as photography but will discuss the relationship between art and reality in detailed analysis.

In summary, *The Water Mill* shows a daily scene around an official water mill. As a rare *Xuanhe* mounting style architectural and genre painting, it also reflects social activities and customs. But such an excellent art piece with high research value and the value of aesthetic appreciation only has four colophons and few historical documents recorded it. *Jiehua's* low position in the history of Chinese art and traditional Chinese aesthetics played significant roles in this case. After the 1960s, more scholars began to use comprehensive and interdisciplinary approaches to study this painting. Each of them provided creative argument and promoted understanding of *The Water Mill*. Based on previous research, this dissertation tries to produce another study with interdisciplinary

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<sup>76</sup> This will be discussed in Chapter 1 – Methods of Forging.

methods and conclude a new conclusion about the potential artist and time of creation. It will analyse the cultural biography and painting content of *The Water Mill*, by using stylistic analysis, iconographical analysis, material culture study, sociological and archaeological views.

## Chapter One: Background

### History of *Jiehua* and Its Position in the History of Chinese Art

*The Water Mill* is a *jiehua* painting, as well known as an architectural picture, but the definitions of *jiehua* and architectural painting are slightly different. The word *jiehua* was created to describe paintings which used particular tools – *jiechi* (界尺, a kind of ruler), *jiebi* (界筆, line-brush), compass and square<sup>77</sup> – to draw straight lines of architectures since the Northern Song Dynasty. According to Anita Chung, the terms *jiebi* and *jiechi*, which are the tools used for producing straight lines, were mentioned in the literature well before the appearance of the term *jiehua*.<sup>78</sup> Later, in a general sense, the word *jiehua* also included carts, ships, wooden structures and folk-custom activities. Although the term *jiehua* is included within the architectural paintings, to understand *jiehua*'s position in the history of Chinese art, we should firstly research on architectural paintings' position in the history of Chinese art. Ancient connoisseurs, their attitudes against the architectural paintings also reflect a tendency in traditional Chinese aesthetics. Therefore, the history of the architectural image influenced *jiehua* and its position, so this section will begin with the history of the architectural images.

According to Fu Xinian, the earliest image presenting architecture is a lacquer painting which was found in a tomb of the late Spring and Autumn period in Zuojiazhuang, Linzi city, Shandong province (Figure 12). He also pointed out that drawing on lacquer requires greater technology than painting on silk or paper, and this decorative figure perhaps evolved from architectural paintings, so it can prove that since the Spring and Autumn era, architectural elements had been used in decorations.<sup>79</sup> Then, more complicated structures were presented on bronze vessels in the Warring States period. Although perspective was lacked, almost all images found at this time illustrated buildings from a frontal elevation or in profile (Figure 13), and it can nevertheless be seen that painters tried to express the scene in a macroscopic view.

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<sup>77</sup> Maeda, Robert J. "Chieh-Hua: Ruled-Line Painting in China", *Ars Orientalis* (1975), 123.

<sup>78</sup> Chung, Anita. *Drawing Boundaries*, 9.

<sup>79</sup> Fu Xinian 傅熹年. "中國古代的建築畫 (Architectural Paintings in Ancient China)", *Wenwu* vol 3 (1998), 75.

During this time, lack of scientific knowledge led to worship of nature. People cannot explain the natural phenomena such as thunder, lightning, flood and earthquake. Fear of the unknown was the psychological basis of religion.<sup>80</sup> Art was related to ritual context and mystery worship.<sup>81</sup> Most figures on bronzes, ritual objects and even everyday objects were decorated with abstract patterns showing representational animals, mythic animals or geometric figures in order to awe people.<sup>82</sup> The basic functions of architectural pictures were decoration and record. At this time, the architectural image was always used as background or a part of a scene.

During the Han Dynasties, more architectural decorations were discovered in tomb murals, furthermore, since simple frontal and profile representations did not satisfy the sponsor, artisans explored how to show three-dimensionality. In the mural of Dahuting, an Eastern Han tomb of about the 1st century, the *Banquet Scene* shows a great example of people already presenting perspective architecture (Figure 14). Another tomb of the late Eastern Han Dynasty, the Horinger Tomb, has more than 100 square metres of mural, including images of several cities', for instance, Fanyang 繁陽, Ningcheng 寧城, Lishi 離石, Wucheng 武城 and a great number of architectural elements such as gates, towers, manors, offices and docks.<sup>83</sup> Figure 15 is a line drawing of Ningcheng city. Although the mural has more than one perspective point, it tried to construct complex building groups and provided a successful result for that period. At the same time, a great number of pottery houses were excavated, which can be seen as the model of wealthy people's residences (Figure 16). These pottery structures showed architecture from plain cottages to luxurious house with courtyards and towers, including livestock units, tomb owner's houses, memorial temples and gardens. Up to the Han Dynasties, artisans could sculpt elaborate architectural structures, even presenting window lattices and mythical creatures on eaves.

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<sup>80</sup> Hume, David, Anthony Wayne Colver, and John Valdimir Price. *The Natural History of Religion*. Oxford: Clarendon Press, 1976. Section XIII.

<sup>81</sup> Wu, Hung. "Art in A Ritual Context: Rethinking Mawangdui", *Early China* vol 17 (1992), 111–144. and Wu, Hung. Zheng Yan 鄭岩 trans., *Liyi zhongde meishu 禮儀中的美術* (Art in its ritual context – Essays on Ancient Chinese Art by Wu Hung), 2 vols., Beijing: Sanlian shudian, 2005.

<sup>82</sup> Zuo Qiuming 左丘明 (Spring and Autumn Period), *Zuozhuan 左傳*. Changsha: Yuelu Press, 2001.

<sup>83</sup> Kim, Minku. "Claims of Buddhist Relics in the Eastern Han Tomb Murals at Horinger: Issues in the Historiography of the Introduction of Buddhism to China", *Ars Orientalis* vol 44 (2014), 135–154.

Not only art pieces are unearthed, it was a prosperous period for aesthetic theories during the 3rd to 5th centuries. Lu Ji (261–303), a writer and a literary critic who lived in the late Three Kingdoms and the Jin Dynasty, had claimed that words and language were the best way to demonstrate principled matters while painting was the best approach for recording images.<sup>84</sup> In the Southern and Northern Dynasties, many Buddhist murals and grottoes were built, such as Dunhuang Grottoes, Longmen Grottoes and Yungang Grottoes. The palaces in Heaven were based on real architecture. Moreover, the rudiments of ancient aesthetic principles in Chinese history of art were shaping, for instance, Xie He's The Six Principles of Chinese Painting and *Lunhua* (Essay on Painting) by Gu Kaizhi (c. 348–409). But for thousands of years, architectural painting did not have an appropriate name.

The word *jiehua* was produced in the process of establishing painting categories. To begin with, people only used descriptive words for architectural paintings. From the Eastern Jin Dynasty, Gu Kaizhi first ranked different painting styles in a text attributed to him – *Lunhua*, where architectural painting was put to the bottom of all painting styles:

In painting, human figures are most difficult, and then landscape, then dogs and horses. Towers and pavilions are fixed objects, difficult to complete but easy to render well and not dependent on a marvellous realization of the conveying of thought.<sup>85</sup>

Here, Gu Kaizhi wrote “*taixie* 台榭 ( towers and pavilions)” instead of architectural paintings or *jiehua*. This rank was influenced by his aesthetic opinion – which affected almost all subsequent aesthetic theories and resulted in architectural painting always having been in a lower position in the painting hierarchy in the history of Chinese art. According to Gu Kaizhi, an artist should entirely understand the object he wants to present and add his emotion to it, in other words, empathy. Only in this way could vivid figures be presented. Architecture has its own standards and principles which limits space

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<sup>84</sup> Lu Ji 陸機 (Western Jin Dynasty), *Luji ji* 陸機集(Collected Works of Lu Ji). Beijing: Zhonghua Book Company, 1982.

<sup>85</sup> Bush, Susan and Hsio-yen Shih. *Early Chinese Texts on Painting*. vol 1. Hong Kong: Hong Kong University Press, 2012, 24. Original text: 凡畫，人最難，次山水，次狗馬。台榭，一定器耳，難成而易好，不待遷想妙得也。此以巧歷不能差其品也。Which comes from Chen Chuanxi 陈传席. *Liuchao hualun yanjiu* 六朝画论研究 (Research on the Artistic Theories of the Six Dynasties). Tianjin: Tianjin People's Fine Arts Publishing House, 2006, 43.

for artistic creation, and so architectural paintings are considered to have less empathy than other painting types.

Xie He (479–502) developed this theory into his six principles when judging a painting.<sup>86</sup> Above all, the vital resonance, or in other words, spirit resonance was listed as the most important of the principles. Gu Kaizhi believed the same. What was the reason for this? The philosophical thought popularized during the Jin Dynasties can answer the question to some extent.

Aesthetics and philosophy are inseparable. Before the end of the Eastern Han Dynasty, Confucianism was the mainstream in Chinese culture but with the united dynasty splitting, people suffered more than 200 years of troubled times when they did not believe in what Confucianism emphasizes – the family and social harmony. Xuanxue 玄學, Neo-Taoism, based on theories of Laozi<sup>87</sup> and Zhuangzi<sup>88</sup> appeared at this time, mainly researching mysterious, profound, abstruse and arcane issues. It can also be understood as metaphysics, spiritualism and mysticism. Although there is no direct evidence can prove that Xuanxue affected the contemporaneous art, it is easy to see the relationship between spirit resonance and the core theme of Xuanxue – both of them emphasize the internal spirit which is ambiguous and hard to express by language. It was this ambiguous principle that has a great influence on future aesthetic conceptions.

In the Sui and Tang Dynasties, more architectural artists and their works were recorded. Zhang Yanyuan mentioned Yan Pi 閻毗 (564–613), Yan Liben 閻立本 (601–673), Yan Lide 閻立德 (596–656), Yang Qidan 楊契丹 (?–?), Zhan Ziqian 展子虔 (c. 545–618) and Tan Zhimin 檀智敏 (c. 605–after 649) in the *Lidai minghua ji* (Record of Famous

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<sup>86</sup> The Six Principles of Chinese Painting has been discussed in the Introduction section at page 35.

<sup>87</sup> Laozi 老子(6th to 5th century BC to 531 BC), whose original name was Li Er and Laozi is an honorific title. He was a philosopher and a writer, as well as the author of *Daodejing*. Laozi is regarded as the founder of Taoism which central concept is non-action. (Lao Zi 老子, Wang Bi 王弼 annotated. *Daodejing* 道德經. 光緒元年浙江書局據華亭張氏本校刊, 1875.)

<sup>88</sup> Zhuangzi 莊子(369 BC–286 BC), whose original name was Zhuang Zhou and Zhuangzi is an honorific title. He has an eponymous book (also called *Nanhuajing*) which expresses his philosophical idea – not emphasizing rigid rituals and social order (Zhuang Zi 莊子, Sun Tonghai 孫通海 ed. and annotated. *Zhuangzi* 莊子. Beijing: Zhonghua Book Company, 2007).

Painters of All Dynasties), using “*shan zahua* 善雜畫 (good at miscellaneous paintings)” to present them. In the chapter “Vicissitude of Paintings”, he said:

During the two hundred and thirty years that have passed since the [founding of] the Sacred Tang dynasty, there have been group after group of artists of rare ability who were contemporaries.<sup>89</sup> There was mutual contact both by eye and ear.<sup>90</sup> In the K'ai Yuan (713–741) and the T'ien Pao (742–755) eras there were more such men than at any other time. But how could I have regarded perfection in all the Six Elements as an indispensable condition [for a painter to be included in this book]? I have simply taken even those of whom only one branch was acceptable.<sup>91</sup>

Then Zhang Yanyuan added a footnote himself to explain the Six Elements: “By this I mean that each had something in which he excelled: some in [painting] personages, some in houses and trees, some in landscapes, some in saddl-horses, some in demons and divinities, and some in flowers and birds.”<sup>92</sup> William Reynolds Beal Acker used “houses and trees” to describe Chinese *wuyu* (屋宇 house and roof)<sup>93</sup> here may not suitable but there is no doubt that these words mean architectural painting.

However, Zhang Yanyuan did not show a positive attitude to paintings made by tools.<sup>94</sup> He pointed out that,

If one makes use of line-brush and ruler, the result will be dead painting. ... With regard to terraces and pavilions, trees and rocks, carriages and palanquins, utensils and objects in general, they have on liveliness that can be imitated or *qiyun* [气韵, “the breath of life and its reverberation”, that is, sense of life] that can be matched. They only require placing and alignment and that is all.<sup>95</sup>

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<sup>89</sup> Footnote from translator: Literally “men of rare ability have stood side by side (in rank) and crisscross.”

<sup>90</sup> Footnote from translator: i.e.: They learned from one another by discussing questions of technique together, and by seeing and criticizing one another's work.

<sup>91</sup> Acker, William Reynolds Beal, ed. *Some T'ang and pre-T'ang Texts on Chinese Painting*. Leiden: Brill Archive, 1954, 145–146.

<sup>92</sup> Ibid.

<sup>93</sup> *Wuyu* 屋宇: *wu* is a general term for housing and *yu* means the eaves specifically.

<sup>94</sup> “[Zhang Yanyuan] was actually expressing his disapproval of this mechanical method of drawing” (Chung, Anita. *Drawing Boundaries*, 10).

<sup>95</sup> Acker, William Reynolds Beal, ed. *Some T'ang and pre-T'ang Texts on Chinese Painting*, 182–183. and



His aesthetic view may be affected by Gu Kaizhi and Xie He. The *qiyun* that Zhang Yanyuan emphasized is similar to spirit resonance of Xie He. But here he did not deny all architectural paintings, only *jiehua* pieces. Although Zhang Yanyuan did not like *jiehua* and there are no surviving architectural paintings of the Tang Dynasty, the mural paintings of the Dunhuang Caves and other tombs of the Tang Dynasty provide examples of the “dead painting” he described.

In mural paintings of the Dunhuang Caves, architecture is shown in ideal paradise and Sutra illustrations, such as *Western Pure Land Illustration* in cave 217 (Figure 17). This cave was built during the Shenlong and Jinglong period (705–709) of the Tang Dynasty by a wealthy local family – the House of Yin 陰. Apart from its west wall which was rebuilt in the Qing Dynasty, the rest of the murals reflect Tang characteristics.<sup>96</sup> In the north wall mural *Western Pure Land Illustration*, the painter used basic perspective and three-quarter view to present the broader gardens and magnificent palaces. The painter tried to show the grandeur of palaces by using panorama which created a wide-angle effect. But the eye-level back middle main building and the bird’s eye-level towers on both sides brought a discordant vision opposite to the concordant atmosphere of the whole painting. The artist of the *Western Pure Land Illustration* of Dunhuang already had the ability to illustrate building groups, and to combine figures and the architectural surroundings well, although the building structures mostly came from a compound of the artist’s creation and multiple architectural shapes instead of absolute reality.

Other than Buddhist murals in grottoes, plenty of frescos about architecture were found in tombs, such as Wei Gui’s tomb (senior concubine of Taizong), Li Shou’s tomb (Taizong’s uncle), Li Chongrun’s tomb (Zhongzong’s eldest son, the Yide prince). The earliest existing large tomb mural *jiehua* is *Quelou Tu* 闕樓圖 (Figure 18), frescos in the walls of the Yide prince’s tomb, revealing grand constructions in accordance with the tomb owner’s status. This tomb was built in the Shenlong period (705–707) by the Zhongzong Emperor. When

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Bush, Susan. *The Chinese Literati on Painting: Su Shih (1037–1101) to Tung Ch’i-ch’ang (1555–1636)*. Hong Kong: Hong Kong University Press, 2012, 16.

<sup>96</sup> Wang, Eugene Yuejin. “Whose paradise is it, anyway? The Lotus Sutra tableau in Dunhuang’s cave 217 revisited”, *Orientalism* vol 10 (1996), 44–49.

he recaptured power from Wu Zetian, the Zhongzong Emperor ordered this tomb to be built for his innocent son who was executed with his younger sister by their grandmother Wu Zetian in 701. The Zhongzong Emperor reinterred this brother and sister according to the highest etiquette of the imperial burial system. We can see two triple *que*<sup>97</sup> buildings, the symbol of emperor, were painted at both sides of the path of Li Chongrun's tomb. The similar structures can be found in the reconstituted image of the Hanyuan Palace (Figure 19). Wang Huijuan, at The University of Melbourne, has carried out specific research about how the architecture was painted and what kind of perspective the artist used in *Quelou Tu*.<sup>98</sup>

Comparing the tomb fresco to the mural painting of Dunhuang (Figure 20), both of these images presented a three-quarter view of the buildings right side. To highlight how tall these towers are, the artists used an upward view to depict the roof, bracketing system supporting the roof, upswept eaves and upper structure of the top buildings, which was opposite to the visual angle of the whole painting (depression angle). This led to an incompatibility of architecture. Both images depicted fine double-layer rafters and the bracketing system under it. The handrail had similar decorative patterns and the towers in two pictures had the same framework. Moreover, both pictures expressed the bracket system structure and its mortise and tenon joint more in stereo rather than being planar. Based on the above analysis, although art historian disliked paintings made by tools, *jiehua* still developed during the Tang Dynasty. Until this period, architectural painting was able to illustrate basic perspective and specific constructions even if artists lacked experience and theory to present a whole scene.

In the Northern Song Dynasty, the paintings that presented palaces, towers, houses and buildings using straightedge and special tools, which were called "*taige* 臺閣 (terraces

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<sup>97</sup> *Que* 闕: A form of gate. But it only keeps the gate's concept not the shape. *Que* always consists of two symmetrical buildings, usually towers, with a palace on top. According to different grades, single, double or triple *que* can be used in front of the main gate.

<sup>98</sup> Wang Huijuan 王卉娟. "從唐代懿德太子墓《闕樓圖》看畫格與斜線在中國古代建築壁畫中的使用 (From Yide Prince's mural painting *Quelou Tu* to see how artists used lattice and oblique line in ancient Chinese architectural murals)", *Collection of Chinese Architectural History Research* vol 13 (January 2016), 244–270.

and towers)” or “*loutai* 樓臺 (buildings and terraces)” by people of the Tang Dynasty, developing into an independent category. The previous “*zahua* (miscellaneous paintings)” were particularly established in *THJWZ* as a standalone category, including livestock, wild beasts, fishes, dragons, rivers or streams, vegetables, plants, insects, buildings, architectures, etc., which was juxtaposed with the mainly classical three categories – landscape paintings, portraits, flower-and-bird paintings.<sup>99</sup> However, Guo Ruoxu mainly focused on famous artists and their pieces. He did not rank different art types but only discussed advantages and disadvantages between works from previous dynasties and his era. However, another art history document of the same period did, the *Shengchao minghua ping* by Liu Daochun.<sup>100</sup>

As Robert J. Maeda speculated that “it seems likely that the original use of the term *jiehua* was pejorative”,<sup>101</sup> all architectural paintings were belittled by ancient art historians. Liu Daochun classified six categories for fine art and ranked them in a particular order: portrait which also included Buddhist and Daoist figures, landscape, livestock and wild animals, birds and flowers, demons and spirits, architecture. It was not only that he put the architectural painting at the bottom of all painting types but he also made a negative evaluation when he mentioned architectural objects in other categories. For instance, when he mentioned Wang Shiyuan in the landscape painting chapter, Liu Daochun praised Wang Shiyuan’s skills in landscape issues but denied his achievement in constructions:

Wang Shih-yuan was good at painting trees, rocks, clouds and rivers, all of which were modelled after those of Kuan T’ung; however, he would add interest to his scenes by including many towers, pavilions, terraces, gazebos, dwellings, bridges and pathways, thereby creating views such as might be seen from one’s home.

Though this was considered to be a flaw, Shih-yuan did not care.<sup>102</sup>

In Liu Daochun’s opinion, adding architectural objects into landscape painting was a shortcoming and it reduced the beauty of landscape painting.

But the situation changed at the end of the Northern Song Dynasty, Huizong period. The

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<sup>99</sup> Guo Ruoxu. *THJWZ*. 1080. In *ZGSHQS*, 465–496.

<sup>100</sup> Liu Daochun 劉道醇 (Song Dynasty). *Shengchao minghua ping* 聖朝名畫評 (Evaluations of Song Dynasty painters of Renown, *SCMHP*). 1060. In *ZGSHQS*, 446–459.

<sup>101</sup> Maeda, Robert J. “Chieh-Hua: Ruled-Line Painting in China”, 124.

<sup>102</sup> Lachman, Charles, trans. *Evaluations of Sung Dynasty Painters of Renown: Liu Tao-ch’un’s Sung-ch’ao ming-hua p’ing*. Leiden: Brill Archive, 1989, 60.

official art academy divided paintings into six categories: Buddhist and Daoist art, portraits, landscapes, birds and animals, flowers and bamboos, architecture and wooden objects. The *Xuanhe huapu* has more particular categories, in total ten: Buddhist and Daoist art, portraits, palaces, non-Han nationality, dragons and fishes, landscapes, livestock and beasts, flowers and birds, ink bamboo, fruits and vegetables.<sup>103</sup> From the late Tang to the early Song Dynasty, architectural painting developed into an independent genre, and a large number of experts were recorded in literature, for instance, Yin Jizhao 尹繼昭 (around the Xizong Emperor of the Tang Dynasty, 874–888), Hu Yi 胡翼 (Five Dynasties), Wei Xian 衛賢, Guo Zhongshu 郭忠恕 (?–977), Wang Shiyuan 王士元, Yan Wengui 燕文貴 (967–1044) and Liu Wentong 劉文通.

The word *jiehua* was first used by Guo Ruoxu. A statement in *THJWZ* for architectural paintings claimed:

When one paints architectural constructions, calculations should be faultless and brush drawing of even strength. Deep distances penetrate into space and a hundred diagonals recede from a single point. As for [artists of] the preceding Sui, T'ang, and Five Dynasties down to such men as Kuo Chung-shu (d.977) and Wang Shih-yüan of the present empire, in painting towers and pavilions, they usually showed all four corners and their bracketing was arrayed in order. They made clear distinctions between front and back without error in the marking lines. Painters of the present mainly use the ruler uniformly to accomplish “ruled-line” painting. They calculate the bracketing in brushwork that is intricate and confusing, lacking any sense of vigorous beauty or easy elegance.<sup>104</sup>

In the text, “ruled-line” painting refers to *jiehua*, although here Guo Ruoxu expressed a negative opinion.

The original usage of the term *jiehua* is closely associated with, but not equivalent to, architectural painting.<sup>105</sup> The name *jiehua* comes from the tool that used to paint architectural paintings. The painting method is using a bamboo chip, always two-thirds the length of a brush, as a medium between ruler and brush because the tip of a brush is

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<sup>103</sup> *Xuanhe huapu*. In *ZGSHQS*, 60–131.

<sup>104</sup> Bush, Susan and Shih, Hsio-yen. *Early Chinese Texts on Painting*, 111–112.

<sup>105</sup> Chung, Anita. *Drawing Boundaries*, 11.

too soft to draw along a ruler (Figure 21). When an artist needed to present a straight line, the brush would be put in the side of a bamboo chip with a groove which would help the brush stay fixed while the other side adjoins the ruler. Then the artist holds both brush and bamboo chip and moves along the ruler, producing a straight line on the silk.<sup>106</sup> Most *jiehua* paint line structures first, and then use light colours or ink to describe shade, illustrating three-dimensionality. Although not every part in a *jiehua* was drawn with *jiechi*, the amount of long line used was enough for people to call them *jiehua*, as they still do.

However, although Guo Ruoxu admired architectural artists of the early Song, Sui, Tang and the Five Dynasties, claiming their skills were excellent and they could represent the grandeur of architecture, Shen Kuo (1031–1095) paid more attention to aesthetic theory. He recorded Li Cheng's (919–c.967) painting in his book and gave his view:

When Li Ch'eng painted such buildings as pavilions or towers on a mountain, he always did the flying eaves as if one were looking up at them. The explanation is given that one is viewing what is above from below, just like a man on level ground looking up at house eaves sees their supporting rafters. This theory is wrong. Generally, the method of landscape painting is taking the larger view of the small, just as a man looks at an artificial mountain. How could one see its whole, layer upon layer. Similarly, one would not see its valleys and other details. ... Master Li apparently did not understand the method of taking the larger view of the small, but his distinctions of height and distance naturally had a subtle rational order. How could this just be a matter of raising up the corners of buildings?<sup>107</sup>

When we recall the two images of the Tang dynasty which were described in previous paragraphs, the corners of the roof were raised (Figures 18 and 20). Especially, for architectures of *Western Pure Land Illustration*, they should not be depicted like this. The mural painting presented a magnificent bird's-eye view that took "the larger view of the

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<sup>106</sup> Fu Xinian. "Architectural Paintings in Ancient China", 89.

<sup>107</sup> Bush, Susan and Shih, Hsio-yen. *Early Chinese Texts on Painting*, 112. Original text: 李成畫山上亭館及樓塔之類，皆仰畫飛簷，其說以謂自下望上，如人平地望塔簷間，見其榱桷。此論非也。大都山水之法，蓋以大觀小，如人觀假山耳。若同真山之法，以下望上，只合見一重山，豈可重重悉見，兼不應見其溪穀間事。.....李君蓋不知以大觀小之法，其間折高、折遠，自有妙理，豈在掀屋角也。 As far as I understand, it means Li Cheng did not know the distinctions of height and distance naturally had a subtle rational order, nor did he understand the method of taking the larger view of the small.

small” so the roof of buildings would bend down instead of raising up. The artist or the artisan did not know this principle, so he depicted the roof as how he saw it.

Nonetheless, the *jiehua* of the late Northern Song Dynasty showed more accurate structure. *Auspicious Cranes* (Figure 22), which was attributed to the Huizong Emperor, represents the exact and clear bracket system, *chiwen*,<sup>108</sup> flying eaves and roof ridge. The whole painting uses an eye-level scene to emphasize the twelve cranes flying above the palace. Each part of the architecture is delicate and accurate. The emperor’s hobby also influenced social trend, especially authorities and court artists. That is why around this time, *jiehua*’s position had been promoted by the ruling class and several famous artists.<sup>109</sup> According to *Xuanhe huapu*,

[Palaces have measurement and buildings have forms, even famous artists cannot add his imagination to embellishments without basis.]<sup>110</sup> When painters took up these subjects and completely described their formal appearance, how could it have been simply a question of making a grand spectacle of terraces and pavilions, or doors and windows? In each dot or stroke one must seek agreement with actual measurements and rules. In comparison with other types of painting, it is a difficult field in which to gain skill.<sup>111</sup>

In *Xuanhe huapu*, the painting catalogue is organized in a hierarchical way, with objects sorted by category, and the categories placed in order. It followed the earlier treatises such as *Lunhua* (Gu Kaizhi), *LDMHJ* (Zhang Yanyuan) and *SCMHP* (Liu Daochun). But convention had not yet settled whether architectural paintings should precede or follow landscape. People of the border regions could be thought of as a kind of figure painting, but this is not placed immediately after portrait but rather after architectural painting.<sup>112</sup>

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<sup>108</sup> *Chiwen* 鴟吻/螭吻 or *chiwei* 鴟尾 is the fish-like, hornless dragon with a very truncated body and a large, wide mouth, usually found along roof ridges (as if swallowing the roof beams). Its presence on roofs is also said to guard against fires.

<sup>109</sup> “However, this negative view gradually disappeared during the Song. That Guo Ruoxu praised the achievements of the early masters and discussed those qualities to be desired in architectural representation indicated that the genre had attracted scholarly attention and had come to be considered a worthy topic for art criticism” (Chung, Anita. *Drawing Boundaries*, 11).

<sup>110</sup> *Xuanhe huapu*, 87. Original text: 宮室有量，台門有制，而山節藻梲，雖文仲不得以濫也。

<sup>111</sup> Bush, Susan and Shih, Hsio-yen. *Early Chinese Texts on Painting*, 112.

<sup>112</sup> Ebrey, Patricia Buckley. *Accumulating Culture: The Collections of Emperor Huizong*. Seattle:

Although we still do not know which standard the *Xuanhe huapu* followed, *jiehua* was deliberately placed after Taoist and Buddhist subjects and figure paintings, ranking third among all painting categories, which was never been and never be in the ancient Chinese history of art. It was a significantly high reputation that for *jiehua* and *jiehua* artists.

Substantially, the accuracy is one of the fundamental characteristics of *jiehua*, particularly for the precise structures, requiring *jiehua* artists to have abundant knowledge about mathematics, engineering and architectonics. Since the Sui and Tang Dynasty, some of the famous architectural artists were also had careers as architects with the government.<sup>113</sup> Yan Pi had built Linshuo Palace for the Emperor Yang of Sui (569–618, r. 604–618), and his son Yan Lide was a famous architect who designed the Zhao Mausoleum, Cuiwei Palace and Yuhua Palace for the Taizong Emperor of Tang, while another son, Yan Liben, at one time was minister of engineering (Gongbu Shangshu) during the early years of Tang Gaozong. This illustrates that in the Sui and Tang Dynasties, *jiehua* were usually created by architects.

In an example from *THJWZ*, Guo Ruoxu recorded an artist named Zhao Zhongyi 趙忠義 (Five Dynasties) who drew a painting *Guanjiangjun qi Yuquansi Tu* 關將軍起玉泉寺圖 (The General Guan departed from the Yuquan Temple). Zhao Zhongyi made a model before drawing the painting, which was shown to an architect to check the accuracy and certainly, it was perfect.<sup>114</sup> According to Wen Ying's *Yuhu qinghua* 玉壺清話 (Pure Talks from the Jade Jar Studio), once the Song Taizong Emperor ordered a great architect Yu Hao 喻皓 (active 965–995) to build a temple tower. Before the project started, Yu Hao made a small wooden model as a sample to check the structure. After Yu Hao corrected all the problems in the small wooden model and began to build the tower, Guo Zhongshu found there was still a mistake at the top of the tower, even though it was only a tiny error. When Yu Hao reviewed the model using a ruler and other tools, the result proved Guo Zhongshu's opinion.<sup>115</sup> Li Zhi also had an evaluation of Guo Zhongshu's *jiehua*:

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University of Washington Press, 2008, 275–276.

<sup>113</sup> Zhang Yanyuan. *LDMHJ*, vol 8–9.

<sup>114</sup> Guo Ruoxu. *THJWZ*, vol 2.

<sup>115</sup> Wen Ying 文瑩 (Song Dynasty). *Yuhu Qinghua* 玉壺清話 (Pure Talks from the Jade Jar Studio). Beijing: Zhonghua Book Company, 1991, 15. Heping Liu had recorded and translated this story in “*The Water-Mill*”, 566.

[In the painting *Loulan xianju* 樓蘭仙居, its] purlins, beams, rafters and eaves [are all painted as reality], which looks like there is real space inside the building and people can gently walk around there. Barriers, lintels, windows and gates seem to be able to be opened by hand. [Guo Zhongshu] used *hao* 毫 (1/1000 of one *cun*, approximately 0.00312 cm) as *cun* 寸 (a unit of length, approximately 3.12 cm), *fen* 分 (1/10 of one *cun*, approximately 0.312 cm) as *chi* 尺 (10 *cun*, approximately 31.2 cm), *cun* 寸 as *zhang* 丈 (100 *cun*, approximate 312 cm) and by this analogy to present the small view of the tremendous constructions. All parts of architecture even specific tiny details followed the rules without any mistake. Unless a person understands everything about architecture and its standard, they cannot present such a painting.<sup>116</sup>

From a surviving painting by Guo Zhongshu, *Travelling on a River After Snow*<sup>117</sup> (Figure 23) and another painting attributed to his name *Summer Palace of Emperor Ming Huang*<sup>118</sup> (Figure 24), we can catch a glimpse of his excellent technique and how knowledgeable he was about architecture and wooden objects. Likewise, Heping Liu also discussed this issue in his PhD dissertation, in the chapter on “Painters as Architects”.<sup>119</sup> It can be known that the technique of *jiehua* was already proficient in the Song Dynasty and buildings are already drawn by angular perspective or axonometric projection. Additionally, the first authoritative treatise on architectural principles and building standards – *Yingzao fashi* by Li Jie – was published during the Huizong period. This book was the first to provide a unified set of architectural standards for architects as well as for artists who painted *jiehua*. It not only includes a glossary of technical terms with mathematical formulae but also shows grade of buildings, materials for each piece, specifications for decorative

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<sup>116</sup> Li Zhi 李廌 (Song Dynasty). *Deyuzhai huapin* 德隅齋畫品. In Yun Gao 雲告, ed. *Songren huaping* 宋人畫評. Changsha: Hunan Fine Arts Press, 1999. Original text: 棟樑楹桷，望之中虛，若可躡足，欄楯牖戶則若可以捫曆而開闔之也。以毫計寸，以分計尺，以寸計丈，增而倍之，以作大字，皆中規矩，曾無小差，非至詳至悉、委曲於法度之內者不能也。The Song measurement comes from *Yingzao fashi* by Li Jie, from Yang Kuan 楊寬. *Zhongguo lidai chidu kao* 中國歷代尺度考 (Research on Measure of Each Dynasty, ZGLDCDK). Beijing: The Commercial Press, 1955.

<sup>117</sup> It was recorded in *ZGMHJSCD*, *Shiqu baoji Continuation*, *Songhua quanji*, etc., stamped seals of the Huizong Emperor, the Qianlong Emperor, the Jiaqing Emperor, the Xuantong Emperor.

<sup>118</sup> It was recorded in *Yiyuan chuoying* vol 48, *Rangliguan guoyan lu*, 日本現在支那名画目錄 and owned by Abe Fusajiro.

<sup>119</sup> Heping Liu. *Painting and Commerce in Northern Song Dynasty China, 960–1126*. 129–131.



objects, and so forth. Although as art pieces, *jiehua* cannot avoid the affect of artists' creativeness and imagination, it still provides a possibility that researchers can learn about ancient architecture and objects through *jiehua* thanks to its representational characteristics.

Although *jiehua's* position was enhanced during this period, the aesthetic theory and standard did not change. Shen Kuo wrote in his *Mengxi bitan* 夢溪筆談 (Casual Writings from the Garden of the Stream of Dreams):

The wonders of calligraphy and painting must be intuitively apprehended (shen-hui). They can hardly be sought through formal elements. Nowadays, those who look at paintings can usually just pick out faults of form or placement and blemishes in colouring, but one rarely meets anyone who has penetrated their subtle ordering and mysterious creation.<sup>120</sup>

Deng Chun had a similar opinion, "In the Painting Academy, those summoned from all areas for examination came incessantly. ... What was esteemed at that time was formal likeness alone. ... Hence, what he did would be merely the tasks of artisans, and he would not rise."<sup>121</sup> From the attitudes of Shen Kuo and Deng Chun, we can see that professional art historians and connoisseurs still put the formal elements in an unimportant position when they judged paintings. Although Deng Chun used "great skill" and "new ideas" to describe *jiehua* and there was a softening of attitude towards *jiehua* which is reflected in *Huaji*,<sup>122</sup> this did not mean that the traditional connoisseurship of ancient Chinese paintings changed.

In addition, the public could not understand the artistic quality of *jiehua*. *Xuanhe huapu* recorded:

Consequently, from the Chin through the Sui Dynasties there are no known masters, and over the three hundred years of T'ang and continuing through the Five Dynasties one finds only Wei Hsien, who gained fame for his painting of

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<sup>120</sup> Bush, Susan and Shih, Hsio-yen. *Early Chinese Texts on Painting*, 99–100.

<sup>121</sup> *Ibid.* 138.

<sup>122</sup> Maeda, Robert J. "Chieh-Hua: Ruled-Line Painting in China", 133.

architectural subjects. After the appearance of Kuo Chung-shu of the present dynasty, one could pay attention to Wei Hsien and the like, but there are not enough of the rest to number. Kuo Chung-shu's painting, however, is lofty and antique and has never been easy for common people to understand. There have been some who have laughed at it without having seen it.<sup>123</sup> ... [Guo Zhongshu] is good at architectural paintings such as palaces, pavilions, buildings and terraces. All of these pieces are elegant but few people would like to pay for them. Once a person whose surname is Shen, living in Qiantang area, bought a painting from Guo Zhongshu. Each time he showed the work to viewers, they laughed at it. After several years he finally found one friend who likes the *jiehua*.<sup>124</sup>

In the Southern Song Dynasty, the word *jiehua* was widely accepted. In *Huaji* (Paintings Continued), volume 7, *Houses, Wooden Objects, Boats and Carts*, Deng Chun recorded that "Guo Daizhao, coming from Zhaozhou, is famous for *jiehua*" and "Ren An 任安 who is living in capital city, working in the imperial art academy, and especially good at *jiehua*."<sup>125</sup> During the Southern Song Dynasty, Li Song 李嵩 (1166–1243) and Zhao Boju 趙伯駒 (about 1120–1182) were two representative *jiehua* artists who not only presented exact structures, decorations and details of architecture but also were good at combining *jiehua* with landscape to illustrate poetic images.

However, with the development of *jiehua*, the specific stylization of composition and construction became common and popular in paintings. After the middle of the Southern Song Dynasty, a kind of expression that put the main body on a corner or half of the picture was fashionable among artists, which demonstrated abstract objects such as wind, moonlight, fog, river water, tide even invisible music by leaving space on silk (Figure 25). For *jiehua* painting, this style placed architecture in a natural environment, increasing the spirit of the image but limited showing the construction of buildings. For example,

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<sup>123</sup> Bush, Susan and Shih, Hsio-yen. *Early Chinese Texts on Painting*, 112–113.

<sup>124</sup> *Xuanhe huapu*, vol 8. Original text: 喜畫樓觀台榭，皆高古，置之康衢，世目未必售也。頃錢塘有沈姓者，收忠恕畫，每以示人，則人輒大笑，歷數年而後方有知音者。

<sup>125</sup> Deng Chun 鄧椿 (Song Dynasty). *Huaji* 畫繼 (Paintings Continued). 1167. In *ZGSHQS*, 717. Original text: 郭待詔，趙州人，每以界畫自矜。and 任安，京師人，入畫院，工界畫。

*Watching the Tide on a Moonlight Night* (Figure 25), *Yueyang Tower* (Figure 26) and *Yellow Crane Tower* (Figure 27), all chose this popular image structure and put architecture in the corner of the silk, shaded by trees or rocks. Indeed, the empty area in the paintings created imaginary space which could be illustrated as moonlight, tide, cloud, mountain or fog. These foggy surroundings extended to the distance and created a peaceful atmosphere, but the location of the architecture and natural objects used to enhance the spirit of the painting prevented the audience exploring more about architectural construction. The architecture on the half or corner structured paintings always left half even less construction. Besides, to increase the calm and depth, trees and rocks were always placed beside the architecture which also hid part of structure. This was unlike the Northern Song Dynasty artists' habit of showing unobstructed buildings, and also demonstrates a trend to combine constructions landscape, and pursuing accurate depiction of construction was no longer the main creative purpose but was replaced by the overall harmony of the scene.

Different from *jiehua* artists in the Northern Song Dynasty who had a professional understanding of architecture's style, structure, decorations and proportion, painters after the 11th century paid more attention to previous paintings, than painting from life themselves. In *Science and Civilisation in China*, Joseph Needham had recorded *The Water Mill in Valley* as an anonymous work of the Yuan Dynasty (Figure 7). As he pointed out, "In the tradition of all Chinese painters, the artist worked not from the life, but in tranquil recollection, hence not being a millwright, he confused paddle-wheels with gear-wheels."<sup>126</sup> Robert J. Maeda discussed the change in *jiehua* from the Northern Song to the Yuan Dynasty and gave his opinion that,

the total effect of Li Song's album leaves is something less than the realism of late Northern Song painters does not indicate a basic change in the descriptive aims of Southern Song court painters. The illusion of reality is still preserved in Li Song's subjects despite his inclinations to design and pattern. ... [Wang Zhenpeng] had radically changed the nature of *jiehua* from realism to frank decoration. ...

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<sup>126</sup> Needham, Joseph. *Science and Civilisation in China*. vol 4, *Physics and Physical Technology*, part 2. London and New York: Cambridge University Press, 1965, 405.

when *jiehua* became a reflection of the world of fantasy, rather than fact.<sup>127</sup>

In Li Song's *Watching the Tide on a Moonlight Night*, from the image detail (Figure 28), we can see that even if other tiny details such as roof, tile, handrail, even the inside round stool were described elaborately, the bracket system in this painting seems to be neglected intentionally by the painter.

It could be thought that what caused the simplified detail is painting size. Indeed, *Watching the Tide on a Moonlight Night* is a fan painting which shows a full scene within limited space. But considering the height of pictures, *Along the River During the Qingming Festival* is almost the same as *Watching the Tide on a Moonlight Night* and it does not display the bracket system in a perfunctory way. Figure 29, a part of *Along the River During the Qingming Festival*, demonstrates the clear bracketing system, as well as how the mortise connected the tenon.

As a predominant component of ancient Chinese architecture, the bracket set was not only a decorative feature but also had load – bearing capability. However, after the 13th century, as the construction technique developed, the bracket system reduced the role to bear the roof's weight and to extend the eave, so its size decreased and it gradually became decorative element. This explains why, after the Song Dynasty, artists did not pay much attention to the structure of the bracket system. In *Yueyang Tower*, which seems like an accurate *jiehua* in both structure and proportion, the location of lower bracket set serves a decorative purpose rather than being based on reality.

Additionally, other than the Northern Song artists who also had a career as architects in the government, nearly all of the *jiehua* artists of the Southern Song and Yuan Dynasty were full-time painters. It might be another reason that the Southern Song and Yuan artists cannot understand the structure of buildings as precise as the artists of the Northern Song Dynasty.

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<sup>127</sup> Maeda, Robert J. "Chieh-Hua: Ruled-Line Painting in China", 133.

For example, one of the finest Southern Song *jiehua* is *Competition on the Jinming Pool* (Figure 30) which was attributed to Zhang Zheduan but according to Fu Xinian's research, it should be a Southern Song painting.<sup>128</sup> All the characteristics of the architecture reflect a Song style, and the trees in the painting are influenced by the skills of Ma Yuan. Each structure is well-placed, even if not all the buildings have the same perspective point, for instance, the three buildings at middle of the right lakeside obviously have a different viewpoint from any other buildings on the painting, although every structural unit has the correct proportion and pictorial space. Chen Yunru discussed this painting in her *Images from Times Past: A Study of Wang Chen-p'eng's Dragon Boat Paintings* and compared it with other dragon boat theme paintings attributed to Wang Zhenpeng, a famous Yuan Dynasty *jiehua* artist.<sup>129</sup> She did not discuss the authorship and date of the painting but pointed out that the *Competition on the Jinming Pool* in Tianjin Museum was different from any other paintings of the same theme which all used horizontal vision and put all the buildings in a line, neglecting dimensional – this painting chose a bird's-eye vision to show the clear location of each building.

But as was the custom of most *jiehua* artists of the Southern Song Dynasty and Yuan Dynasty, *Competition on the Jinming Pool* may be a copy of an earlier painting. Looking carefully at the bridge which joins the mid-lake island and the mainland, a basic mistake can be found (Figure 31). One pole at the right side of the bridge was drawn too long and connected to the opposite side handrail (circled red in Figure 31). Any *jiehua* artist who knows a little about pictorial space would not make such mistake, especially as this is a record of a grand festival activity for the emperor. A possible explanation is that this is a copy of an earlier painting and the incorrect structure was caused by careless work, or the original painting may have been damaged or faded in that place.

In spite of these defects, *jiehua* of the Southern Song Dynasty basically inherited the characteristics of the previous period. Earlier than the Southern Song Dynasty, a country

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<sup>128</sup> Fu Xinian. "Architectural Paintings in Ancient China", 84.

<sup>129</sup> Chen Yunru. "Images from Times Past: A Study of Wang Chen-p'eng's Dragon Boat Paintings", *The National Palace Museum Quarterly of Chinese Art* vol 2 (Winter 2002), 129–164, 209.

Jin was established in the north where researchers also found traces of *jiehua*, for instance, in a temple mural painting in Shanxi province. There are many Buddha figures and Buddhist stories in architecture, including palaces, towers, water mills, pavilions, buildings with garrets and corridors with roofs (Figure 32). A number of scholars have researched the mural paintings, such as Fu Xinian,<sup>130</sup> Chai Zejun<sup>131</sup> and Chen Rong<sup>132</sup>. Fu Xinian held the view that the construction of the mural painting on the eastern wall reflected the characteristics of the Northern Song Dynasty while the structure of the western wall showed more Jin Dynasty style.

After the 13th century, the circumstance that artists learned from previous art works rather than nature developed further. Susan Bush and Hsio-yen Shih wrote such sentence at the beginning of their chapter “Yuan Criticism and Writings on Special Subjects”: “By Yuan times the historical consciousness of Sung had deepened and both artists and critics were forced to confront the problem of models drawn from the past, that is, from art rather than nature.”<sup>133</sup> Comparing the Yuan *jiehua* artists with their predecessor, they articulated forms more clearly and stressed pattern far more. There is a machine-like precision to the technique and an undisguised use of the ruler.<sup>134</sup> More than one scholar found this change in the Chinese history of art, not only in *jiehua*, but in all painting types.<sup>135</sup>

Moreover, the gap between ordinary people and scholars or connoisseurs who have

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<sup>130</sup> Fu Xinian 傅熹年. “山西省繁峙縣岩山寺南殿金代壁畫中所繪建築的初步分析 (The Preliminary Analysis of the Architecture of a Jin Dynasty Mural Painting on the South Palace of Yanshan Temple, Fanshi County, Shanxi Province)”, *Architectural History Research* vol 1 (1982), 77–99.

<sup>131</sup> Chai Zejun 柴澤俊 and Zhang Chouliang 張醜良. *Fanshi yanshan si* 繁峙巖山寺 (Yanshan Temple in Fanshi County). Beijing: Cultural Relics Publishing House, 1990, and Chai Zejun 柴澤俊. “The Mural Painting of Wenshu Palace, the Yanshan Temple”, *Mt Wutai Researches Contents* vol 4 (1990), 31–38.

<sup>132</sup> Chen Rong 陳蓉. 岩山寺文殊殿西壁建築圖景研究 (Research on the Architectural Landscape of the West wall of Wenshu Palace in Yanshan Temple). Master Dissertation, Shanxi University, 2010.

<sup>133</sup> Bush, Susan and Shih, Hsio-yen. *Early Chinese Texts on Painting*, 241.

<sup>134</sup> Maeda, Robert J. “Chieh-Hua: Ruled-Line Painting in China”, 141.

<sup>135</sup> Loehr, Max. “Some Fundamental Issues in the History of Chinese Painting”, 185–193. Elvin, Mark. *The Pattern of the Chinese Past: A Social and Economic Interpretation*. Redwood City: Stanford University Press, 1973, 203–235. Cahill, James. *Chinese Painting*, 105. Sullivan, Michael. *An Introduction to Chinese Art*. Berkeley: University of California Press, 1960, 169. Silbergeld, Jerome. “The Yuan ‘Revolutionary’ Picnic: Feasting on the Fruits of Song (A Historiographic Menu)”, *Ars Orientalis* (2009), 9–31., etc. For more discussion about the change and the reason for it, see the Conclusion.

knowledge of connoisseurship was increasingly large. According to Tang Hou 湯屋, “When ordinary people discuss paintings, they are not aware of the inspired subtleties of brush technique and spirit resonance, but first point out the formal likeness.”<sup>136</sup> The principles presented by Gu Kaizhi and Xie He were evolved to an elitism<sup>137</sup> by art historians and literati artists:

As to the methods of looking at painting, first look at the spirit resonance, next at the brush conception, formal structure, placement and colouring, and lastly at formal likeness. ... When looking at such playing with brush and ink in which lofty-minded men and superior scholars have lodged their exhilaration and sketched idea, ... one must be careful not to approach them in terms of formal likeness.<sup>138</sup>

In this historical context, art historians and literati painters did not have an interest in representational painting, in other words, their purpose was opposed to the Imperial Art Academy.<sup>139</sup> Thus, from the Yuan Dynasty, each art historian presented *jiehua* as last among all painting styles. Tang Hou claimed in his *Huajian* that “In discussing painting ordinary people will certainly say that it has thirteen categories with landscape at the top and ruled-line painting at the bottom.”<sup>140</sup>

However, based on existing evidence (paintings and records), *jiehua* reached its high point between the end of the Tang Dynasty and the Song Dynasty. Although the Yuan Dynasty had great *jiehua* experts as well, the attainment as the former artists was unattainable. Nonetheless, even art historians cannot deny how difficult it is to represent an excellent

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<sup>136</sup> Bush, Susan and Shih, Hsio-yen. *Early Chinese Texts on Painting*, 260.

<sup>137</sup> Lee, Sherman E. “The Literati Tradition in Chinese Painting”, *The Burlington Magazine* vol 108 (1966), 254–260.

<sup>138</sup> Bush, Susan and Shih, Hsio-yen. *Early Chinese Texts on Painting*, 261.

<sup>139</sup> Powers, Martin. “Discourses of Representation in Tenth-and Eleventh-Century China”, *The Art of Interpreting* (1995), 88–125. Bickford, Maggie. *Ink Plum: The Making of a Chinese Scholar-Painting Genre*. Cambridge: Cambridge University Press, 1996, 103.

<sup>140</sup> Bush, Susan and Shih, Hsio-yen. *Early Chinese Texts on Painting*, 248. In *Nancun chuogeng lu* by Tao Zongyi, he recorded the thirteen categories of paintings but did not ranked them. Original text: 畫家十三科佛菩薩相玉帝君王道相金剛鬼神羅漢聖僧風雲龍虎宿世人物全境山林花竹翎毛野驃走獸人間動用界畫樓臺一切傍生耕種機織雕青嵌綠。From Tao Zongyi 陶宗儀 (Yuan Dynasty). *Nancun chuogeng lu* 南村輟耕錄 (Giving up farming in The South Village). vol 28. Beijing: The Chinese Publishing House, 2004.

*jiehua*. Because of *jiehua*'s lowest location among painting types,

people regard ruled-line painting as the easiest to do. They are unaware that even wood engravers and artisans are not able to exhaust the subtle aspects of high and low or looking down and near or convex and concave, sharp and dull or refined and rough. All the more so, then, is it extremely difficult to thus convey one's thoughts onto silk or paper with brush and ink, compass and ruler, while seeking to adhere to the rules and standards. ... In all other kinds of painting it may be possible to fabricate to deceive people, but in ruled – line painting there has never been anyone who did not apply himself diligently in accord with the rules.<sup>141</sup>

Besides, some Yuan *jiehua* painters, such as Wang Zhenpeng, found another way to represent buildings, by only using ink lines without colour. This is an ancient painting style called “*baimiao* 白描” in Chinese; literally, white and space are the main part instead of colours and ink as in other painting styles. In *baimiao jiehua*, rather than using colours to show architecture's volume and texture, this was represented by ink lines which made it more delicate, clean and tidy. Artists distinguished light or dark lines and their density to demonstrate interspaces of the structures (Figure 33). As well as Wang Zhenpeng, other representative outstanding *jiehua* artists of the Yuan Dynasty were Li Rongjin, Xia Yong and Sun Junze. In addition, although delicacy was an advantage of architectural paintings of the Yuan Dynasty, it also resulted in pursuing complicated details and brushwork which took the place of the artistic conception of the Song Dynasty.<sup>142</sup>

Because of the possibility that *The Water Mill* is a copy by a later generation and to understand *jiehua*'s position in Chinese history of art, it is necessary to discuss *jiehua* and *jiehua* artists of the Ming and Qing Dynasties.

*Jiehua*'s position was lower in the Ming Dynasty. The treatise *Minghua lu* classified paintings into ten categories: Buddhist and Daoist art, portrait painting, palace and

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<sup>141</sup> Ibid. 248–249.

<sup>142</sup> Fu Xinian. “Architectural Paintings in Ancient China”, 86, and Maeda, Robert J. “Chieh-Hua: Ruled-Line Painting in China”, 139–141.



construction, landscape painting, beast and animal, dragon including fish, flower-and-bird painting, ink bamboo painting, ink plum blossom painting, fruit and vegetables. Only two *jiehua* painters, Shi Rui and Du Jin, were recorded. The author of the catalogue also claimed that, “There were only a few painters who specialized in this genre during the Ming. Recently, people favored the brushwork of the Yuan and viewed *jiehua* practitioners as lowly artisans. Sooner or later, *jiehua* will completely disappear.”<sup>143</sup> Based on Anita Chung’s research, within the Ming court, *jiehua* was continuously practiced, and outside the court, the famous artist Qiu Ying (1494–1552) excelled in architectural painting and was able to gain appreciation from the literati class. Although art historians and connoisseurs still had a prejudicial attitude to architectural painting, it survived in the Ming Dynasty and developed in the Qing.

Since the Qing Dynasty, *Jieziyuan huazhuan* 芥子園畫傳 (The Mustard Seed Garden Manual of Painting) considered *jiehua* in paintings like regular script in calligraphy,

In painting, the drawing of many-storied buildings is to other methods of brushwork what, in calligraphy, the styles named after the Jiucheng Palace and Magu Altar<sup>144</sup> are to the regular style. ... Drawing by square and rule (*jiehua*) cannot be put down as work only of artisans. The method should be examined and studied. Its practice is similar to the disciplines of Chan (or Zen) Buddhism. ... Drawing with square and rule (*jiehua*) is a similar discipline of purification in the art of painting, among the first steps for a beginner.<sup>145</sup>

In the golden age of the Qing, architectural paintings were increasingly demanded within the court for symbolic communications and were revived outside the court as a result of the commercialism and professionalism of painting.<sup>146</sup>

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<sup>143</sup> Xu Qin 徐沁. Yin Xiaofeng 印曉峰, annotated. *Minghua Lu* 明畫錄 (Records of the Ming Dynasty Paintings). Shanghai: East China Normal University Press, 1970, 17. Original text: 有明以來，以此擅長者益少，近人喜尚元筆，目界畫者鄙為匠氣，此派日就漸滅矣。 Translation from Chung, Anita. *Drawing Boundaries*, 32.

<sup>144</sup> Both are characters on two famous stone engravings of the 12th to 13th centuries, the style of which was copied and regarded as being most elegant.

<sup>145</sup> Sze, Mai-Mai, ed. *The Mustard Seed Garden Manual of Painting: Chieh Tzū Yüan Hua Chuan, 1679–1701*. Princeton: Princeton University Press, 1992, 294–295.

<sup>146</sup> Chung, Anita. *Drawing Boundaries*, 46.

Inherited from the Ming Dynasty, Qing also had two art centres located in northern and southern China. The northern one was the capital city Beijing where the Imperial Art Academy was and the court artists and court art were mainstream; the other one was the Jiangnan area where a new bourgeoisie grew with economic development. The different classes had dissimilar requirements of art. *Jiehua* artists were divided into two schools as well, one group was in Yangzhou, where the representative painters were Yuan Jiang and Yuan Yao; the other was the court painters who belonged to the Imperial Art Academy.<sup>147</sup> Even if their works were formalistic and stylized when compared with the Song and Yuan Dynasties, these two styles still had their own features.

The existing pieces from the Qing imperial academy are numerous but most of them are created to demonstrate royal scenes. In an era characteristically different from former dynasties, the painters of the imperial academy were affected by European technique, using the western way to present architecture and pictorial space.<sup>148</sup> Even though drawing architecture in three-dimensions was widely used in the previous *jiehua*, European knowledge of perspective enabled a more accurate depiction of proportion, very different from Song and Yuan Dynasty *jiehua* paintings. There is also an enhanced contrast between light and dark but the rendering of the interiors makes *jiehua* of this period look like design blueprint and it lost its original Chinese painting connotation. The Qing version of *Along the River During the Qingming Festival* is a good example to illustrate (Figure 34). Compared to the Song version, artists of the Qing Dynasty grasped the scale better than Zhang Zeduan of buildings, humans and ships. Both images used oblique perspective but unlike the Song painting which has several points of perspective, the Qing painting is a one-point perspective image.

In the other school, also known as the civilian *jiehua* group, their paintings were extremely large which was welcomed among salt merchants for house decoration, for instance, *Jiucheng Palace* (Figure 35) and *Landscape of the Han River* (Figure 36) by Yuan Yao and *Snow Scene of Liangyuan* (Figure 37) by Yuan Jiang. Their layout and building

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<sup>147</sup> Ibid. 46–74.

<sup>148</sup> Ibid. 49.

forms mostly came from imagination, even including details of decoration and structure, which was totally different from the true-life standard of the Song, Jin and Yuan Dynasties. For decorative purposes, they developed heavy and varied colours of *jiehua*. However, architectural paintings of the Qing Dynasty recovered some painting skills which were popular in the Song Dynasty but lost after the Ming Dynasty, and reached the last peak of the Chinese feudal society.

To sum up, architectural painting originated with the start of human architecture and became an independent category around the 9th to 10th centuries. The name *jiehua* was created to describe paintings painted with a particular brush, ruler and other tools since the Northern Song Dynasty, especially architectural paintings. However, the name and this category also included some genre paintings which was a new concept developed after 1950s.<sup>149</sup> The characteristic of *jiehua*, grand and accurate structures, was appreciated by the ruling class of the Song Dynasty so a great number of *jiehua* pieces were created around this period and *jiehua's* position improved. But before and after this era, neither art historians nor mainstream artists were fond of it. Although *jiehua* cannot be seen as photography, it has more artistry and subjectivity of artists. But with its representational essence, *jiehua* can be used to research ancient architecture to some extent. Besides, as it also related to genre painting, by adding human activities and daily objects into the image, *jiehua* can help researchers to understand ancient social custom. This dissertation will take *The Water Mill* as the example to authenticate its possible authorship and time of creation.

## **History of Forgeries in Ancient Chinese Art and Method of Forging**

For a long time, *The Water Mill* was believed to be a *jiehua* painting by the famous Five Dynasties artist Wei Xian because of a half signature. But as it has been proved fake, some

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<sup>149</sup> Huang Xiaofeng 黄小峰. “观风俗——《清明上河图》与中国美术史的叙事 (Looking at the genre – narration of *Along the River During the Qingming Festival* and Chinese History of Art)”, in The Palace Museum compiled, *New Perspectives on Qingming Shanghe Tu*, Beijing: The Forbidden City Publishing House, 2011, 339–349.

scholars doubt the authenticity of other part of the handscroll.<sup>150</sup> Dai Liqiang thinks the front part of the handscroll was cut and current *The Water Mill* is not in its original size. Jerome Silbergeld holds a similar opinion. Even the Qing Dynasty scholar Li Baoxun who believed the painting was created by Wei Xian, questioned the authenticity of the first colophon by Wang Shouren.<sup>151</sup> To authenticate this painting, we should first understand some necessary background knowledge - why forgeries exist and the basic method of forging, so that we can understand the difference between the genuine works and fake pieces.

In *Old Masters Repainted*, Joan Stanley-Baker used “accretions” to describe the “forgeries”. She claimed that the original function of accretions were as historical documents which describe the perception of a master’s style-image at the time of its creation.<sup>152</sup> Indeed, before the photographic technique was created, copying was an effective way to preserve and spread a masterpiece. A typical example is the court academy of the Huizong period of the Northern Song Dynasty where court artists were asked to copy paintings. This common practice was done for several reasons: as an exercise to improve one’s painting technique; to make a facsimile of a work owned by someone else in order to be able to study it; to “preserve” a work that was beginning to fall apart.<sup>153</sup>

When art works were treated as merchandise, having economic value, the identification of accretions which “counterfeited a work in the hope of being able to sell it as an original”<sup>154</sup> meant they became to forgeries. Generally, different artists’ works can have tremendous price difference depending on the author’s period and reputation, which led merchants to pursue benefit for example by changing authorship from an anonymous or unknown painter to a famous artist, cutting one great work into two or more small pieces or attributing a recent object to an ancient artist. Although it cannot be denied that

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<sup>150</sup> Dai Liqiang. “Zhang Zeduan is the Author of *The Water Mill*”. and Silbergeld, Jerome. “All Receding Together, One Hundred Slanting Lines”.

<sup>151</sup> Li Baoxun. *HWCSJSHL*.

<sup>152</sup> Stanley-Baker, Joan. *Old Masters Repainted: Wu Zhen (1280–1354): Prime Objects and Accretions*. Hong Kong: Hong Kong University Press, 1995, 4.

<sup>153</sup> Ebrey, Patricia Buckley. *Accumulating Culture*, 121.

<sup>154</sup> *Ibid.* 121

ectypal forgeries/accretions also have research and collection value, authentication is still necessary. If a painting or calligraphy does not belong to an artist, how can an art historian use it to analyse the artist's style and if the era of a work is wrong, all research on the painting is based on false assumptions. Before we use *The Water Mill* as an example of a Song Dynasty *jiehua* painting to discuss the politics, economics or architecture of the Song society, authentication and analysis of the painting is necessary. In the first place, we should learn why there has forgeries in Chinese history of art and what the basic methods are to forge art works.

### **Forgeries in Chinese History of Art**

According to Xue Yongnian's research, since the Jin Dynasty (317–479), fake calligraphy had appeared.<sup>155</sup> From the information above about the history of classification of paintings we know that, during the Jin Dynasty, calligraphy and paintings already had independent aesthetic effect in addition to their original functions – recording and spreading. So, the excellent calligraphy and painting pieces also became art works with collection value. This meant pieces by famous artists showed a remarkable economic value, which abetted the occurrence of falsification.

The calligraphy of Wang Xizhi (303–361) of the Eastern Jin Dynasty gained a high reputation and each word can sell for a high price. This is why even though the process of making a fake is very complicated, the forgers still would make a lot of effort to do it. In *Lunshubiao* 論書表 by Yu He (a calligrapher of the Liu Song Dynasty), he recorded the process in detail: "Used drippings from thatched roofs to change the colour of the paper, and further mistreated the paper deliberately, so that it looked like an old piece of writing."<sup>156</sup> The result was "genuine works and forgeries were freely mingled, and people could not tell them apart".<sup>157</sup>

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<sup>155</sup> Xue Yongnian 薛永年. "書畫鑒定與書畫作偽 (Authentication and Making Imitation of the Calligraphy and Paintings)", *Art Observation* (July 1996), 68-72.

<sup>156</sup> Fong, Wen. "The Problem of Forgeries in Chinese Painting", *Artibus Asiae* vol 25 (1962), 96. Original text: 以茅屋漏汁，染變紙色，加以勞辱，使類久書。Which Comes from Yu He 虞穌. *Lunshubiao* 論書表. In Zhang Yanyuan 張彥遠. *Fashu Yaolu* 法書要錄. Hangzhou: Zhejiang People's Fine Arts Publishing House, 2012.

<sup>157</sup> *Ibid.* 96.

The fake paintings were created at least no later than the early Tang Dynasty. In *Lidai minghua ji*, Zhang Yanyuan wrote down the story of brothers Zhang Yizhi (?–705) and Zhang Zongchang (?–705):

During the reign of the Heavenly Empress (684–705), Chang I-chih (Zhang Yizhi) requested in a memorial that she should summon to court all the painter artisans in the empire and have them restore the paintings in the Inner Storehouse. The result was that he set these artisans to work, each working in his own line, industriously making copies and mounting these exactly as the old ones had been, so that they did not differ [from the originals] by a single hair. Most of the originals then found their way into I-chih's hands.<sup>158</sup>

This is an example that using forgeries to exchange the imperial collections.

Up to the Song and Yuan Dynasty, with the prosperity of public and private collections, the value of famous pieces increased. There is a record in *Shushi* 書史 (History of Calligraphy) of Mi Fu that once a person got a calligraphy of Yu Shinan<sup>159</sup> and to achieve a higher price, he cut the artwork into pieces and sold it word by word.<sup>160</sup> However, passing off imitation art as the authoritative version by adding a fake signature or mounting on the original frame was not new. And for paintings, the common way is selling the works of unknown artists with a famous master's name. Mi Fu said jokingly, "Therefore, the proverb says that the ox is Dai Song<sup>161</sup>; the horse is Han Gan<sup>162</sup>; the red-crowned crane is Du Xun<sup>163</sup>; and

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<sup>158</sup> Ibid. Original text: 天后朝，張易之奏召天下畫工修內庫圖畫，因使工人各推所長，銳意模寫，仍舊裝背，一毫不差。其真者，多歸易之。Which comes from *Zhang Yanyuan. LDMHJ. vol 1. 敘畫之興廢*.

<sup>159</sup> Yu Shinan 虞世南 (558–638), whose style name was Boshi, was an official, littérateur, calligrapher and a scholar of the early Tang Dynasty.

<sup>160</sup> Mi Fu 米芾 (Song Dynasty). Zhao Hong 趙宏, eds. *Shushi* 書史 (History of Calligraphy). Zhengzhou: Zhongzhou Ancient Books Publishing House, 2013.

<sup>161</sup> Dai Song 戴嵩, an artist of the Tang Dynasty, was good at ox paintings. He was the disciple of another famous ox painting artist, Han Huang 韓滉 (723–787).

<sup>162</sup> Han Gan 韓幹 (706–783) was a Tang Dynasty court painter and was famous for horse paintings. He "learned from the horses in the imperial stables" and was able to not only portray the physical body of the horse, but also its spirit (Cahill, James. *The Painter's Practice: How Artists Lived and Worked in Traditional China*. New York: Columbia University Press, 1994, 98).

<sup>163</sup> Du Xunhe 杜荀鶴 (c. 864–906) was a poet of the late Tang Dynasty. He 鶴 means the red-crowned crane in Chinese, here it is a joke by Mi Fu.

the elephant is Zhang De<sup>164</sup>.”<sup>165</sup>

During the Ming and Qing Dynasty, market demand for ancient paintings and calligraphy was increasing because, as well as the existing collectors such as scholars, literati, officials and the imperial court, burgeoning merchants also began to collect artworks. In the Chinese traditional concept, the social status of merchants was the lowest among the four basic professionals – scholar, farmer, artisan and merchant.<sup>166</sup> In order to change their “rock-bottom” position, merchants tried to be arty and purchased paintings and calligraphy. The funds they brought raised the price of artworks. But after more than 1,000 years (since the Jin Dynasty) and numerous wars, fires, floods or other accidents, surviving stocks were in short supply, and could not keep up with the market demand. Therefore, the forging behaviour was stimulated. In some commercially developed areas like Yangzhou and Suzhou, falsification has formed a profession.

The Qing Dynasty poet, calligrapher and artist Qian Yong (1759–1844) recorded that:

In the early days of the dynasty, there was a Qin family living in the specific alley of Suzhou. Father, son and brothers, all were good at making fake paintings. Current pieces which were attributed to the Song and Yuan Dynasty artists such as the Huizong Emperor, Zhou Wenju (about 907–975), Li Gonglin (1049–1106), Guo Zhongshu, Dong Yuan, Li Cheng, Guo Xi, Xu Chongsi ... from fan painting to large handscroll, most were made by them and were called the Qin family style in the market.<sup>167</sup>

Since the Qing Dynasty, making fake art works has been become an industry. Forgers look

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<sup>164</sup> Zhang Dexiang 章得象 (978–1048) was a politician and a poet of the Northern Song Dynasty. Xiang 象 means elephant in Chinese. Mi Fu used Du Xunhe and Zhang Dexiang to satirize the great number of fake works of Dai Song and Han Gan.

<sup>165</sup> Mi Fu. *Shushi*. Original text: 故諺雲“牛即戴高,馬即韓幹,鶴即杜荀,象即章得”也。

<sup>166</sup> Guan Zi 管子. (Warring States to the Qin and Han Dynasties) Fang Xuanling 房玄齡 annotation. *Guanzi* 管子. In *The First Edition of The Four Series* 四部叢刊初編 vol 344–347,景常熟瞿氏鐵琴銅劍樓藏宋刊本。

<sup>167</sup> Qian Yong 錢泳 (Qing Dynasty), *Lüyuan Conghua* 履園叢話. Beijing: Zhonghua Book Company, 1997. Original text: 國初蘇州專諸巷,有欽姓者,父子兄弟,俱善作偽畫。近來所傳之宋元人如宋徽宗、周文矩、李公麟、郭忠恕、董源、李成、郭熙、徐崇嗣……諸家,小條短幅,巨冊長卷,大半皆出其手,世謂之欽家款。

for old materials (silk, paper, ink) of a given age and hire artisans to imitate the painting image, seals, colophons and the mounting. They also use clever ways to produce an antique finish on pieces. An official of the Qing Dynasty, Wu Xiu (1746–1827), also known as a calligrapher and a poet, has recorded the process of antique finish:

The copies were soaked in clear water and laid out flat on a lacquer table. When they were dry, they were soaked again and laid down flat again. This was repeated twenty or thirty times a day for three months. Afterwards, they were treated with a light starch made from the roots of *pai-chi* 白芨 (a plant of the iris family) in order to give a sheen to the surface. When I examined these copies the colour of the ink seemed to have blended into the flesh of the paper.<sup>168</sup>

In order to win the trust of the buyers, forgers used the genuine frame to mount fake works and the authentic work was neglected by connoisseurs and collectors.

However, from the 20th century, with increasing cultural exchange between countries, demand for Chinese art works did not decline. Not only personal counterfeiters were active in the art market, such as Zhang Daqian, but also some groups making forgeries for benefit appeared. Tanjing Ltd in Shanghai was the most notorious one which imitated plenty of fake paintings of the Song and Yuan Dynasty.<sup>169</sup>

## Methods of Forging

Although there are many methods for copying art pieces or making forgeries and in one painting, different methods are always combined, there are only four basic means: *mo* 摹, *lin* 臨, *fang* 仿 and *zao* 造.<sup>170</sup> I agree with Wen Fong's English translation: to trace, to copy, to imitate and to invent.<sup>171</sup>

Originally, these methods were training practice for Chinese painting or calligraphy learners, but in fake artwork market, they also are effective means. *Mo* is a method that uses paper

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<sup>168</sup> Fong, Wen. "The Problem of Forgeries in Chinese Painting", 97.

<sup>169</sup> Xue Yongnian. "Authentication and Making Imitation of the Calligraphy and Paintings", 69.

<sup>170</sup> Zürcher, Erik. "Imitation and Forgery in Ancient Chinese Painting and Calligraphy", *Oriental Art* vol 1 (1955), 141–146.

<sup>171</sup> Fong, Wen. "The Problem of Forgeries in Chinese Painting", 103.



or silk to cover an original piece and delineating the outline of the image or words before filling in with ink or colours. This method was always used to copy calligraphy, especially the regular script and the running script, bird-and-flower paintings, or other fine brushwork paintings. Before modern printing was created, *mo* was the most important method to replicate art works. It was said that the famous calligraphy *Lanting Xu* (Preface to the Poems Composed at the Orchid Pavilion) was buried with the Taizong emperor of the Tang Dynasty and several court calligraphers were ordered to make ten replicas.<sup>172</sup> Among the existing copies, the one by Feng Chengsu (617–672), also known as the Shenlong version, used the method *mo* and it was regarded as the closest resemblance to the original.<sup>173</sup> The characteristic of an accretion that uses *mo* is accurate in shape but the copy process is rigid which also leads to stiff brushwork. Paying more attention to details will lose the consistency of the whole work as well.

*Lin* means copy. The imitator learned shape and brushwork from the original piece and imitated it to make a new duplicate. This method was also a necessary practice for Chinese painting learners, especially for some art works which cannot *mo*, for instance, landscape painting, cursive script, etc. The forgery made by *lin* avoided the disadvantage of *mo* but the image position and shape cannot be too faithful to the original. Even if the fake work can present a picture as vivid as the authentic piece, the forgery always shows an unconscious personal habit of the author.

*Fang* is imitating the style instead of a specific work. This method was also a way of learning calligraphy and painting but harder than *mo* and *lin* because it requires abundant knowledge of an artist or a style. When the learner is proficient in *mo* and *lin*, he can get rid of the original work and go to the next step – presenting his impression of a certain

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<sup>172</sup> Liu Su 劉鍊 (Tang Dynasty). *Sui Tang jiahua* 隋唐嘉話. Beijing: Zhonghua Book Company, 2005. Original text: 王右軍《蘭亭序》，梁亂出在外，陳天嘉中為僧永所得。至太建中，獻之宣帝。隋平陳日，或以獻晉王，王不之寶。後僧果從帝借搨。及登極，竟未從索。果師死後，弟子僧辯得之。太宗為秦王日，見搨本驚喜，乃貴價市大王書《蘭亭》，終不至焉。及知在辯師處，使蕭翊就越州求得之，以武德四年入秦府。貞觀十年，乃搨十本以賜近臣。帝崩，中書令褚遂良奏：「《蘭亭》先帝所重，不可留。」遂秘於昭陵。and Dong Gao 董誥 (Qing Dynasty). *Quantangwen* 全唐文. vol 301. 蘭亭始末記. Beijing: Zhonghua Book Company, 1983.

<sup>173</sup> Lu You 陸遊. Qian Zhonglian 錢仲聯 annotated. *Jiannan shigao jiaozhu* 劍南詩稿校注. Vol 49. Shanghai: Shanghai Ancient Books Press, 2005. Original text: 《跋馮氏蘭亭二首》：堂堂淮陰侯，夫豈噲等伍。放翁評此本，可作蘭亭祖。；繭紙藏昭陵，千載不復見。此本得其骨，殊勝蘭亭面。

style according to his memory. If a forgery is made by the *fang* method, the brushwork can avoid the weaknesses of *mo* and *lin*, such as hesitation and stiffness. But as with the method of *lin*, an imitative forgery may reveal characteristics of the era, a forger's individual style or subjective factors. The more important thing is that the master of the original work always has high artistic accomplishment that the forger cannot reach. The fake pieces may imitate the superficial similarity, but the core of the art is hard to copy. It can only be an interpretation of the original style. However, this method always deceived collectors who do not fully understand the essence of an artist or a style.

*Zao* means inventing. The ancient Chinese artworks were always painted or written on flimsy materials such as silk and paper that are hard to preserve. After centuries, there were only a few famous pieces left and most of paintings recorded in art history had been destroyed or lost. The forgers could take advantage of the mentality of collectors that pursue famous artists' works and recreate some paintings which were recorded in historical documents but had not survived. Looking at painting by the method *zao*, there is no disadvantages of stiff brushwork. Besides, if the forgery is the only work of an artist, people cannot compare it with other pieces of the same author, which also avoids the shortcoming of *fang*. This method based on a painting catalogue, aesthetic treatise or history of art publication, considering the style of the same period, was the most difficult to authenticate.

In addition, the above four basic methods of falsification can be combined in various ways. For example, by adding the signature of a famous artist to an anonymous work to increase its price; cutting the original signature and replacing it with that of a well-known artist; only copying part of an authentic painting but piecing together several parts of different works to confuse the painting style; splitting one image to two layers as two paintings to sell; or using authentic colophons to sell fake works.

However, in some cases, the ghost-painter is another form of forger.<sup>174</sup> Based on James

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<sup>174</sup> Fong, Wen. "The Problem of Forgeries in Chinese Painting", 100–101. Cahill, James. *The Painter's Practice*, 136–148. Xue Yongnian. "Authentication and Making Imitation", 70.

Cahill's research, there were two principal reasons for employing a ghost-painter to do one's painting: because he had superior technical skills, or because his time was less valuable than one's own.<sup>175</sup> For most emperor artists and official artists, the first type is common. It has been proved that a great number of pieces attributed to the Huizong Emperor were painted by the court artists. Otherwise, the second type widely exists among personal artists. If the famous artists did not have enough time and energy to finish excess orders, they would want to find a ghost-painter. Usually, this person is their student or close friend who learned from the famous artist or they have the same style. In this situation, the signature and seal were authentic, but the image was not by the real author. Tang Yin (1470–1524), Wen Zhengming (1470–1559), Dong Qichang (1555–1636), Wang Yuanqi (1642–1715) and a great number of other famous artists all had ghost-painters.

Nevertheless, the authentic works may not have the same artistic value. Sometimes, the style of one artist can be different in his early year and old age, and the maturity of artistic personality requires a long process. In Zheng Banqiao's (1693–1766) opinion, the pieces of Li Chan<sup>176</sup> which were created in his early and middle ages were excellent but after 60 years old, his brushwork was weak and floppy.<sup>177</sup> The significance of the genuine pieces is to study the changes of one artist's style, the characteristic of a certain period and to rebuild the history of art. It cannot be said that all the authentic works were better than accretions but even the excellent accretions cannot replace the significance of genuine works. However, some forgeries especially that used the method *fang*, can be regarded as the interpretation of an artist or a style. To some extent, these works which were not for rigid copy but for imitating the style or spirit, also have high research value. Here, I would like to repeat Joan Stanley-Baker's viewpoint that the significance of authentication is to restore the history but we should respect all ancient artworks including accretions and

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<sup>175</sup> Cahill, James. *The Painter's Practice*, 138.

<sup>176</sup> Li Chan 李蟬 (1686–1756) was one of the "Eight Eccentrics of Yangzhou", a famous artist, calligrapher and a poet. He was good at flower painting, rock and bamboo painting, pine and cypress painting.

<sup>177</sup> Xue Yongnian. "Authentication and Making Imitation", 71.

forgeries.<sup>178</sup>

However, the Wei Xian's signature appears on *The Water Mill* may be the method by adding famous artist's name on an anonymous work. It was no doubt that this way can promote its value - attributed an unknown *jiehua* painting to a famous ancient *jiehua* artist and found it a name from *Xuanhe huapu*. Although the signature is easy to simulate, the cultural biography and the painting content are hard to lie. The next two chapters will analyse painting details and other information on handscroll, to find the reliable artist and the time of creation.

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<sup>178</sup> Stanley-Baker, Joan. "Forgeries in Chinese painting", *Oriental Art* vol 1 (1986), 54–66.

## Chapter Two: The Cultural Biography of *The Water Mill*

The Cultural Biography of *The Water Mill* is constituted by seals, colophons and historical documents. What does it mean to say that a painting, a work of art, or more generally a material object has a cultural life, and what does it mean to write a cultural biography of an object? From the point of view of a cultural anthropologist, objects when created are not granted their meaning and function once and for all. Rather, they continue to be culturally constructed as they circulate among and between specific audiences and users.<sup>179</sup>

Ancient Chinese paintings can be classified into several categories according to their mounting style, such as handscroll, fan, hanging scroll, album leaf, etc. The handscroll was the most special one because of its “not all-at-once” viewing way. The origin of the handscroll format was from the Spring and Autumn period, before the invention of paper. People recorded texts on slips of bamboo or wood and to collect all the series, they used ropes to bunch the strips as a handscroll. When the use of paper and silk became more common, this style was kept. A wooden roller was glued at the left end to roll the scroll. When read a handscroll, it should be opened at the right side and unfolded gradually a section at a time. So a handscroll has several scenes, “In both painting and viewing, a handscroll is literally a moving picture with shifting loci.”<sup>180</sup> However, a handscroll can reach meters long including the full mounting format (Figure 38), which also means people could add frontispiece and colophon paper with each remounting.

Based on De-Nin D. Lee’s opinion, the complement of textual accretions is a Chinese handscroll painting’s history.<sup>181</sup> This mounting style provides space for seals and colophons which are supplemental historical records of a handscroll painting, showing as a cultural and cognitive process. This chapter will discuss seals, colophons and historical

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<sup>179</sup> Lee, De-nin Deanna. *The Night Banquet*, 4.

<sup>180</sup> Hung, Wu. “The Painted Screen”, *Critical Inquiry* vol 1 (1996), 64. More information about the handscroll painting style and the way of viewing a handscroll painting can be found in this paper.

<sup>181</sup> Lee, De-nin Deanna. *The Night Banquet*, 3

documents with the purpose of exposing the collection history of *The Water Mill*, as well as the potential author and the time of creation.

## Seals

Previous Chinese connoisseurs and collectors used to add their seals on paintings and calligraphy art pieces whether they owned it or viewed it. From seals on a painting, we could trace the collection history of the artwork. And the seals which are located between the painting image and the mounting silk/paper can also reflect the original painting size or mounting.

In *The Water Mill*, there are 14 clear seals on heaven (*tiantou* 天頭),<sup>182</sup> separator (*geshui* 隔水),<sup>183</sup> bordering, artwork or between the seam, and at least seven faded or fragmentary seals which are mostly on the artwork. Figure 39 shows a diagram depicting the location of each seal/colophon and the mounting format of *The Water Mill*. The serial number follows from the right to the left, the top to the bottom. The clear seal 1 (Figure 40) of *The Water Mill* is “春山孫氏珍藏 (The Treasured Collection of the Spring Mountain of The Sun family)” at the bottom left of the heaven, light green silk with tiny golden spots. Here, the Spring mountain can be a location as well as a name. According to two books, *The Qing Dynasty: The Capital City Traditional Chinese Opera Historical Data*<sup>184</sup> and *The Name Dictionary of Chinese Music, Dance and Drama*,<sup>185</sup> during the Xianfeng period (1850–1861) of the Qing dynasty, a famous Chinese opera artist whose name was Sun Chunshan 孫春山 (1836–1889) was active in Beijing opera circles. But no material shows he was an art collector. However, in Chinese culture, the word 氏 means the surname and this word is usually used in six ways in seals: i. following the full name of the seal owner, such as 歸莊氏<sup>186</sup> and 馬荃氏<sup>187</sup>; ii. following a person’s style name, for instance,

<sup>182</sup> *Tiantou* 天頭 (heaven): The beginning paper or silk of a handscroll painting, in order to protect the painting because it is the outermost layer when the handscroll is rolled up.

<sup>183</sup> *Geshui* 隔水 (separator): Literally, it means “separate from water”. The location of separators is always either side of the image.

<sup>184</sup> Zhang Cixi 張次溪 eds. *Qingdai yandu Liyuan shiliao* 清代燕都梨園史料 (The Qing Dynasty: The Capital City Traditional Chinese Opera Historical Data), vol 2, Beijing: China Theatre Press, 1988, 851.

<sup>185</sup> Cao Chousheng 曹憫生. *Zhongguo yinyue wudao xiqu renming cidian* 中國音樂舞蹈戲曲人名詞典 (The Name Dictionary of Chinese Music, Dance and Drama). Beijing: The Commercial Press, 1959.

<sup>186</sup> Contag, Victoria and Wang Chi-Ch’ien, ed. *Seals of Chinese Painters and Collectors of the Ming and*

茂京氏,<sup>188</sup> 復父氏<sup>189</sup> and 酉君氏<sup>190</sup>; iii. following the surname and the style name, examples being 王遜之氏,<sup>191</sup> 歸文休氏<sup>192</sup> and 劉振之氏<sup>193</sup>; iv. The seal owner was a female and used her husband's surname, like 錢氏<sup>194</sup> and 趙氏文印<sup>195</sup>; v. following the seal owner's occupation, usually the official titles, such as 太史氏<sup>196</sup>; vi. followed by the surname of seal owner, for examples, 嘉禾李氏珍藏,<sup>197</sup> 橫海張氏畫記,<sup>198</sup> 李氏圖書,<sup>199</sup> 毗陵汪氏所藏,<sup>200</sup> 雲間張氏,<sup>201</sup> etc.

In examples where there is no further evidence, since according to the above instances, the Spring Mountain in the seal “The Treasured Collection of the Spring Mountain of The Sun family” is a place better than a name of a person as the sixth category. Moreover, according to a late Qing version, a privately owned ancient book *Pushuting ji* 曝書亭集 which was edited by Zhu Yizun (1629–1709), the same seal (Figure 41) can be found. Another scroll painting named *Watching Mountains*<sup>202</sup> (Figure 42) by famous artist Gong Xian (1619–1689) of the late Ming and the early Qing Dynasties which was sold by auction in the summer of 2014, by The Beijing Council Company, also has the seal “春山孫氏珍藏”.

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*Ch'ing Periods*. Hong Kong: Hong Kong University Press, 1966, 489.

<sup>187</sup> Ibid. 676.

<sup>188</sup> Ibid. 43. Maojing 茂京 was the style name of Wang Yuanqi 王原祁 (1642–1715).

<sup>189</sup> Ibid. 327. Fufu 復父 was the style name of Chen Chun 陳淳 (1483–1544).

<sup>190</sup> Ibid. 454. Youjun 酉君 was the style name of Jiang Tingxi 蔣廷錫 (1669–1732).

<sup>191</sup> Ibid. 53. Xunzhi 遜之 was the style name of Wang Shimin 王時敏 (1592–1680).

<sup>192</sup> Ibid. 488. Wenxiu 文休 was the style name of Gui Changshi 歸昌世 (1573–1644).

<sup>193</sup> Ibid. 713. Zhenzhi 振之 was the style name of Liu Yuanqi 劉原起 (around 1590–after 1632).

<sup>194</sup> Ibid. 326. Chen Shu 陳書 (1660–1736) was a female artist of the Qing Dynasty and her husband was Qian lunguang 錢綸光.

<sup>195</sup> Ibid. 14. Wen Shu 文淑 (1595–1634) was a female artist of the Ming Dynasty and her husband was Zhao Lingjun 趙靈均.

<sup>196</sup> Ibid. 32. Mao Qiling 毛奇齡 (1623–1716) was a historiographer of the Qing Dynasty and he used his official title in seals. Ibid. 419–421. Dong Qichang 董其昌 (1555–1636) was a historiographer of the Ming Dynasty and he used his official title in seals.

<sup>197</sup> Ibid. 553. It was a seal of Li Zhaoheng 李肇亨 (around the middle of the 17th century) whose place of birth is Jiaying 嘉興, called Jiahe 嘉禾 in history.

<sup>198</sup> Ibid. 297. It was a seal of Zhang Cining 張賜寧 (1743–1818). Zhang is his surname and his place of birth is Cangzhou 滄州 where the government of the Tang Dynasty established Henghai 橫海 army in 726. Henghai refers to Cangzhou.

<sup>199</sup> Ibid. 156. It was a seal of Li Shan 李鱣 (1686–1756).

<sup>200</sup> Ibid. 164. It was a seal of Wang Fang 汪昉 (1799–1877) whose place of birth is Wujin 武進 county of the Changzhou city. Piling 毗陵 was the ancient name of Changzhou area.

<sup>201</sup> Ibid. 290. It was a seal of Zhang Xianghe 張祥河 (1785–1862) whose place of birth is Songjiang 松江, current Shanghai, called Yunjian 雲間 in history.

<sup>202</sup> As here we are only discussing the collection of seals on paintings, the authenticity of *Watching Mountains* 2014 auction by Beijing Council Company will not be researched in this thesis.

According to *Duxuezhai Seals Collections*,<sup>203</sup> one of the editors Sun Zhuang (1879–1943) wrote the foreword which mentioned that his grand uncle had an art collector name called Chunshangong 春山公 (Sir Spring Mountain) who collected more than 300 Qin and Han Dynasties seals. But the seals were all lost in battles of the Boxer Rebellion in 1900, and only two-thirds of the unedited printed copy of the seal characters survived. In the autumn of 1917, Chen Shutong sent Sun Zhuang a letter from Shanghai saying that he had seen two volumes of *Guquan Seals Collection* which has a preface by Sun's uncle Shaochungong 少春公 (Sir Junior Spring). Chen Shutong thought they were part of Sun Zhuang's family heritage so he bought the books immediately and returned them to Sun Zhuang. Moreover, Chen Shutong wanted to introduce the seal collections of Sun Zhuang family to Hanfenlou<sup>204</sup> to be printed and distributed.<sup>205</sup>

*Huangqing shushi* records that:

孫汝梅，字問羹，號春山，大興人。光緒六年進士，官兵部主事。嗜古，善隸，能鑒別金石。

Sun Rumei, whose style name was Wengeng, the art name was Chunshan (Spring Mountain), Daxing (a district of Beijing) people. *Jinshi* (the highest and final degree in the imperial examination of the Imperial China) of the sixth year of the Guangxu period (1880). [He] was a *zhushi* (official title) official of the Ministry of War. [He] was fond of ancient [culture/antique], good at *lishu* (clerical script), and can authenticate epigraphs.<sup>206</sup>

The seal “The Treasured Collection of the Spring Mountain of the Sun Family” was a personal seal of Sun Zhuang, which can be found in most of his collection. But he did not

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<sup>203</sup> Sun Zhuang and Chen Shutong, *讀雪齋印譜* (*Duxuezhai Seals Collections*). Hanfenlou 涵芬樓 printed, 1924.

<sup>204</sup> Hanfenlou 涵芬樓, the library of the Shanghai Commercial Press, was established in 1904 in Shanghai.

<sup>205</sup> Sun Zhuang and Chen Shutong, *Duxuezhai Seals Collections*. Original text: 先叔祖考春山公收藏秦漢鈔印三百餘方，庚子兵燹散失殆盡，僅存印本三分之二，亦未加考訂，丁巳秋陳君叔通自滬來割，見有古泉鈔印二冊，首列先叔父少春公序文，審為吾家故物，亟為購還，足補前缺失而復得陳君之惠厚矣，今又擬將鈔印介涵芬樓印行以廣其傳，陳君傳古之心尤令人欽感，謹敘得失概略以志不忘。壬戌二月北平孫壯謹識於京師。

<sup>206</sup> Li Fang 李放 (Qing Dynasty). *Huangqing shushi* 皇清書史. vol 10. In Zhang Yanhou 張延厚, ed. *Liaohai congshu* 遼海叢書. Shenyang: Liaohai Book Publishing House, 1933–1936.



have a style name nor an art name related to the Spring Mountain, so we do not know if the seal was his own or inherited from his grand uncle Sun Rumei. However, Sun Rumei achieved the *jinshi* degree in 1880. According to research by Zhang Jie, the average age of the person achieving the *jinshi* degree of the Qing Dynasty was around 37.<sup>207</sup> Therefore, Sun Rumei could have lived from around 1840 to 1910. Whether this seal belonged to Sun Zhuang or Sun Rumei, it was a personal collector's seal during the late 19th and the early 20th centuries.

The clear seal 2 on the scroll is a 鄭邸珍藏 (The Treasured Collection by the Zheng House) at the light yellow silk of the Former Separator (Figure 43). This seal belongs to Prince Zheng of the Qing Dynasty, one of the 12 princes who were awarded perpetual nobility, also known as "iron-cap princes". The first bearer of the title Prince Zheng was Jirgalang (1599–1655) who was awarded the title in 1636. But when his son inherited the title, it was renamed Prince Jian. After being passed down for four generations through nine people, the title was changed to Prince Zheng again from the reign of the Qianlong Emperor. Therefore, even in one family, the seal cannot belong to the princes whose title was Prince Jian.

Based on Li Baoxun, *The Water Mill* was owned by the House Zheng from the middle of the Qianlong period. The owner of this seal is Jihana (1758–1794) who held the title of Prince Zhenggong from 1776. After Jihana, the painting and the seal were given to his son Ulgungga (1778–1846) who bore the title Prince Zhengshen from 1794 to 1846. However, when the title passed down to Ulgungga's son Duanhua (1807–1861) who was one of the closest advisors of Xianfeng Emperor and was asked to assist the young Tongzhi Emperor, things changed. Duanhua lost all his political position and power, and even his head in the Xinyou Palace Coup (1861). After Duanhua, the title Prince Zheng was still awarded to several generations but the House of Zheng no longer had its previous power and resources. It can be deduced that *The Water Mill* was collected in the House Zheng around 1776–1861.

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<sup>207</sup> Zhang Jie 張傑. *Qingdai kejü jiazu* 清代科舉家族 (The Family Attended the Imperial Examinations of the Qing Dynasty). Beijing: Social Sciences Academic Press, 2003, 159.

Although both ends of the right side of the artwork have mutilated faded stamps (the faded seals 1 and 2 in Figure 39), there are no remains on the dark yellow silk of the former bordering. Compared the colours, materials and sizes of the two sides of bordering, the former silk bordering is darker and tighter in fabric density than the posterior bordering although their sizes are the same, both 13.3 cm in length. Such an accurate size must be measured and deliberated. However, there is no trace of a seal on the former silk bordering to show that this darker fabric was added when remounted. Based on this, the former bordering cannot be the original bordering of *The Water Mill*.

The two mutilated faded stamps belong to the *Xuanhe* Mounting Style which will be discussed later with other clear *Xuanhe* seals.

The clear seal 3 is 天曆之寶 (Tianli Zhibao), a huge square seal for the official inventory of the Yuan imperial collection (Figure 44), also with an evaluation by the Wenzong Emperor “神品上 inspirer class, upper”. Comparing the seal and the characters with those on *Early Snow on the River* (Figure 45) by Zhao Gan, they are the same. The title Tianli was used during September 1328 to May 1330 by the Wenzong Emperor (September 1328–April 1329, August 1329–May 1330) and the Mingzong Emperor (January–August 1329). *The Five-Coloured Parakeet*, attributed to the Huizong Emperor (Figure 46) and an imitation of the *Lantingji Xu* (Figure 47) attributed to Yu Shinan (558–638) also have this collection seal. It suggests that *The Water Mill* was once included in the official inventory of the Yuan Dynasty.

At the end of the artwork, four seals are too faded to recognize, one at the top, three at the bottom (faded seal 3 to 6 in Figure 39). In Zheng Wei’s *The Water Mill Handscroll* (1966), he recorded some seal characters, for instance, 蕉林, 清修齋主人賞 and 凌雲閣書畫印, but he did not point out the specific location of each seal.<sup>208</sup>

Jiaolin 蕉林 was the pseudonym of Liang Qingbiao (1620–1691), a famous collector and

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<sup>208</sup> Zheng Wei. “*The Water Mill Handscroll*”, (1966) 18.

littérateur of the late Ming and early Qing Dynasty. This seal (Figure 48) can be found in a bamboo and pheasant painting by Wang Yuan (around the 14th century) which was collected by an individual collector Zhou Xiangyun.<sup>209</sup> From the size and the number of characters, I think the blue seal 3 is this seal.

As the names Qingxiu Room and Lingyun Tower were common for ancient Chinese buildings, the two seals 清修齋主人賞 (Enjoyed by the Owner of Peace Cultivated Room) and 凌雲閣書畫印 (Seal for Painting and Calligraphy of Over Clouds Tower) cannot be matched with specific owners. Hopefully further research could identify them and complete the cultural biography of *The Water Mill*.

However, between the artwork and the later bordering, two clear Xuanhe seals were stamped on the seam (clear seal 4 and 5) and another Zhenghe seal (clear seal 7) was impressed at the seam between the later bordering and colophon paper. This suggests that the posterior bordering could be the original bordering of the painting, at least since the Xuanhe period.

The *Xuanhe* Mounting Style was created during the Huizong Emperor's reigning years when from February 1119 to 1125, the era name was Xuanhe. The Northern Song Dynasty was almost 900 years ago and surviving pieces with *Xuanhe* format are rare, such as *Gaoshi Tu* (Figure 9) by Wei Xian, *The Comments on Calligraphy* (Figure 49) by Tang Dynasty Buddhist monk Huai Su (725–785), *The Ode on Pied Wagtails* (Figure 50) by the Tang Emperor Xuanzong (685–762, r. 712–756) and *The Isles in Snow* (Figure 51) by the Northern Song artist Liang Shimin.

Since the Southern Song Dynasty, artists and connoisseurs have researched this special mounting style and *Xuanhe* seals. Zhou Mi (1232–1298) used “Xuanhe small seals” in his *YYGYL*; Zhang Chou (1577–1643) used “Xuanhe stamps” in the *Qinghe shuhua fang* 清河書畫舫; in the *Pingsheng zhuangguan* 平生壯觀, Gu Fu used a variety of words to

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<sup>209</sup> Contag, Victoria and Wang Chi-Ch'ien, ed. *Seals of Chinese Painters and Collectors*, 573–574.

describe this mounting style and *Xuanhe* seals, such as “the large and small seals of the *Xuanhe* inventory imperial collection”, “the seals and stamps of the *Xuanhe* inventory imperial collection”, “the golden words title by Huizong Emperor”, “yellow linen paper”, “hard yellow paper”, etc.

Recently, some scholars have summarized these studies and formulated a comprehensive body of research, for instance, *A Research on Mounting, Title and Collection Seals of the Official Inventory Collection of the Song and Jin Dynasties* by Xu Bangda,<sup>210</sup> *A Study of the Format Position of Xuanhe Yufu Seals* of Niu Kecheng,<sup>211</sup> and *Accumulating Culture: The Collections of Emperor Huizong* by Patricia Buckley Ebrey.<sup>212</sup>

Theoretically, a full *Xuanhe* mounting scroll should have a brocade protective cover, damask heaven, yellow silk bordering on both sides of the painting, Korean colophon paper, a label with artwork title by the Huizong Emperor and seven red seals (Figure 3). However, the seven seals for painting and calligraphy pieces are different. In Niu Kecheng’s paper, he made two clear diagrams showing each seal’s form (Figure 52) and their location in a normal *Xuanhe* mounting calligraphy piece (Figure 53). But in painting works, the second seal would be a square seal showing two Chinese dragons and located at the higher place, between the title label and the image (Figure 3).

Although in a different situation, the position of seals may slightly different, sometimes to avoid covering words or painting content, a normal *Xuanhe* mounting style piece (Figure 3) should have:

- a. A “Yushu” calabash-shape seal between the Head Section and the Former Bordering.
- b. A square seal showing two Chinese dragons between the title label by Huizong Emperor and the painting.

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<sup>210</sup> Xu Bangda 徐邦達, “宋金內府書畫的裝潢標題藏印合考 (A Research on Mounting, Title and Collection Seals of the Official Inventory Collection of the Song and Jin Dynasties)”, *Art Research* vol 1 (1981), 83–85.

<sup>211</sup> Niu Kecheng 牛克誠, “宣和禦府印格式研究 (A Study of the Format Position of Xuanhe Yufu Seals)”, *Palace Museum Journal* vol 1 (2005), 53–76.

<sup>212</sup> Ebrey, Patricia Buckley. *Accumulating Culture*, 114–120.

- c. A “Xuanhe” seal which were constituted of two small seals for each word, riding at the bottom of the gap between the Former Bordering and the artwork.
- d. A “Zhenghe” rectangular seal at the top between the painting and the Latter Bordering.
- e. A “Xuanhe” rectangular seal at the bottom between the gap of painting and the Latter Bordering.
- f. A “Zhenghe” seal which was constituted of two small seals for each word, stamping between the Latter Bordering and the colophon paper.
- g. A large “Neifu Tushu Zhiyin (Seal of the Official Inventory Collected Paintings and Books)” quadrate seal in the middle of the colophon paper.

*The Water Mill* starts with the heaven section (Figure 54) followed by a vertical strip separator and the former bordering. There is no handwritten title label by the Emperor Huizong, nor a Yushu calabash-shape seal between the heaven and the former bordering. However, as the yellow silk bordering is not the original bordering of the painting, it can be inferred that the former mounting part of *The Water Mill* was damaged or lost. Current bordering, separator and the heaven were added when it was been remounted. Its seam between the latter bordering and the painting still remains half of a Zhenghe rectangular seal (Figure 55, seal d of Figure 3) at the top end and more than half of a Xuanhe rectangular seal (Figure 56, seal e of Figure 3) at the bottom end. A Zhenghe seal which is constituted of two small seals (Figure 57, seal f of Figure 3) for each word, riding between the latter bordering and the colophon paper and the Neifu Tushu Zhiyin quadrate seal (Figure 58, seal g of Figure 3) stamped at the latter half at the middle of the colophon paper.

Now we can have a closer look at the two faded mutilated seals (Figures 59 and 60, blue seals 1 and 2 of Figure 39) on the right side of the artwork. According to the usual position of Xuanhe seals, the lower one should be a Xuanhe seal consisting of two small seals for each word (seal c of Figure 3) and the upper one should be a square seal showing two Chinese dragons (seal b of Figure 3).

The clear seal 6 (Figure 39) is a small seal with characters 雲煙過眼 (clouds and mist passing before one's eye) (Figure 61). The littérateur and poet Zhou Mi (1232–1298) of the Southern Song dynasty was the author of the book *YYGYL*. This book mainly recorded private art collections and some objects of the Southern Song imperial inventory collections. This seal suggests that *The Water Mill* should be recorded in the book. After checking all possible records, in volume four, there is a record “徽宗朝墨蹟 用天水雙龍縫及泥金禦題淡青狹僉頭是也”, which most matches the object. Ankeney Weitz translated it in English as “In Emperor Huizong's collection, the seams of works of calligraphy were marked with the *tianshui*<sup>213</sup> and double dragon seals, and the imperial inscription appearing in thin gold ink on the narrow label strip.”<sup>214</sup>

I have different understanding from hers. 墨蹟 means a piece by ink, and not only can describe calligraphy but also can refer to ink paintings. *Tianshui* is not a seal of the Emperor Huizong but the name of a city of the Gansu province. This city was one of the *junwang* 郡望 of the Zhao family. Literally, *junwang* means the birthplace of a family or a place where one family achieved notable fame. Using *junwang* with the family name for the noble-born people highlights their status from other people who have the same surname. One place could have several noble families and a surname could have different noble families in different places. After the Ming Dynasty, more people used to use native place instead of *junwang*. The surname of the imperial family of the Song Dynasty is Zhao and their *junwang* was Tianshui, so the Song Dynasty can also be called *A Dynasty of Tianshui* 天水一朝.

Moreover, there is a saying that *tianshui* was the calligraphic monogram/signature of the Huizong Emperor. In Chinese, it is called *huaya* 花押. The calligraphic signature is based on cursive handwriting, with a personal symbol or design added. It was created to replace the traditional signature because *huaya* was easier to sign and harder to copy. *Huaya* of the Huizong Emperor is simple but abstruse (Figures 62–64). According to its shape, somebody deconstructed the signature: 天下一人 (number one heaven) and 天水

<sup>213</sup> The Song imperial family originally hailed from Tianshui in Gansu province.

<sup>214</sup> Weitz, Ankeney. *Zhou Mi's Record of Clouds and Mist Passing Before One's Eyes*, 208.

(*tianshui*) are two interpretations that are widely accepted.

Besides, the Huizong Emperor also has a title “Prince of Tianshui Commandery” which was given by the Xizong Emperor (1119–1150, r. 1135–1150) of the Jin Dynasty in 1141, during the peace negotiations leading up to the Treaty of Shaoxing between the Southern Song and the Jin Dynasties. *Tianshui* as a nickname of the Huizong Emperor is also used, as in *Tianshui’s Copy of Zhang Xuan’s “Pounding Silk”* (Figure 65) and *Tianshui’s Copy of Zhang Xuan’s “Spring Outing of the Court Ladies”* (Figure 66). The titles were by the Zhangzong Emperor (1168–1208 r. 1189–1208) of the Jin Dynasty, and copied Huizong’s renowned slender-gold calligraphy, although the two paintings may be from court painters.<sup>215</sup>

Until the Yuan Dynasty, in *Tuhui baojian* (1365), Xia Wenyan described the Emperor Huizong, “徽宗，萬幾之暇，惟好書畫....畫後押字用天水及政和宣和小璽誌....”. – “The Emperor Huizong, when he had spare time among government affairs, the only hobby was calligraphy and paintings ... [he] used *tianshui* calligraphic signature, Zhenghe and Xuanhe small seals to mark after the painting finished.”<sup>216</sup> Zhou Mi’s *YGYL* was written around 1296. This is convincing evidence that *tianshui* meaning the Huizong Emperor was common during the Yuan Dynasty.

In my opinion, the words *tianshui* of the record of Zhou Mi’s book denoted the Huizong Emperor rather than a seal. I would like to translate the record as “An ink piece of the Emperor Huizong’s reign, the seam between the work and the former bordering was marked with the double dragon seal of the Huizong Emperor, and the imperial inscription appearing in golden ink on the light cyan narrow label strip.”

In *YGYL*, all records that mentioned the Huizong Emperor and the Xuanhe seals described the content of painting or name of the piece except this record. None of other records

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<sup>215</sup> Blanchard, Lara C. W. *Song Dynasty Figures of Longing and Desire: Gender and Interiority in Chinese Painting and Poetry*. Leiden: Brill, 2018, 164.

<sup>216</sup> Xia Wenyan 夏文彥 (Yuan Dynasty). *Tuhui baojian* 圖繪寶鑒. vol 3. In *QDSKQS, zibu* eight, art category.

matches *The Water Mill*. If the seal 雲煙過眼 is authentic, this record should point at *The Water Mill*. It reveals that *The Water Mill* had the former part of the *Xuanhe* mounting at least until approximately 1296.

The clear seal 8 is *chufenglou* 雛鳳樓 (Immature Phoenix Tower) (Figure 67), which was marked on the seam between the later bordering and the first colophon paper. The immature phoenix is a metaphor of talented youth. This building is located in the House of Prince Zheng. It is a collection seal of the Prince Zhengshen, Ulgungga.<sup>217</sup>

The clear seal 9 (Figure 68) is a personal seal of Wang Shouren (1472–1529), followed by his inscription, in 1510.

The clear seal 10 is 益王之章 (Seal of Prince of Yi) (Figure 69). Although the title Prince of Yi was used in the Tang, Yuan and the Ming Dynasty, this seal belonged to Zhu Yiyin (1536–1603) who held the title from 1580 to 1603. This seal also appears in a reprinted stone rubbing painting *Lanting Tu* (Figure 70). A publication by Xiao Hongming in 2014 carefully examined and researched Prince Yixuan of the Ming Dynasty, Zhu Yiyin (style name: Huangnan) and his chrysanthemum paintings.<sup>218</sup>

The clear seal 12 (Figure 39) is 晉府圖書 (Paintings and Books of the Jin House) (Figure 71). Zhu Gang (1358–1398), the third son of Zhu Yuanzhang, was the owner of the seal, holding the title Prince of Jin since 1368. In a paper by Xu Kaikai, he pointed out that the Ming Dynasty did not have a professional institution for collecting paintings and calligraphy, which may be because the first emperor of the Ming Dynasty was a peasant. But Zhu Yuanzhang attached importance to education for posterity. Zhu Gang was one of the most famous collectors of the Ming Dynasty and almost every Prince of Jin was fond of collecting. So pieces which have 晉府圖書 or 晉府書畫之印 are of high quality and

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<sup>217</sup> Li Fang. *Huangqing shushi*. vol 32. In Zhang Yanhou, ed. *Liaohai congshu*.

<sup>218</sup> Xiao Hongming 蕭鴻鳴. 明益宣王朱翊鉞漢南與他的《菊花圖》考訂 (Research and Examination of The Prince Yixuan of the Ming Dynasty, Zhu Yiyin Huangnan and His Chrysanthemum Paintings). Beijing: Cultural Relics Publishing House, 2014.



fine taste.<sup>219</sup>

The clear seal 13 (Figure 39) is a personal seal – 磐石父 *panshifu* (Sir Monolith) (Figure 72). It was marked after an inscription but has no author's signature. The character *fu* 父 was an honorific title for scholars, such as 長蘅父,<sup>220</sup> 文漁父,<sup>221</sup> 孔彰父<sup>222</sup> and 叔達父.<sup>223</sup> So *panshi* 磐石 could be the style name of the seal's owner. From the colophon, we can know that *panshifu* viewed this painting in the collection of Cao Rong (1613–1685).<sup>224</sup> Refer to the time of the inscription, summer of the Jiawu Year, the time of writing would be 1654. In *The Water Mill Handscroll* (1966), Zheng Wei added a bracket with the name Cui Yong'an and a question mark beside *panshifu*. Because the style name of Cui Yong'an was *panshi*, but Cui Yong'an was living in the middle Qing Dynasty, born in 1858, obviously, he cannot be this *panshifu* of *The Water Mill*. Luo Jizu also discussed this issue in the *Social Science Journal* (1988). He claimed that the calligraphy of Cui Yong'an cannot match the handwriting of the inscription. Cui's living time was far from Cao Rong so, *panshifu* cannot be Cui Yong'an. Currently, the identity of *panshifu* is unclear, but the time of writing and information from the inscription also support us to build the collection history of *The Water Mill*.

The clear seal 14 (Figure 39) is the seal of Prince Cheng (Figure 73). This title was not awarded perpetual nobility, which means each successive bearer of the title would start off with a title downgraded by one rank. The only Prince of Cheng was Yongxing (1752–1823), the 11th son of the Qianlong Emperor. He viewed this painting in 1797 in Immature Phoenix Tower where the Prince Zhengshen Ulgungga collected paintings and calligraphy.

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<sup>219</sup> Xu Kaikai 徐凱凱. “由鑒藏印看明初晉府之書畫收藏 (Research on Paintings and Calligraphy Collections of the Jin House During the Early Ming Dynasty from the Collection Seals)”, *Meiyuan* vol 5 (2015), 66–71.

<sup>220</sup> Contag, Victoria and Wang Chi-Ch'ien. *Seals of Chinese Painters and Collectors*, 154. Li Liufang 李流芳 (1575–1629) had a style name Changheng 長蘅.

<sup>221</sup> Ibid. 298. Wenyu 文漁 was the style name of Zhang Yanchang 張燕昌 (1738–1814).

<sup>222</sup> Ibid. 389. Kongzhang 孔彰 was the style name of Xiang Shengmo 項聖謨 (1597–1658).

<sup>223</sup> Ibid. 672. Shuda 叔達 was the style name of Sun Zhi 孫枝 (around the late 16th to early 17th century).

<sup>224</sup> Cao Rong 曹溶 (1613–1685), whose style name was Jie Gong 潔躬 and his art name was Qiu Yue 秋嶽, is a politician and a collector of the late Ming and the early Qing Dynasty.

It is worth noting that a huge seal (the faded seal 7 in Figure 39) was always ignored by collectors, viewers and researchers. In the summer of 2018, when *The Water Mill* was re-displayed in the Shanghai Museum after years, I found an unusual tremendous light seal on the colophon paper and the later bordering (Figure 74).

Compared with the size of *The Water Mill*, the length of each side of the square seal should be at least 17–18 cm, extremely rare in existing seals. Even as large as the official inventory of the Song and Yuan imperial collection seals, squares respectively about 7 and 8.4 cm, such a large collection/individual seal has never been seen in a handscroll.

However, the seal is exceedingly thin because of fading and recognizing the characters of the seal becomes especially hard. It used a particular seal script that was popular in the Song, Jin and Yuan Dynasties – *jiudiezhuān* 九疊篆 (The Nine Curved Seal Script), the same as seals of the official inventory of the Song and Yuan imperial collections (the clear seal 3 and 11, Figure 39). The nine curved seal script was widely used in engraving and for decorative purpose people used to zigzag the line of characters. Since the Song and Yuan Dynasties, the size of seals became increasingly large. To fill the empty space was one of the purposes for seal designers, so people added more curves in one stroke. Nine means many in Chinese, so the nine curved seal script means the seal script with many curves. This seal script was invented in the Song Dynasty and became a mature writing style in later dynasties.<sup>225</sup>

Usually, such a large seal with a great deal of characters would be an official seal for an organization or governmental agencies, or the imperial seals of the emperors but during the Jin and Yuan Dynasties, official seals for individuals, especially a formal seal with the owner's identity, status and occupation can reach such a size as well (Figures 75–77). Figure 75 was an official seal of a county magistrate and from the inscription on the back of the seal, it was engraved in 1154, the Southern Song Dynasty. Figure 76 was the seal of a commander of the Jin Dynasty. Figure 77 was the seal of an officer of the Yuan Dynasty –

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<sup>225</sup> Sun Weizu 孫慰祖. “兩宋印章的淵源與走向 (Origin and Tendency of Seals of the Both Song Dynasties)”, *Art Work* vol 7 (2019), 40–47.

“Seal of Jian Zi Hao Branch of Chief Officer in Charge of a Thousand Households of Yidu Street”<sup>226</sup>. Usually, these kinds of seals were made of copper, the length of each side length around 7–10 cm. Figure 78 shows the size of a normal seal of a commander of the Yuan Dynasty and a hand of an adult male.

In another exhibition hall of the Shanghai Museum, a huge Yuan Dynasty seal caught my attention (Figure 79). The bronze “Seal of the Chief Officer in Charge of Folk Craftsman in Zhongxing Road, etc.”<sup>227</sup> is one of the biggest, and also one of the surviving seals that has the most characters. But it is smaller than the seal edge of *The Water Mill*, only 8.2 x 8.1 cm.

However, in Sun Weizu’s publication *The History and Art of Chinese Seals*, he talks about the standards of the official seals. From the codes and regulations of The Yuan Dynasty, the official seals are ranked by size, for example, princes can use seals with side length around 10.6 cm and in a descending order, duke, viscount, different grade ministers would use seals conforming to their positions. In addition, official seals of the Yuan Dynasty have a wider frame than the Song and Jin Dynasties, and the edges at the turning points of the strokes were abrupt.<sup>228</sup> These differences can be clearly seen when comparing “Neifu Tushu Zhiyin 內府圖書之印” (Figure 58), “Tianli Zhibao 天曆之寶” (Figure 59) and “Seal of the Chief Officer in Charge of Folk Craftsman in Zhongxing Road, etc” (Figure 79).

Look carefully at the light trace of the huge seal, following the frame of the seal, it is amazing that the large scope was not one seal, it seems to be constituted of four smaller seals. Besides, from the wide frame, it should later than the Song Dynasty. Therefore, the most possible conjecture is that these are four medium size seals of the Jin or the Yuan Dynasty. But why they were placed so close like a whole seal? Did they belong to one owner? What was the owner(s) identity? Why are the seals so faded? These questions still have no answers.

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<sup>226</sup> Sun Weizu. *The History and Art of Chinese Seals*. Beijing: Foreign Languages Press, 2010, 240.

<sup>227</sup> *Ibid.* 246

<sup>228</sup> *Ibid.* 246–248.

To summarize, from seals of *The Water Mill*, we can outline the collection history of this painting (the seal number based on Figure 39):

Time	Owner	Viewer
The Northern Song Dynasty (from Xuanhe period) 1119–1126	The Huizong Emperor (The official inventory collections) Xuanhe Seals: the clear seal 4,5,7,11 and the faded seal 1, 2	
Before 1296		Zhou Mi “雲煙過眼”: the clear seal 6
The Yuan Dynasty, 1328–1368	The Wenzong Emperor (The official inventory collections) “天曆之寶”: the clear seal 3	
The Ming Dynasty, 1368–?	Prince of Jin (Zhu Gang and his descendant) “晉府圖書”: the clear seal 12	Wang Shouren viewed in 1510 Individual seal: the clear seal 9
The Ming Dynasty, 1580–1603	Prince of Yi (Zhu Yiyin) “益王之章”: the clear seal 10	
Around 1630–1685	Cao Rong	Unknown viewed in 1654 “磐石父”: the clear seal 13
After 1654–1691	Liang Qingbiao “蕉林”: the faded seal 3	
Around 1776–1861	Prince of Zheng “鄭邸珍藏”, “雛鳳樓”: the clear seal 2, 8	Prince of Cheng (Yongxing) viewed in 1797 Individual seal: the clear seal 14
the late 19th century and the early 20th century	Sun Zhuang or his grand uncle “春山孫氏珍藏”: the clear seal 1	

These collections or individual seals show a clear history line of *The Water Mill*, which from the Northern Song Dynasty to the end of the Qing Dynasty has a well-established collection history. Each dynasty has at least one seal on the painting. So, the creation time of *The Water Mill* must be no later than the Xuanhe period of the Northern Song Dynasty.

## Colophons

There are four inscriptions on two colophon papers of *The Water Mill* (Figure 80). The first colophon paper must be the original part of the handscroll, – because the seam between the colophon paper and the later bordering is marked with a *Xuanhe* seal. The second

colophon paper is separated from the first one by a light-yellow damask silk with dragon and cloud patterns. Li Baoxun recorded the content of four inscriptions in his *HWCSJSHL* (Appendix I). As there is no English translation, I make an attempt myself. It may have mistakes and misinterpretations, but I will be glad if it can provide useful information for further researchers.

庚午暮秋中浣 鍾峰王守仁識 下押王守仁印

The first inscription was written by Wang Shouren in the middle of a month, at the end of autumn in 1510. He used the words “暮秋 (*muqiu*)” and “中浣 (*zhonghuan*)”. 暮秋 means the end of autumn, always September of the Chinese calendar. 中浣 means the middle of a month. According to the regulations of the Tang Dynasty, officials have a rest day every ten days. They could have a bath and take a rest on this day. The character 浣 means “bath” and “wash clothes”. One month has three holidays, people used to use the name of holidays instead of early/middle/late of a month. Although the later dynasties no longer had this regulation, the word was kept to make a general reference to the middle of a month.

功名身外即浮爾,丘壑胸中實過之。  
盤車壽康懷李愿,輞川瀟灑友王維。  
何人使氣鐵如意,老子放懷金屈卮<sup>229</sup>。  
市井收聲良夜永,竹風山月亂書帷。

This is a seven-character eight-line regulated verse:

Fame and wealth are external things for one person like floating [clouds],  
the mountain and valley in chest [internal world] are more important than that  
[external things].

The cart [is/means/brings] longevity and health [which makes me] think about Li  
Yuan<sup>230, 231</sup>

<sup>229</sup> *Jinqu'e* 金屈卮: The name of a flower whose shape looks like drinking vessel. People also use this word to substitute “drinking”.

<sup>230</sup> Li Yuan 李願, a Tang Dynasty hermit lived in Pangu 盤谷 (current Ji'an city of the Jiangxi province has a Pangu town), unknown date of birth and death. He was well-known because of an essay by his friend Han Yu (768–824), *Song Li Yuan gui Pangu xu* 送李願歸盤穀序.

<sup>231</sup> The original Chinese does not make sense. Literally, *panche* 盤車 means cart; *shoukang* 壽康

Wang Wei chically met friends in Wangchuan<sup>232</sup>.

Who freely used the iron *ruyi*<sup>233</sup>?

[like] Laozi drinks freely with great joviality.

After the noisy city market closed and turned to silence, the long night seems to be forever.

The wind between bamboos and the mountain moonlight blow the curtain of the study room.

Li Baoxun thought this inscription might be a forgery. The original poem was by Guo Tianxi (1227–1302) of the Yuan Dynasty:

功名身外聊複爾，丘壑胸中實過之。  
盤谷壽康懷李愿，輞川瀟灑友王維。  
何人使氣鐵如意，老子放懷金屈卮。  
市井收聲良夜永，竹風杉月亂書帷。

Apart from the red characters which are different from the colophon on *The Water Mill*, the two poems are almost the same. The foregoing discussion in footnote 226 mentioned that the third sentence of the original poem 盤谷壽康懷李愿 comes from a farewell essay by Han Yu. It was written when Han Yu bid farewell to his friend Li Yuan who was going to Pangu to start life as a hermit. Li Baoxun thought Wang Shouren should not use the cart instead of Pangu.<sup>234</sup>

However, according to the matching principle, if we consider the *panche* as the cart painting (*The Water Mill*) and the Wangchuan as Wang Wei's famous mural painting

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means longevity and health; *huai* 懷 means “miss” or “have”. But according to the standard of Chinese poetry that both sound and sense in two poetic lines of one sentence should match, Wangchuan 輞川 should match a location rather than an object – *panche* 盤車. Moreover, Li Yuan was lived in Pangu. Li Baoxun thought the original word should be *pangu* instead of *panche*, therefore, he also held the view that the whole inscription was a forgery because of this fault. If the word is *pangu*, the sentence could be translated as “Li Yuan lived longevously and healthily in *Pangu*”.

<sup>232</sup> Wangchuan 輞川, the name of a place where Wang Wei (around 699–761) lived when retreated, in current Lantian, Shanxi province.

<sup>233</sup> Iron *Ruyi* 铁如意: It is different from the ceremonial *ruyi* and is sometimes translated as a back-scratcher or a tickling tool.

<sup>234</sup> Li Baoxun. *HWCSJSHL*. Original text: 按此題必為贗作，原詩必是盤谷壽康懷李愿也。(Appendix I)

*Wangchuan Villa*<sup>235</sup>, it will be clear to understand. But in this case, the story of Li Yuan becomes strange.

Based on Wang Shouren's biography, he was not only a calligrapher, military general, philosopher and politician, but also the most significant thinker of Neo-Confucianism. After 1506 when he was banished because of accusing a eunuch for his usurpation, Wang Shouren began to research the Confucian doctrines of the investigation of things and the extension of knowledge. He created his own philosophy of the unity of knowledge and action. In 1510, the eunuch who banished Wang Shouren was killed and he was promoted to be the magistrate of Luling, Jiangxi province. After an audience with the emperor later in 1510, he was raised to be divisional executive assistant in the Sichuan division of the department of justice at Nanjing.<sup>236</sup>

Furthermore, the manor of the Prince Jin located in current Taiyuan of the Shanxi province, was about 1500 km to Luling but between Luling and Beijing (Figure 81). The inscription was written in September, the latter half of the year, which also matches the record. There is reason to believe that Wang Shouren went to the House Jin and viewed this painting, leaving his calligraphy on *The Water Mill*. Although the meaning of the sentence needs more research and is quoted in a previous poem, the whole text presents a broad idea – the inner person is more important than the outside world – the same as Wang Shouren's philosophy. Moreover, this inscription was written on the original colophon paper of the handscroll without joint and splicing, and the strokes of calligraphy look the same as other pieces (Figure 82) by Wang Shouren. In consequence, I believe this inscription was authentic by Wang Shouren.

The second inscription was by Wang Duo<sup>237</sup> (1592–1652) in 1646. He might have viewed

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<sup>235</sup> The original mural was painted in the Qingyuan Temple of Wangchuan but the temple has been destroyed. Surviving paintings of *Wangchuan Villa* were copies by later artists, such as the MMA one (1711) by Wang Yuanqi (1642–1715) and the one in the Freer Gallery of Art which was attributed to Guo Zhongshu.

<sup>236</sup> Chan, Wing-tsit. *Instructions for Practical Living and Other Neo-Confucian writings by Wang Yang-ming*. New York: Columbia University Press, 1963, 30.

<sup>237</sup> Wang Duo 王鐸 (1592–1652), whose style name was Juesi 覺思 and his art names were Songqiao

this painting in Cao Rong's collection because the colophon mentioned Cao Rong's name. This inscription does not have Wang Duo's seal, only his signature.<sup>238</sup>

筆灑師唐,精嚴古秀。宋人之以骨力勝者,譬之禦轂也者,以為利者也。轡琴相得,車不契需,眼焉水焉,剗謂之曰國工。

[The artist of this painting] learned drawing style of the Tang Dynasty, exquisite, strict, classic and beautiful. The Song Dynasty people who were good at strong, vigorous of strokes, are similar to a driver who drives a cart. [They] thought [it was] the key. [If in a painting,] the bridles [of the cart] are tidy and harmonious like strings of the *qin*,<sup>239</sup> no cart operates unsuccessfully,<sup>240</sup> the water [of the painting] seems like the [real] water [which can flow to the real river],<sup>241</sup> [the person who can do these] can be called an excellent artisan.

In 1646, both Wang Duo and Cao Rong were in service with the Qing government in Beijing. It was possible that Wang Duo viewed *The Water Mill* and left his writing. Neither Li Baoxun nor Zheng Wei questioned the authenticity of this inscription but I do not think it was handwritten by Wang Duo.

Above all, this inscription was written extremely close to the third one. You could think they are one inscription if you look carelessly (Figure 80). Usually, when people write inscriptions on a piece, they will leave space around the writing. An example is *The Five Bulls* by Han Huang (723–787, Figure 83). According to the location of the inscriptions on *The Water Mill*, the first, third and the fourth inscriptions seem to be the originals on the handscroll but the second one looks as if it had been added after the final mounting was finished.

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嵩樵, Chi'an 癡庵 or Yantan Yusou 煙潭漁叟, etc. A politician and an artist of the late Ming and early Qing Dynasty.

<sup>238</sup> Li Baoxun. *HWCSJSHL*. Original text: 穉嶽公寶之 丙戌崧樵王鐸跋 (Appendix I).

<sup>239</sup> It was a literary quotation of *Xiaoya – Chexia* 小雅·車鞶. Original text: 四牡騤騤, 六轡如琴。

<sup>240</sup> It was a literary quotation of *Zhouli – Dongguan kaogong ji – zhoun* 周禮·冬官考工記·輶人. Original text: 行數千里, 馬不契需。Also in an essay by Qian Qianyi (1582–1664) of the Qing Dynasty, *Anchashi Huanggong bashi shouxu* 按察使黃公八十壽序: 車之為物也, 負重致遠, 行千里不契需, 器之有用者也。

<sup>241</sup> It may be literary quotations of *Shanhaijing – Beishanjing* 山海經·北山經. Original text: 伊水出焉, 西流注於河。and 旄水出焉, 而東流注于印澤。 , etc.



Secondly, the writing of the inscription is slanted and without Wang Duo's personal seal. If Wang Duo's inscription had been written earlier than the third one, there would have been enough space for him to stamp personal seals. If the colophon by Wang Duo was added by later generations, although the space between two inscriptions for seals is limited, a small personal seal could have been stamped under Wang Duo's signature. One possible conjecture is that the person who wrote this inscription did not have a seal of Wang Duo and this inscription was written later than the third inscription (1654).

Thirdly, Wang Duo was famous for his calligraphy but particularly in semi-cursive and cursive styles. Regular script is not his strongest point, so it is easier to imitate. Moreover, Wang Duo used to write small regular script when he inscribed on art pieces such as *Postscript on Semi-Cursive Handwriting Tianma Fu of Mi Fu* (Figure 84)<sup>242</sup>. In the third inscription, the writer mentioned that Wang Duo had written a colophon for *The Water Mill* and the words “yugu 禦轂” appeared in both colophons. Nonetheless, the postscript is constituted of two colophon papers and the painting may have had an original colophon of Wang Duo but have been lost. Based on the third inscription's content, someone forged handwriting attributed to Wang Duo to enhance the value of the painting. Currently, we cannot know if the second inscription is a copy from an authentic work by Wang Duo or just a simple forgery. But this second inscription cannot be genuine calligraphy by Wang Duo.

The third inscription was written by Panshi Fu in the summer of 1654 when this painting was in the collection of Cao Rong. After the inscription, a seal shows the writer's style name which is Panshi Fu but has no signature.

按盤車圖非李待詔不能畫,非冏卿穉岳公不能藏,非覺斯先生不能跋。倘禦轂有緣,朽人當執鞭從之矣,馳貢高明,以誌尚友。

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<sup>242</sup> Xu Bangda questioned the authority of the *Postscript on Semi-Cursive Handwriting Tianma Fu of Mi Fu* and wrote an essay to discuss this issue, but in this dissertation, *Postscript on Semi-Cursive Handwriting Tianma Fu of Mi Fu* is not an example and its authenticity will not be discussed. The essay of Xu Bangda can be found in the official website of The Palace Museum: [www.dpm.org.cn/handwritings/talk/205617.html](http://www.dpm.org.cn/handwritings/talk/205617.html) accessed 9 November 2019.

The content of colophon compliments several people: “According to that no one can draw [this] cart painting except Li *daizhao*,<sup>243</sup> no one can collect it except *jiongqing*<sup>244</sup> Qiuyue [the style name of Cao Rong], no one can scrip it except Sir Juesi [the style name of Wang Duo]. If destined to drive a cart, aged people like me would like to hold the whip and follow them. Recommend and pursue wise and skilful people, make friends with great people from same interests.”

This inscription shows that *The Water Mill* had a postscript by Wang Duo and the owner of the painting was Cao Rong. However, this is the first record that mentioned the painter of the painting.

In the *jiehua* chapter of *Xuanhe Huapu*, no artist whose surname is Li was recorded. *SCMHP* does not have any Li *daizhao* neither. Guo Ruoxu had recorded a *daizhao* in *THJWZ*: Li Wencai. Based on *Yizhou minghua lu* 益州名畫錄, he was an artist of Later Shu, also known as Meng Shu (934–966) and became a *daizhao* between 938 to 965. Li Wencai was good at portrait, Buddhist painting, architectural painting, etc. But unfortunately, there is no surviving painting by him.

The person Li *daizhao* could also be Li Tang (1066–1150) who was a famous artist of the Song Dynasty. Based on the *Nansong yuanhua lu* 南宋院畫錄 (Records of the Court Paintings of the Southern Song Dynasty), Li Tang was a candidate of the Imperial Art Academy during the Huizong period and became a *daizhao* around Jianyan year (1127–1130). Furthermore, in the introduction of this book, the author gave high praise to cart paintings by Li Tang: “The Northern cart paintings and the mule group paintings must be Li Guxi (Li Tang), Guo Heyang (Guo Xi, about 1000–1090) and Zhu Rui.”<sup>245</sup> The author

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<sup>243</sup> *Daizhao* 待詔: Literally, it means waiting for the order from the Emperor. After the Tang Dynasty, it becomes a name of the official who works in the government. During the Song and Yuan Dynasties, people called craftsman, artisans and artists *daizhao* (Sun Wenliang. *The History of Chinese Official System*. Taipei: Wenjin Publishing Press, 1993).

<sup>244</sup> *Jiongqing* 同卿: Another name for the minister of The Court of the Imperial Stables. He was generally in charge of managing the imperial horse pasturage, stables and corrals, as well as maintaining the vehicles for use by the imperial household and members of the central government (Sun Wenliang. *The History of Chinese Official System*. 1993).

<sup>245</sup> Li E 厉鹗 (Qing Dynasty). *Nansong yuanhua lu* 南宋院畫錄 (Records of the Court Paintings of

of *Records of the Imperial Paintings of the Southern Dynasty* is a Qing Dynasty scholar, Li E (1692–1752), contemporary with Panshi Fu. However, there is no evidence that *The Water Mill* was painted by Li Tang. We cannot find any title, seal, or signature. Besides which, the painting style or brush work was not similar to other pieces by Li Tang.

Although the identity of Panshi Fu is a conundrum, from the colophon content, he put himself in a humble position under Li Tang, Cao Rong and Wang Duo. On one hand, it might be a self-effacing metaphor, on the other hand, it may be the truth – his reputation and social status was not as well-known as them. Additionally, he called himself an old person. Cao Rong was 41 years old when Panshi Fu wrote this inscription. Panshi Fu could be older than Cao Rong. Moreover, Cao Rong was dismissed from his position the minister of The Court of the Imperial Stables from 1646 until 1654 because of making mistakes at work. This inscription mentioned *jiongqing*, so it could have been written after Cao Rong was reinstated. An interesting thing is that the inscriptions by Wang Duo and Panshi Fu were written separately in 1646 and 1654, both viewed the painting in Cao Rong’s collection, when Cao Rong was fired and rehired.

In addition, Li Baoxun in his *WYYYZDHS* referred to “Xiangguang 香光” as the style name of the author of the third inscription. The most famous “Xiangguang” is Dong Qichang (1555-1636) but he lived before Cao Rong. This Xiangguang cannot be Dong Qichang. To sum up, Panshi Fu may be a senior scholar or senior low-grade official whose style/art name was Panshi and Xiangguang. He feels honoured to view and write an inscription on *The Water Mill*.

The fourth/last inscription was written by Prince Cheng (Yongxing) at Chinese calendar middle of August in 1797. He was the 11th son of the Qianlong Emperor and viewed this painting in the House of Zheng, when Ulgunga held the title of Prince Zheng. He was the first person (among the four authors of colophons) who connected *The Water Mill* with *Xuanhe huapu* and Wei Xian.

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the Southern Song Dynasty). Hangzhou: Zhejiang People’s Fine Arts Publishing House, 2016. Original text:北方盤車驟綱必用李晞古郭河陽朱銳。

按宣和畫譜五代胡翼有盤車圖二,衛賢有盤車圖四,皆藏禦府。此卷鈐宣政璽,當是譜所載也,鄭邸收古物最富,然雛鳳樓中寶繪,須以此為第一,與漢瓦唐琴輝燿千古。

嘉慶丁巳八月之望 成親王觀因題 下押成親王印

According to that *Xuanhe huapu* recorded the Five Dynasties pieces, two cart paintings by Hu Yi and four cart paintings by Wei Xian. All of them were collected in the Northern Song imperial inventory. This handscroll was stamped Xuanhe seals, which should be one of these paintings in *Xuanhe huapu*. The House of Zheng collected the most antique but this painting should be the number one among all treasure paintings. It will shine forever with tile of the Han Dynasty and *qin* of the Tang Dynasty.

To summarize the four inscriptions: the first one did not talk about the painting content nor the artist, only the word “cart” relates to *The Water Mill*. The second inscription talked about brushwork and collector. The third inscription discussed artist, collector and previous postscript writer. The last inscription has the most informative content, not only mentioning where the author saw the painting and who had collected it but also discussing the possible attribution and reasons.

The four inscriptions were written separately in 1510, 1646, 1654 and 1797. Though the second one by Wang Duo is suspected to be a forgery, the colophons of *The Water Mill* show a clear time line from the late Ming to middle Qing Dynasty.

## Historical Documents

Compared with seals and colophons, historical documents are not the direct record on handscroll itself, but they also provide important cultural biography of *The Water Mill*. In the fourth inscription, Prince Cheng suggested that *The Water Mill* should be recorded in *Xuanhe huapu*, especially one by Hu Yi or Wei Xian. According to the *Xuanhe Mounting Style* and the *Xuanhe* seals, can we find this painting in *Xuanhe Huapu*?

In spite of a *Xuanhe* mounting style, *The Water Mill* did not have a label with its title by the Huizong Emperor. This painting was called *Panche Tu* 盤車圖 (*The Carts*)<sup>246</sup> for a long time even though the cart group only occupies a small part of the painting.

*Xuanhe Huapu* only recorded four *jiehua* artists with their works – Yin Jizhao (the Tang Dynasty, especially the Emperor Xizong period 874–888), Hu Yi (the Five Dynasty), Wei Xian (the Five Dynasty, about the 10th century) and Guo Zhongshu (?–977). However, from the painting names, one is cart group on a snowy hillock, four are pure cart paintings, and only one attributed to Wei Xian, called *The Water Gate and Transport Carts* 開口盤車圖<sup>247</sup> could correspond to the painting content of *The Water Mill* and indeed, it was used as the painting's name in Chinese until now. But was *The Water Mill* painted by Wei Xian and is it the one recorded in *Xuanhe huapu*?

While Prince Cheng only conjectured that *The Water Mill* was related to Wei Xian, the first person who claimed this painting was drawn by Wei Xian is Li Baoxun. The most powerful support of the argument is a fragment of a signature of Wei Xian which was written at the left side on the rock (Figure 5).

This signature was found by Li Baoxun when he viewed this painting in Ni Xiaofang's place.<sup>248</sup> Since that time, 開口盤車圖 (*The Water Gate and Transport Carts*) was used as the title of the painting and Wei Xian was believed to be the artist.

In *WYYYZDHS*, Li Baoxun carefully recorded how he found the signature of Wei Xian:

At the beginning of the reigning dynasty, this painting was a legacy of Cao Qiuyue [Cao Rong], then it was owned by House Zheng around the middle of Qianlong period. Both [Cao Rong and the Prince Zheng] are great collectors and connoisseurs. Moreover, it was inscribed by Mr. Juesi (Wang Duo) and Prince

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<sup>246</sup> This name was used by the Prince Cheng in the inscription and Li Baoxun in *HWCSJSHL* and *WYYYZDHS*.

<sup>247</sup> Roderick Whitfield translated it as *Transport Carts at the Mill* (Whitfield, Roderick. "Material Culture in the Northern Song Dynasty", 55).

<sup>248</sup> Li Baoxun 李葆恂. *WYYYZDHS*.

Cheng but [I] do not know why there is no signature or evidence showing the painter's identity. I saw this painting at the Court of Imperial Entertainments – the working place of Ni Xiaofang<sup>249</sup> and he also regretted that there was no signature. I was examining the *jiehua* closely and carefully with all my attention, when to my surprise, the few words “reverently painted by Wei Xian” were recognized at the end of paper. It was to be regretted that only half the words exist due to the indiscreet behaviour of the paperhanger who may not have seen the signature when mounting. Mr Liu of Bicaizhai<sup>250</sup> also saw it and told Ni Xiaofang this news. Ni Xiaofang was so excited and overjoyed for several days. Besides, there are two letters *xinjiu* 新酒 (new alcohol) written on a sign of the painting which is as same as the handwriting of the signature. So, it can prove that the signature is not a forgery by later generations. In addition, even though using the regular script to judge the unsophisticated interests [of ancient people], this handwriting cannot be written by people after the Song Dynasty.<sup>251</sup>

In this document (Appendix I), most content is the description, showing us the basic information of *The Water Mill*, such as its material, painting size, image content, collection seals, colophons and collection history of the Qing Dynasty. It was the first record that provided a comprehensive view and research on *The Water Mill*. At the first paragraph, he gives his opinion that it could not be a painting after the Song Dynasty because of its style. Here, he used the traditional authentication method – stylistic analysis, but due to limited words, he did not explain any details. Li Baoxun also put the original text of the four colophons in his book but only gave his opinion on the first inscription – the one by Wang Shouren<sup>252</sup> could be a forgery. In the second paragraph, the main point is the artist of *The Water Mill*, in his opinion, it was Wei Xian.

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<sup>249</sup> Ni Xiaofang 倪小舫, an official of Guanglu Temple (Court of Imperial Entertainments) of the late Qing Dynasty, who owned *The Water Mill* for a while after it managed by the House Zheng.

<sup>250</sup> Bi Caizhai 筆彩齋: A store managed antique, handcraft and artworks from 1865, located in Liulichang Street. The House of Zheng was its shareholder.

<sup>251</sup> Li Baoxun. *HWCSJSHL*.

<sup>252</sup> Wang Shouren 王守仁 (1472–1529), whose style name was Boan 伯安 and his art name was Yangmingzi 阳明子. A philosopher, a calligrapher and an educator of the Ming Dynasty.

Searching by Wei Xian's name from other historical documents, Tang Hou has a record in *Huajian*:

衛賢，五代人，作界畫，可觀。余嘗収其盤車水磨圖，佳甚。

Wei Xian, lived in the Five Dynasties, was good at *jiehua*. I have owned his *Panche shuimo tu* (The Cart and Water Mill), excellent.<sup>253</sup>

The name *Panche shuimo tu* shows the main theme of the painting – the cart groups and the water mill. It is reasonable to believe the painting that Tang Hou mentioned is *The Water Mill*.<sup>254</sup> *Huajian* was published in 1328 which means Tang Hou had had *The Water Mill* before that date. This record fills the history of collection before the painting entered the imperial storehouse of the Yuan Dynasty.

And Zhou Lianggong recorded in *Yinshuwu shuying* (after 1633):

湯屋《畫鑒》云：常收得五代人衛賢所畫《盤車水磨圖》，甚佳。余在閩中<sup>255</sup>，得《盤車水磨圖》，是謝在杭<sup>256</sup>家物。絹素極古，穿插之奇、之夥，非就朗日下細計之，不能得其原委。相傳為郭忠恕畫，或即賢作耶？

In *Huajian*, Tang Hou said he once had *Panche shuimo tu* of the Five Dynasties artist Wei Xian, excellent. I have had this painting in Fujian province, which had been belonged to Xie Zaihang. The silk is plain and old. The images on the painting were ingenious and numerous – [you] cannot understand it unless doing careful research under bright sunlight. It was said [this painting] was painted by Guo Zhongshu, or by Wei Xian?<sup>257</sup>

From Zhou Lianggong's record, we could see that before he owned this painting, the previous owner was Xie Zhaozhe. Zhou Lianggong said he got *The Water Mill* in Fujian province. Based on *Laigutang ji* 賴古堂集, he was promoted to be the commissioner of

<sup>253</sup> Tang Hou. *Huajian* In *QDSKQS*, *zibu* eight, art category.

<sup>254</sup> As well as *The Water Mill*, surviving paintings have another piece based on the same theme – *Shanxi shuimo tu* 山溪水磨圖 (The Water Mill in Valley) which is collected in the Museum of Liaoning province. But the widely acceptable opinion is that *The Water Mill in Valley* was a Yuan painting (*Authentication notes of Yang Renkai*, *Authentication Memoir of Lao Jixiong*, etc). As a great connoisseur of the Yuan Dynasty, Tang Hou might distinguish the difference between them.

<sup>255</sup> Minzhong 閩中, the Fujian province of China.

<sup>256</sup> Xie Zhaozhe 謝肇淛, whose style name was *zaihang* 在杭. A scholar and official of the Ming Dynasty. His hometown was in Changle, Fujian province.

<sup>257</sup> Zhou Lianggong. *YSWSY*. vol 4.

Fujian province in 1647 and was raised to be the official of Beijing in 1654.<sup>258</sup> It is possible that he acquired *The Water Mill* during this period. Moreover, the inscription of Panshi Fu shows that the painting already belonged to Cao Rong in 1654.

However, with the discovery of another more faded and fragmentary signature, the signature of Wei Xian can almost be confirmed as a forgery. Based on the “Zhang ... jin (present)” signature on painting, more and more research has paid attention to Zhang Zeduan. But if we compare the fragmentary signature (Figure 85) to the strokes of Chinese characters 張擇端, the second character of the name of Zhang Zeduan has more strokes than the signature’s second character. And the “擇” does not have a stroke to the right bottom side as “ㄟ” on the painting. Furthermore, 擇端 were not taboo characters of the Song Dynasty. Only based on the same surname Zhang, we cannot attribute *The Water Mill* to Zhang Zeduan.

Another possible artist of *The Water Mill* is Zhang Shunmin, a poet, littérateur and an artist of the Northern Song Dynasty, active in the Yingzong, Shenzong, Zhezong and Huizong period. He wrote an ode on the water mill which shows that he was interested in this theme. It is highly possible that he also had a painting with the same theme. However, the Chinese characters of Zhang Shunmin 张舜民 do not match the fragmentary signature either.

In a Qing Dynasty document *Huishi beikao* 绘事备考 by Wang Yumin, when he wrote about Zhu Rui, a person whose surname was Zhang had been mentioned:

朱銳，河北人，工山水人物，專師王維，亦善雜畫，筆法佈置有似張敦禮，官畫院待詔。

Zhu Rui, from Hebei province, was good at landscape painting and portrait painting, learned from Wang Wei. [He] was also good at *zahua*<sup>259</sup>, the brushwork

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<sup>258</sup> From 1655 to 1660, Zhou Lianggong was a criminal awaiting trial in Fujian province that hard to get a precious ancient painting.

<sup>259</sup> As discussed in Chapter 1, *zahua* was the word the connoisseurs of the Tang Dynasty used to describe miscellaneous paintings including livestock, wild beasts, fishes, dragons, rivers or streams, vegetables, plants, insects, buildings, architectures, etc.



and the composition like Zhang Dunli. [Zhu Rui] was a *daizhao* (a court artist) of the Imperial Art Academy.<sup>260</sup>

However, if we compare the right side of Chinese characters 張敦禮 with the remnant signature on *The Water Mill*, they are extremely similar. Thus, I have a bold speculation that the signature of *The Water Mill* is “臣張敦禮繪進 (Official Zhang Dunli painted and presented)”.

Zhang Dunli (?–1107) was the son-in-law of the Yingzong Emperor (1032–1067, r. 1063–1067) of the Northern Song Dynasty. From Wang Yumin’s record, one of occupations of Zhang Dunli was artist. In *Huishi beikao*, Zhang Dunli and Zhu Rui were mentioned in the same breath and the latter was a great artist of cart theme paintings.

In *Huanjian*, Tang Hou recorded:

張敦禮，汴梁人，哲宗聳也。畫人物，師六朝筆意。嘗見其論畫，曰：畫之為藝，雖小，至於使人鑒善勸惡，聳人觀聽。為補，豈可儕於眾工哉？敦禮畫人物，貴賤美惡，容貌可見，筆法緊細，神彩如生。

Zhang Dunli, from Bianliang (current Kaifeng, Henan province), the son-in-law of the Zhezong Emperor. [His] portrait paintings learn from the Jin and Five Dynasties. He had the theory of painting: “Drawing is art, which is small but can reflect good and stop bad, advising people. [Artist] is useful. How can they be treated as artisans?” In Dunli’s portrait paintings, whether noble or common, beautiful or ugly, can be seen on people’s face. [His] brushwork was tight and fine, and vivid.<sup>261</sup>

According to the biography of Zhang Dunli in *Songshi* (Appendix III), after he became the son-in-law of the Yingzong Emperor in 1068, he was dispatched to Mizhou (in current southeast Shandong province) to be the inspector. Moreover, in his political career, he

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<sup>260</sup> Wang Yuxian 王毓賢 (Qing Dynasty). *Huishi beikao* 繪事備考. vol 6. In *QDSKQS, zibu* eight, art category.

<sup>261</sup> Tang Hou. *Huanjian*. In *QDSKQS, zibu* eight, art category.

also served in Dengzhou in Henan province, Hezhou and Luzhou in Anhui province, Rongzhou in Guangxi province and Huzhou in Zhejiang province. If he was the painter of *The Water Mill*, it could be speculated that the location of the official water mill workshop in the painting may be located at one of these places.

On the basis of a record by Hu Jinzhao, *The Water Mill* had appeared in Bicaizhai, a store in Liulichang Street. Literally, the name Liulichang means a factory producing coloured glaze. When the Yuan Dynasty built its palaces in Beijing, the location in the outskirts of the capital city was a convenient place to establish factories. A great number of factories produced coloured glaze for the imperial palaces for more than 300 years and the place was called Liulichang. After the middle of the Qing Dynasty, Liulichang lost its original function and became a second-hand market. Since the Qianlong period, a grand project brought new blood to Liulichang – the *Siku quanshu* project.<sup>262</sup> Because the purpose of the project was looking for ancient manuscripts and collecting them into series of books, a great number of second-hand bookstores opened in Liulichang. Visitors to Liulichang Street included scholars, officials and literati; their visiting also promoted cultural business, such as stores selling glasses, stores selling seals, stationery shops and antique shops.<sup>263</sup>

Bicaizhai, where the House Zheng invested, was one of the antique shops in Liulichang Street. In the early years of the Tongzhi period, Prince Zheng was influenced by the social popularity of curios and wanted to show off the treasures of the House Zheng. The name Bicaizhai means “abundant painting and calligraphy”. Bicaizhai was opened in 1866 and closed around the Mukden Incident<sup>264</sup>, existing about 65 years. In Hu Jinzhao’s book, he recorded a disciple of Bicaizhai with the surname Liu (but no given name) which matches the record of Li Baoxun – Mr Liu of Bicaizhai.<sup>265</sup>

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<sup>262</sup> The *Siku quanshu* 四庫全書 is the largest series in Chinese history. It was compiled from the 38th year of Qianlong Period (1773) and finished nine years later, with 79,897 volumes and around 2,300,000 pages.

<sup>263</sup> Shen Nianle 沈念樂 ed. *Liulichang shihua* 琉璃廠史畫 (History of Liulichang). Beijing: Culture and Art Press, 2001, and Ye Zufu 葉祖孚. *Beijing liulichang* 北京琉璃廠 (The Liulichang in Beijing). Beijing: Beijing Yanshan Press, 1997.

<sup>264</sup> The Mukden Incident was an event staged by Japanese military personnel as a pretext for the Japanese invasion in 1931 of northeastern China, known as Manchuria.

<sup>265</sup> Hu Jinzhao. *Bainian liuli chang*, 88–89.

According to Hu Jinzhao's record:

筆彩齋經營過《五代衛賢盤車圖》和《王蒙丹山瀛海圖》，曾煊赫一時。前者是鄭王府所藏精品，長 200 釐米、高 60 釐米的巨作，有歷代名家題跋，光緒十五年前後卻見畫上有光祿寺卿倪小舫的題和跋。

Bicaizhai had owned *The Five Dynasties Wei Xian The Water Mill and Wang Meng Danshan Yinghai Painting*, achieving great renown and influence. The former was a quality piece of the House Zheng, a tremendous work which is 200 centimetres in length and 60 centimetres in width. It has inscriptions from previous famous connoisseurs. Approximately in the 15th year of the Guangxu period (1889), *qing* of Guanglu Temple, Ni Xiaofang's seal and inscription have appeared on this *jiehua*.<sup>266</sup>

This echoes Li Baoxun's "Ni Xiaofang ... lives in Guanglu Temple where I first saw the painting."<sup>267</sup> Indeed, although in Li Baoxun and Hu Jinzhao's book, they did not provide any image of *The Water Mill*, Li Baoxun carefully recorded each seal, painting content, inscription, and signature (Appendices I and II):

This is an ancient silk *jiehua* painting, one *chi* eight *cun* high and six *chi* long.<sup>268</sup> It can be believed that such vivid figures and carts are rarely painted after the Song Dynasty. There is a large pavilion in the middle of the river, above a waterwheel, which is called water mill nowadays. Among the hundreds of people on the painting, most of them are topless labourers, but under a shed, a red robed official is sitting in the middle with a black gauze hat, surrounded by several henchmen. Seal by Prince of Yi, Neifu tushu zhiyin (Seal of the official inventory collection of the Northern Song Dynasty), the seal of the House of Jin and some other ancient indistinct seals can be found on the *jiehua*, also sealing Xuanhe and Zhenghe small stamps on the boundary.<sup>269</sup>

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<sup>266</sup> Ibid. 90–91.

<sup>267</sup> Li Baoxun. *HWCSJSHL*.

<sup>268</sup> Based on the measurement standard of the Qing Dynasty, one *chi* equals to ten *cun* but the length was different in making clothes, building architecture, and surveying land, respectively equal to 35.5 cm, 32 cm, 34.5 cm (Yang Kuan. *ZGLDCDK*).

<sup>269</sup> Li Baoxun. *HWCSJSHL*.

Which is the same as the current *The Water Mill*. Even if Hu Jinzhao did not provide this detailed information, from other details, such as that the painting came from the House of Zheng and it was collected by Ni Xiaofang, it can be concluded that the painting mentioned by Hu Jinzhao in his book is the same one as Li Baoxun recorded, as well as being *The Water Mill* we discuss in this thesis.

However, in the description by Hu Jinzhao, the size of *The Water Mill* (60 x 200 cm) is far from that of the current painting in the Museum of Shanghai. According to Li Baoxun, the painting is six *chi* in length and one *chi* eight *cun* in width, which equals to approximately 62 x 210 cm.<sup>270</sup> In Zheng Wei's paper, he records that the painting is currently 53.3 x 119.2 cm which is almost the same as the data in *The Song Paintings Collection* (55.4 x 124.1 cm) but different from the records of Li Baoxun and Hu Jinzhao. Zheng Wei points out "[What Li Baoxun recorded] should be this painting but its size and the number of figures are far away from the current piece, which may be because of misremembering. The reason it cannot be cut during present decades is the two Xuanhe seals – 'A square seal showing two Chinese dragons' and 'A Xuanhe seal which were constituted of two small seals for each word' – still retained their traces on the right side of the painting."<sup>271</sup>

Nonetheless, if only one record differs from the current size, it might be his false memory, but Hu Jinzhao's reference provides the same size as Li Baoxun's. It cannot be a coincidence, so a hypothesis has been presented: *The Water Mill* in the Museum of Shanghai might have been cut from its yellow silk former bordering around 1890s. The traces of "A square seal showing two Chinese dragons" and "A Xuanhe seal which were constituted of two small seals for each word" on the current painting might be forgeries.<sup>272</sup>

However, I do not agree with this hypothesis. The contemporary habit to describe the size of a painting always means the image size without frame or mounting. Similarly, when multimedia or books exhibit a piece, they always present the image only. But in the past,

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<sup>270</sup> Yang Kuan. *ZGLDCDK*.

<sup>271</sup> Zheng Wei. "*The Water Mill* Handscroll", (1966) 18.

<sup>272</sup> Dai Liqiang. "Zhang Zeduan is the Author of *The Water Mill*".

people knew an artwork mainly based on text and even if some of them had seen the original piece, they might treat the handscroll as a whole object. If we look at the whole *Water Mill* handscroll, it is a large work about 200 centimetres in length and 60 centimetres in height. Literally, the word “*shubai* 數百” means hundreds but it can also be understood as an adjective, “numerous”. Moreover, in the front part of *The Water Mill*, at the heaven and separator, there are two seals from Prince Zheng and the late 19th century or the early 20th century collector Mr Sun. Besides, the heaven silk is light green with tiny golden spots which matches the record of *YYGYL* by Zhou Mi.

Moreover, when Li Baoxun recorded the painting, he carefully chose the expression and described the location of each object, for instance, “*shenpinshang* 神品上” is located at the front head of the image silk, “*Wei Xian gonghui* 衛賢恭繪” is at the end of the image silk. Based on the two reference objects, we can ascertain that the painting was not cut.

Therefore, I hold the opinion that the image of *The Water Mill* is almost the original size, only slightly less after remounting. The whole handscroll was cut at least three times – once was after 1296 when the front part including three *xuanhe* seals and the title label of the Huizong Emperor was lost; the second time was before 1654 and the inscription of Wang Duo was missed; the third time was around 1890–1960 when the colophon and seal of Ni Xiaofang were lost.

To sum up, from the evidence of seals, colophons and historical records, *The Water Mill* is a Northern Song painting and its painter is likely to be the son-in-law of the Yingzong Emperor, as well as an artist, Zhang Dunli. Since the painting was created, it was collected by the imperial storehouse, private collectors, the House of a prince and finally owned by a public museum. With the clear history of collection, we can improve on the table<sup>273</sup> of the Seal section:

Time	Owner	Viewer
The Northern Song Dynasty	The official inventory collections (The Huizong Emperor)	

<sup>273</sup> Because the inscription by Wang Duo has an authenticity problem, it is not listed in the diagram.

(before 1107)	<b>Xuanhe Seals</b>	
Before 1296		Zhou Mi Recorded in <i>YYGYL</i> “雲煙過眼” seal and record
Before 1328	Tang Hou Recorded in <i>Huajian</i> record	
The Yuan Dynasty, 1328–1368	The Wenzong Emperor (The official inventory collections) “天曆之寶” seal	
The Ming Dynasty, 1368–?	Zhu Gang (Prince of Jin) and his descendant “晉府圖書” seal	Wang Shouren viewed in 1510 (the first colophon) Individual seal and colophon
The Ming Dynasty, 1580–1603	Zhu Yiyin (Prince of Yi) “益王之章” seal	
Before 1633	Xie Zhaozhe Recorded in <i>Yinshuwu shuying</i> record	
After 1633	Zhou Lianggong Recorded in <i>Yinshuwu shuying</i> record	
Around 1654–1685	Cao Rong	Unknown viewed in 1654 (the third colophon) “磐石父” seal and colophon
Before 1691	Liang Qingbiao “蕉林” seal	
Around 1776–1861	Jihana and Ulgungga (Prince of Zheng) “鄭邸珍藏”, “雛鳳樓” seals	Yongxing (Prince of Cheng) viewed in 1797 (the fourth colophon) Individual seal and colophon
After 1866	Bicaizhai (a store of Liulichang Street, invested by the House of Zheng) record	
Around 1889	Ni Xiaofang Signature and inscription (lost)	Li Baoxun Recorded in <i>HWCSJSHL</i> , <i>WYYYZDHS</i> record
the late 19th century and the early 20th century	Sun Zhuang or his grand uncle “春山孫氏珍藏” seal	
Since 1960s	The Museum of Shanghai	

Now the question has been answered, whether we can find this painting in *Xuanhe Huapu*, the next question is: If the Xuanhe seals on the handscroll are authentic as proved, why is

it not recorded in the catalogue?

According to a study by Patricia Buckley Ebrey, which was published in *Palace Museum Journal* in 2004, “A Case Study of Song Huizong Emperor: How the Official Inventory Collection Affected the Court Paintings”,<sup>274</sup> she pointed out that *Xuanhe huapu* and *Xuanhe shupu* were not detailed lists of the official inventory collection during the Xuanhe period but a selected table of contents showing his most favourite and satisfying pieces. This would explain why some artworks have real Xuanhe seals but do not match any name in the *Xuanhe huapu* or *Xuanhe shupu*. Clearly understanding this argument, people would give up in finding an entry for *The Water Mill* in *Xuanhe huapu*.

Moreover, as a selective booklet, *Xuanhe huapu* shows Huizong Emperor’s personal interest. His favourite category was bird-and-flower paintings, while Buddhist painting and landscape painting were tied for second. In each category, he also had preferences, for example, the Huizong Emperor loved bird-and-flower paintings of the Song Dynasty but preferred portraits of the Tang Dynasty. In volume eight of *Xuanhe huapu*, an introduction to the section on Palace and Court presented Huizong’s taste in *jiehua* – he gave high praise to Wei Xian and Guo Zhongshu who lived in the later Five Dynasties and early Northern Song Dynasty but some later *jiehua* artists such as Wang Guan, Yan Wengui and Wang Shiyuan were not collected in the *Xuanhe huapu* because of their artisan style.<sup>275</sup>

We can surmise the reason *The Water Mill* was not recorded in the *Xuanhe Huapu*: First, *jiehua* was not the favourite painting category of the Huizong Emperor and an architectural piece would need to be extremely fine to have a chance of being collected in the *Xuanhe huapu*. *The Water Mill* was not good enough for the Huizong Emperor. Second, *The Water Mill* was created by an artist in the same era of the Huizong Emperor. *Xuanhe huapu* did not record *Along the River during the Qingming Festival* of Zhang Zeduan and *A Thousand Li of Rivers and Mountains* by Wang Ximeng, which means in Huizong’s opinion,

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<sup>274</sup> Ebrey, Patricia Buckley. “A Case Study of Song Huizong Emperor – How the Official Inventory Collection affected the Court Paintings”, *Palace Museum Journal* vol 3 (2004), 105–112.

<sup>275</sup> *Xuanhe Huapu*. vol 8. Original text: 後之作者，如王瓘、燕文貴、王士元等輩，故可以皂隸處，因不載之譜。

without history and a famous artist, even extremely outstanding artworks did not deserve a place in *Xuanhe huapu*.

In summary, around *The Water Mill's* seals, colophons and historical documents, the cultural biography of the painting tries to rebuild its time of creation, collection history and the possible artist. When Zhang Dunli drew this painting, the original purpose may have been for reflecting the local economy of his administration. Using such a milling and delivering theme shows the economic prosperity to please the emperor, also representing his political position. After the Song Dynasty, *The Water Mill* was owned by the imperial storehouse of the Yuan Dynasty, the princes of the Ming and Qing Dynasty, individual connoisseurs and the function of the painting changed to one of pure artwork. Different viewers were also exploring the possible authorship and the time of creation when they left inscriptions. Each colophon has new content and new discoveries based on the predecessors. Through the combination of seals, inscriptions and historical documents, we can finally construct the collection history and the cultural biography of *The Water Mill*, which lays the foundation for the subsequent analysis of the image content.



## Chapter Three: Image Content

When researching a painting, its cultural biography and image content are two main parts. The cultural biography provides a collection history of the object, including who owned it, who viewed it and who wrote about or recorded it. After the late Northern Song Dynasty when *The Water Mill* was created, a clear collection history since the Huizong period to 1960s is displayed through seals, colophons and historical records. But the image content can show some more direct information such as the thoughts and opinions of the artist who created the painting. Moreover, image details can reflect the era style and material culture. For instance, each Dynasty has its own architecture standard, engineering technology, clothing system, therefore, painting details can tell us when and where it comes from. This chapter will discuss the image content of *The Water Mill*, separately from architecture, water mill technology, clothes, weather in painting, the cart groups, etc. Although analysis of details sometimes may lead to over-interpretation, the image is the essence of a painting and the history of art, and needs to be carefully researched.

### Alcohol Culture

In ancient China, alcohol was usually made by grain. So the alcohol culture and alcohol policy were related to agriculture policy and social economy. Analysing alcohol culture and alcohol policy may provide information on the season and dynasty shown in the painting. There the word "*Xinjiu* 新酒 (new alcohol)", written on the gate panel of the tavern entrance, which appears on the bottom right corner of *The Water Mill*. (Figure 86) The same word also appears in the *Along the River During the Qingming Festival*, although it was fragmentary. (Figure 87)

Although Chinese artists used to write poems and prefaces on paintings, they rarely added words to the image content. Which means, if they did, the words always show important information and reflect the direct purpose of the artist.

The word *xinjiu* can be understood as an adjective and a noun or a whole noun. Here it is used as a name of a kind of alcohol. Looking for this information in the historical material,

only some books recording Song culture mention this name. According to *DJMHL*, a memoir about the thriving capital city of the Northern Song Dynasty, written by Meng Yuanlao (around 1090–1150) in 1147, the entry of “the Mid-Autumn Festival” has such words: “Before the Mid-Autumn Festival, all shops sell new alcohol (*xinjiu*), twining the new coloured cloth onto the entrance and decorative structure on the main gate...”<sup>276</sup>

New alcohol was one of the two primary fashionable alcohols of the Song Dynasty. The other one was “*Zhujiu* 煮酒 (boiled alcohol)” which differed from *xinjiu* by adding additional steps of steaming and boiling. That is why *xinjiu* is also called *qingjiu* 清酒 (clear alcohol or sake) or *shengjiu* 生酒 (raw alcohol) and *zhujiu* had the alternative name *shujiu* 熟酒 (cooked alcohol). Meng Yuanlao also recorded this concept: “The 8th of April is the birthday of Buddha ... the 72 *zhengdian* 正店 (large taverns) and other shops begin to sell *zhujiu*.”<sup>277</sup>

The use of the name and culture was continued by the Southern Song Dynasty. *Ducheng jisheng*, a memoir by Nai deweng who lived during the Ningzong and Lizong period (approximately 1194–1264) wrote in 1235 that “Official alcohol storehouses begin to sell *shujiu* around the Cold Food Festival<sup>278</sup> and *xinjiu* around the Mid-Autumn Festival.”<sup>279</sup> *Wulin jiushi*, written by an official of the Southern Song Dynasty, also says: “The Ministry of Revenue manages all 13 official spirit storehouses. As usual, they begin to sell *shujiu* in the early April and *qingjiu* in early September.”<sup>280</sup> The *Mengliang lu* has a similar record as well: “The *dianjiansuo* 點檢所 (The spot check department) of Lin’an manages all alcohol storehouses both inside and outside the capital city. Yearly, they sell *shujiu* before the Qingming Festival and *xinjiu* before the Mid-Autumn Festival to welcome the New

<sup>276</sup> Meng Yuanlao 孟元老 (Song Dynasty). *Dongjing menghua lu* 東京夢華錄 (Documents of Dongjing, *DJMHL*). Zhengzhou: Zhongzhou Ancient Books Publishing House, 2010. vol 8, the “Mid–Autumn Festival” entry. Original text: 中秋節前，諸店皆賣新酒，重新結絡門面彩樓花頭.....。

<sup>277</sup> Ibid. Original text: 四月八日佛生日，.....在京七十二戶諸正店，初賣煮酒。

<sup>278</sup> Cold Food Festival: A traditional Chinese holiday which takes place on the 105th day after *dongzhi* (one of the 24 solar terms, marking the winter solstice), mostly in early April before the Qingming Festival.

<sup>279</sup> Nai Deweng 耐得翁 (Song Dynasty). *Ducheng jisheng* 都城紀勝 (Records of Flourishing of Capital City Hangzhou). Shanghai: Shanghai Classics Publishing House, 1993, 3. Original text: 天府諸酒庫，每遇寒食節前開沽煮酒，中秋節前後開沽新酒。

<sup>280</sup> Zhou Mi. *Wulin jiushi*. Beijing: Zhonghua Book Company, 2007, 37. Original text: 戶部點檢所十三酒庫，例於四月初開煮，九月初開清。

Year.”<sup>281</sup> Therefore, we could learn, in the Song Dynasty’s culture, *xinjiu* was sold around the Mid-Autumn Festival.

In addition, alcohol was managed by government directly with strict laws. Private distilleries and alcohol factories were strictly forbidden. *Dianjiansuo* was the department in charge of all alcohol business including production, storage and sales. The tax from the alcohol business was one of the main sources of revenue. According to *Mengliang lu* and *Wulin jiushi*, *Dianjiansuo* administered all alcohol workshops. Each alcohol workshop had several full-time alcohol makers and two supervisors. Before selling, every workshop had to provide a sample to *Dianjiansuo* where it was distributed to officials. It was like a small festival when the sample was sent from the workshop. The tradition was to use a large cloth as a flag with the workshop's name and information about its alcohol written on it. Moreover, the workshop always employed official prostitutes, a band, performers, decorated vehicles and so on, making the procession like a gala parade. After examination by *Dianjiansuo*, the alcohol could be sold in particular taverns and restaurants. Usually, the place which sold alcohol hung up a flag showing the information and set up a decorative structure at the doorway.<sup>282</sup>

Until the early Yuan Dynasty, the alcohol business was unprecedentedly prosperous and alcohol consumption increased. According to *Yuanshi*, sacrificial ceremony, banquets, celebrations, and rewards for ministers and foreign envoys would to use a great deal of alcohol – the demand for alcohol increased.<sup>283</sup> In this case, the government could not meet such vast requirements so the law was changed, allowing privately-operated alcohol industry and commerce; and the government collected taxes from their profit or cost in percentages. Privately-owned alcohol businesses promoted diversification of types. The two main alcohol types of the Song Dynasty, *xinjiu* and *zhujiu*, were not as famous as before. Checking the ancient poetry which includes the word *xinjiu*, the Song has more

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<sup>281</sup> Wu Zimu 吳自牧 (Song Dynasty). *Mengliang lu* 夢梁錄. Xi'an: Sanqin Publishing House, 2004, 16. Original text: 臨安府點檢所，管城內外諸酒庫，每歲清明前開煮，中前賣新迎年。

<sup>282</sup> References come from *zhuku yingzhu* 諸庫迎煮 and *dianjiansuo alcohol storage* 點檢所酒庫 entries of *Mengliang lu*; and *yingxin* 迎新 entry of *Wulin jiushi*.

<sup>283</sup> Song Lian 宋濂 (Ming Dynasty), Wang Yi 王禕 *et al.*, eds. *Yuanshi* 元史 (History of The Yuan Dynasty). Beijing: Zhonghua Book Company, 1976. vol 18, 22–27, 43.

than 300 poems, that is four times more than the Tang Dynasty. The Yuan Dynasty only has around 10 poems mentioning *xinjiu* and few poems about *zhujiu*, with most of them using *zhujiu* as a verb rather than a noun.<sup>284</sup>

In addition, making alcohol required a large amount of grain. To prepare the grain reserves for potential drought years and war, and due to frequent wars during the Yuan Dynasty and the drinking ethos, food shortages often occurred. That was why prohibition against drink by the Yuan government occurred more often than before. During the most serious times, both private and official alcohol businesses were forbidden.

Overall, by the end of the Yuan Dynasty, not only the *xinjiu* and *zhujiu* lost their positions but also the official alcohol business was disrupted by a variety of alcohol policies. It can be said that only the Song Dynasty had the tradition emphasizing alcohol's type. *The Water Mill* shows a gorgeous tavern with the decorative structure and the poster which were created for the purpose of attracting guests. This can be related to what was described in reference to the Song Dynasty, such as *DJMHL*, *Mengliang lu*, *Wulin jiushi*, etc. It suggests that *The Water Mill* is showing Song alcohol culture. Moreover, based on information on *xinjiu*, we can assume *The Water Mill* presents a scene around the Mid-Autumn Festival.

### **Season and Climate of *The Water Mill***

The analysis of alcohol policy suggests *The Water Mill* may reflect the Song Dynasty's alcohol culture and it may show a scene around the Mid-Autumn Festival. Is there other evidence supporting this argument?

Climatology is not a new method in art history and authentication. A great number of art historians studying *Along the River During the Qingming Festival* have used it to discuss the weather and season of the painting, for instance, "The Season of the *Qingming*

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<sup>284</sup> Liu Xiaoquan eds. *Tang, Song and Yuan Poems Collection*. Hangzhou: Zhejiang Ancient Books Publishing House, 1999.

*Shanghe tu* Scroll” by Huiping Pang<sup>285</sup> and “Geological Analysis on Landscape of *Along the River During the Qingming Festival*” by Kang Yuyi.<sup>286</sup>

In *The Water Mill*, the landscape details are limited but a number of plants on the image show seasonal characteristics. The most obvious are weeping willows planted behind the two small pavilions (Figure 88) and reeds on the waterfront (Figure 89). The willow leaves are turning to yellow, suggesting that this deciduous tree is preparing for the coming cold weather. Compared with willows of *Along the River During the Qingming Festival* (Figure 90), which are also the majority of plants of that painting, the artist of *The Water Mill* presented leaves more clearly than in *Along the River During the Qingming Festival*, though that may be because of the different sizes of the paintings, however, they both emphasized the colours of the leaves. Though there is still no final conclusion about the season of *Along the River During the Qingming Festival*, however, the green burgeoning willow and the leafless branches (Figure 91) correspond with the character of early spring. In this case, we could believe that the author who created *The Water Mill* deliberately drew the willow leaves in yellow, especially as more green leaf trees are existing in the picture at the same time. It corresponds the date of the Mid-Autumn Festival, the time for *xinjiu* to be sold, around the middle of September to early October in the solar calendar.

The other plants in the painting are not as easily identified as willow and reeds but we can speculate according to historical poems, documents, and paleoclimatology. The pagoda tree, also known as the Chinese scholar tree, was widely mentioned in poems and songs of the Song dynasty. One *Jiangchengzi*<sup>287</sup> poem by Su Shi (1037–1101) has the sentence: “Do not forget the place where the gentleman laughs and sings, under the willows and in front of the short pagoda trees.”<sup>288</sup> Another poem, *Ruanlanggui* has a different

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<sup>285</sup> Pang, Huiping. “The Season of the *Qingming Shanghe tu* Scroll”, in *A Story of Qingming Shanghe tu*. Beijing: The Palace Museum, 2012, 46–69.

<sup>286</sup> Kang Yuyi 康育義. “《清明上河圖》山水地質學分析 (Geological Analysis on Landscape of *Along the River During the Qingming Festival*)”, in *New Perspectives on Qingming Shanghe Tu*, Beijing: The Palace Museum, 2011, 194–197.

<sup>287</sup> The name of a *cipai* 詞牌, which is a particular title by poems with same number of characters and rhyme in each line. The name itself does not have much meaning.

<sup>288</sup> The original text is: “莫忘使君歌笑處，垂柳下，矮槐前。” from *江城子·前瞻馬耳九仙山* by Su Shi.

description of pagoda trees and willows: “The weak and intermittent sound of a new cicada comes from the green pagoda trees and high willows.”<sup>289</sup> From the Su Shi’s words and other song poems including pagoda trees, we can see that not only was the pagoda tree widely used by poets of the Song Dynasty but also recognize that it was always mentioned with willows, such as “The pagoda trees and the elms shade the remote and simple alley ...”,<sup>290</sup> “Like a snake in an urn, like a deer in the plantain grove, and like an ant in a pagoda tree”,<sup>291</sup> “The cool remains under the bamboos’ shade and shadow of the pagoda trees”,<sup>292</sup> “The official *zhangtai*<sup>293</sup> willows set off the palace pagoda trees...”,<sup>294</sup> “The birds that stay in the nest are crowing on the pagoda tree branch ...”,<sup>295</sup> “In the spring, the pagoda trees and willows are green and the colour nearly pervades the sky”,<sup>296</sup> and “The courtyard planted pagoda trees and elms is clean and warm...”.<sup>297</sup> These poems reveal that the pagoda tree was as common as willows in the Song Dynasty and with high probability was planted near or with willows.

The leaves of the pagoda tree are alternate and pinnate (Figure 92). When looking at *The Water Mill*, almost half of the trees have such leaves (highlights in Figure 93). Taking the highest and the biggest one as example, which was planted at the left platform of the water mill, in spite of the dark thick foliage looking like a cloud from a distance, the artist depicted each tiny leaf very clearly (Figure 94) so we can recognize texture from this traditional Chinese representational painting. Moreover, among these alternate and pinnate leaf trees, one was represented with yellow (Figure 95). According to the yellow leaves of willow and green leaves of other trees in *The Water Mill*, we could believe the

<sup>289</sup> The original text is: “綠槐高柳咽新蟬” from *阮郎歸·初夏* by Su Shi. The word 咽 means pharynx, swallow or weak and intermittent sounds in Chinese. Here Su Shi used the third meaning.

<sup>290</sup> The original text is: “槐榆蔽窮巷” from *即事* by Zhang Lei (1054–1114).

<sup>291</sup> The original text is: “似甕中蛇，似蕉中鹿，又似槐中蟻。” from *念奴嬌·少時獨步詞場* by Liu Kezhuang (1187–1269).

<sup>292</sup> The original text is: “竹陰槐影有餘涼” from *初夏雜興* by Lu You (1125–1210).

<sup>293</sup> *Zhangtai* willows 章台柳: The word *zhangtai* is the abbreviation of an ancient palace of the Chu Kingdom, *zhanghua tai*. But it referred to willows from the Tang Dynasty, from Han Hong's poem *Zhangtai Willows*, which was a sentimental poem to his spouse Lady Liu, and her surname is also known as the word willow in Chinese. Since this poem was famous, its structure and rhyme became a new form and *zhangtai willows* developed into a *cipai* as well.

<sup>294</sup> The original text is: “章台官柳映宮槐” from *寄畫梅山雷字詩* by Lu You.

<sup>295</sup> The original text is: “槐枝啼宿鳥” from *小重山·碧幕霞綃一縷紅* by Chen Liang (1143–1194).

<sup>296</sup> The original text is: “槐柳春餘綠漲天” from *浣溪沙* by Zhao Lingshi (1061–1134).

<sup>297</sup> The original text is: “槐榆院落清和” from *西江月·櫻筍園林綠暗* by Zhao Lingshi.

artist –did this on purpose to emphasize the variation between seasons.

Meanwhile, the other tall tree that stands on the right platform has different leaves from *Styphnolobium japonicum*. The acuminate at the apex of the oval leaf may belong to *Ulmaceae* (Figure 96). In fact, elm is another common temperate tree which can grow to a great height, often with a split trunk creating a vase-shape profile, as we can see in the painting (Figure 97).

According to the rivers and canals chorography of the *Songshi*, the Yellow River flood was the biggest disaster of the Song Dynasty. Every decades of years, thousands and millions of people were victimized by the Yellow River flood, lost their homes and farmlands. To protect from floodwater, in the first month of the Chinese calendar in 972, an order decreed that the county beside the Yellow River, Bian River, Qing River, Yu River and other rivers should plant elms and willows beyond the old traditional mulberries and jujube trees. Moreover, stealing an elm or willow on the dam was a serious offense of the Song Dynasty. However, although individuals were forbidden to cut official trees, when the river has been flooded, the trees that were planted on the dam could be used as relief supplies. In 1023, Huazhou county suffered a broken dam broken, and to relieve the people in disaster, the Renzong Emperor (1010–1063, r. 1022–1063) dispatched people from Jingdong, Hebei, Shanxi and Huainan to transport firewood and forage, and at the same time, ordered the military to fell elms and willows beside the river, helping the families who lost members in the flood.<sup>298</sup>

In *Songshi*, using elms and willows to consolidate the dam was not the only example. In 962, an imperial edict shows that the senior official of Hezhou county always urged common people to plant elms and willows along the dam in early spring to reinforce the levee. In 1194, Chensun, the administrator of Huaidong, suggested to the emperor that there were a great number of ponds and lakes located between Gaoyou and Chuzhou where he should build a dam to prevent flood and drought. However, he also mentioned

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<sup>298</sup> Tuo Tuo *et al.*, ed. *Songshi*. vol 44. Rivers and Canals 1.

that trees can consolidate the dam and keep it from breaking, for instance, an old dam near Gaoyou and Xinghua was planted with more than 100,000 willows which strengthened the ground, and the wood could be used as reserve material for repairing the dam as well.<sup>299</sup>

More records show that elms, willows, mulberries and jujube trees were fit for planting along riverbanks. In 1072, advice from official Zhao Zhongzheng pointed out that from the south of the boundary river to the Cangzhou city, approximately 300 miles of water, was shallow enough to go through by foot in summer and easily cross in winter when the river froze. So his request was to plant elms, willows, mulberries and jujube trees from the seaside of the east of Cangzhou city to the Western Mountain of Beijing, so that after decades, the woods could restrict attack from the Qidan nation.

These records persuade us to believe that the tall tree which is located on the right platform in *The Water Mill* could be one of elm, mulberry and jujube tree. However, the jujube tree and the mulberry are small deciduous trees or shrubs which are hardly likely to reach much height, especially having a high major bifurcate as in the image. Besides, the jujube tree would be in fruit during the autumn but we cannot see any Chinese dates on the tree. This makes it more likely to be an elm on the right platform of *The Water Mill*.

However, there is one more plant appearing more than once in the image (Figure 98). This special shrub has round leaves (Figures 99 and 100) and the artist depicted its leaves with two different colours as he did with the pagoda trees. Two yellow plants and one green shrub also show that it was a time of seasonal change. Although we do not have any reference to indicate its identity, the round leaves may be *cotinus goggygria* or *cercidiphyllum japonicum*, whose leaves easily change colour during the autumn. But as the *cercidiphyllum japonicum* usually grows tall, the *cotinus goggygria*, a kind of multiple-branching shrub, is a more likely candidate for the plant in the painting (Figure 101). The *cotinus goggygria* was widely distributed in the middle of China in areas such as

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<sup>299</sup> Ibid.



Hebei, Henan, Shandong and Hubei provinces, especially on the sunny slope of hillside.<sup>300</sup> If these shrubs are *cotinus goggygria*, the artist put them at the right corner of the painting, on the route of the cart groups and above the high rocks, which may suggest that the delivery team is going to access a higher altitude, for instance, a mountain.

On the riverside, we can see two trees with dark leaves and flexible branches (Figure 102). Compared with other types of plants in *The Water Mill*, its leaves are represented by freehand brushwork rather than fine brushwork and the tiny branches at the top of the plant are depicted using crab claw skill (Figure 103). Although its lanceolate leaves could belong to numerous plants, the season excludes most trees which have fruit during September and October, such as peach, pomegranate and *castanea sativa*. Additionally, they are not tall enough for high-growing trees, which also excludes some trees, for example, *quercus acutissima carruth*. Besides, the curved tree branches (Figure 104) were called *qiuzhi* 虯枝 in Chinese, which means that the curved branches look like a *qiu*, a kind of four-footed Chinese dragon. However, not all trees' branches curved like dragons, few can be called *qiuzhi* including prune tree and pine tree.

According to poems of the Song Dynasty, Yao Chongzhi described the pine trees of Mount Huang using *qiuzhi*: "The summit of Mount Huang has hundred feet pine trees, whose curved branches rise up high covering and linking peaks."<sup>301</sup> While the Shi Zhiyu has "The tree trunk and branches curve like dragons, (the pattern of bark) looks like scale and fin that creates a cold feeling",<sup>302</sup> and Fang Hui has "Just see the pine tree of the South Mountain, which has green curved branches like *qiu* dragon".<sup>303</sup> Wu Yong praised the prune tree: "The previous old curved branches could not break off in wind and rain."<sup>304</sup> In Wang Bai's poem: "The poems make current guests feel lonely, but the curved branches

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<sup>300</sup> *Cotinus coggygria* Scop. entry in the *Flora Reipublicae Popularis Sinioae*.  
<http://frps.eflora.cn/frps/Cotinus%20coggygria> accessed 16 April 2018.

<sup>301</sup> The original text is: "黃山之巔百尺鬆，虯枝偃蓋連群峰。" from *贈僧法一墨* by Yao Chongzhi.

<sup>302</sup> The original text is: "蛟乾虯枝巧作蟠，鱗鱗鬣鬣自生寒。" from *休屏怪鬆* by Shi Zhiyu (1185–1269).

<sup>303</sup> The original text is: "始見南山鬆，青青虯龍枝。" from *秋晚雜書三十首* by Fang Hui (1227–1307).

<sup>304</sup> The original text is: "當年老虯枝，豈為風雨折。" from *用晦翁十梅詩韻酬張伯修孫子直* by Wu Yong.

still bloom flowers as last year.”<sup>305</sup>

However, prune tree would be fruiting during the Mid-Autumn Festival and even if we ignore this fact, the upward leaves of the two trees are extremely different from any other macrophanerophytes, shrubs or small trees which shows they may belong to *Pinaceae*. Moreover, the dark colour of the leaves suggests that the artist might use the pure ink to depict them rather than using ink line and fill colours inside like other plants. Since the *Pinaceae* trees are evergreen, the pure ink may want to emphasize this character.

Meanwhile, if we compare the dark-leaved tree of *The Water Mill* to a pine tree in Guo Xi's *Early Spring* (Figure 105), we find they have striking similarities. Both of them grow on a low-altitude riverside, have dark leaves and curved tree trunks, and they use crab claw skill to depict the top thin dead sticks. Additionally, when looking at another Song famous painter Fan Kuan's *Travelers Among Mountains and Streams*, although the dark-leaved pine trees (Figures 106 and 107) have straight trunks and branches which are different from *The Water Mill* style, their leaves have something in common – both are upward, freestyle, and lack details, especially when they stand together with nearby finely depicted plants. From these evidences, there is reason to believe the two dark-leaved trees in *The Water Mill* are pine trees.

In summary, thanks to the fine brushwork of the artist, we can recognize each plant of *The Water Mill*, totalling six different types of plants – willows, reeds, *styphnolobium japonicum*, elms, *cotinus coggygria* and pine trees. Based on *Flora of China*<sup>306</sup> and a climate zones map of Asia, 2001–2025 (Appendix IV), willows always grow in cold and temperate regions, and rarely can be found in tropical zones; the reeds are widely grown on wet and humid area of China, especially in temperate and subtropical zones; *styphnolobium japonicum* is a normal plant in northern China but also can be seen in

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<sup>305</sup> The original text is: “詩卷寂寥今歲客，虬枝依舊去年花。” from *和無適四時賦雪梅* by Wang Bai (1197–1274).

<sup>306</sup> Wu Zhengyi, Hong Deyuan, Peter H. Raven *et al.*, ed. *Flora of China*. Beijing: Science Press and St. Louis: Missouri Botanical Garden, 1994. Online since 21/5/2004, website address: [www.efloras.org/flora\\_info.aspx?flora\\_id=2](http://www.efloras.org/flora_info.aspx?flora_id=2)

Guangdong, Yunnan and Sichuan provinces; elms are temperate climate zone plants, growing at low altitude; *cotinus coggygia* is a temperate and subtropical zones plant; and most *Pinus* grow in temperate climates but it can range from subarctic to tropical.

Before educing the result, another significant variable that should be noticed is global temperatures. If we compare the climate zone map of 2001–2025 (Appendix IV) to the 1976–2000 one (Appendix V), some tiny differences can be found, such as the polar frost area becomes smaller and the warm regions reach a higher latitude. If even several decades can have such change, how about several centuries?

In history, earth suffered a Medieval Warm Period and a following Little Ice Age. The fluctuating temperature may influence climate zones. A great number of scholars have researched this subject, for instance, Zhang Jiangchen and Thomas Crowley’s “Historical climate records in China and reconstruction of past climates”,<sup>307</sup> Dorte Eide Paulsen, Hong-Chun Li, and The-Lung Ku’s “Climate variability in central China over the last 1270 years revealed by high-resolution stalagmite records”,<sup>308</sup> Huiping Pang’s “Strange Weather: Art, Politics, and Climate Change at the Court of Northern Song Emperor Huizong”,<sup>309</sup> Yang Bao’s “General characteristics of temperature variation in China during the last two millennia”<sup>310</sup> and Wang Shaowu’s “Research on the Little Ice Age”.<sup>311</sup> Some researchers also reconstructed the temperature diagram (Appendix VI). From their research and the charts, it can be seen that although Asia underwent at least two cold periods before the real Little Ice Age (the 16th to 19th centuries), most areas of the Northern Hemisphere experienced an extreme warm period during the 10th to 14th centuries, which means the temperate and subtropical zones ranged up to current Siberia, Russia, while in the short cold period, the temperate and subtropical zones could cover up

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<sup>307</sup> Zhang, Jiacheng, and Thomas J. Crowley. “Historical Climate Records in China and Reconstruction of Past Climates”, *Journal of Climate* vol 2 (1989), 833–849.

<sup>308</sup> Paulsen, Dorte Eide, Hong-Chun Li, and The-Lung Ku. “Climate Variability in Central China Over the Last 1270 Years Revealed by High-Resolution Stalagmite Records”, *Quaternary Science Reviews* vol 7 (2003), 691–701.

<sup>309</sup> Pang, Huiping. “Strange Weather: Art, Politics, and Climate Change at the Court of Northern Song Emperor Huizong”, *Journal of Song-Yuan Studies* vol 39 (2009), 1–41.

<sup>310</sup> Yang, Bao, *et al.* “General Characteristics of Temperature Variation in China During the Last Two Millennia”, *Geophysical Research Letters* vol 9 (2002), 38.

<sup>311</sup> Wang Shaowu. “Research on The Little Ice Age”, *Quaternary Sciences* vol 3 (1995), 202–212.

to the middle of north China.

According to previous analysis of plants of *The Water Mill*, it is highly probable it reflects a scene of the temperate monsoon climate or the subtropical monsoon climate, within the Northern Song and the Southern Song territory (Appendix VII). Moreover, combine with the alcohol culture and policy, we can say that *The Water Mill* may reflect a Song Dynasty Mid-Autumn Festival scene.

## Costumes

This section discusses clothes worn by the figures in *The Water Mill*. From the painting image, we can see that people are wearing both short and long costumes. It may be because the time depicted in painting is at the turn of seasons. From previous discussion in Alcohol Culture and Season Climate sections, we learn that the painting may reflect a scene around the Mid-Autumn Festival. In the solar calendar, the Chinese Mid-Autumn Festival is around the middle of September or rarely, the beginning of October. Though it is called autumn and the weather gets cooler, hot air still remains, especially the Song Dynasty was in a Medieval Warm Period. Furthermore, the picture describes a typical labouring scene, so that the clothes for both summer and autumn use are displayed in the painting. According to the characters' costumes and behaviour in the picture, three social groups can be identified: the officials appear in the pavilion at the top left corner (Figure 108) and in the tavern at the bottom right corner (Figure 109); the lower-level officials in the left pavilion (Figure 110) and on the left platform (Figure 111); and the ordinary workers (Figure 112). Compared with costumes of ordinary people, official clothing has stricter standard between different periods, so this section will begin with costumes of officials.

## Costumes of Officials

### Headwear

There are seven officials in *The Water Mill*, two in the top left corner pavilion (Figure 108) and five on the first floor of the tavern (Figure 109). All of them are wearing a special black hat with two long straight tails. This headwear is called *futou* 幞头 in Chinese.

*Futou* was created by Emperor Wudi, Yuwen Yong (543–578, r. 561–578), of the Kingdom of Northern Zhou (557–581) for soldiers and generals with the purpose of protecting their hair in the battle.<sup>312</sup>

According to the record by Bi Zhongxun in the *Mufu yanxian lu* (Records from the Banquets in the Prefects' Office), before the Sui Dynasty, the original meaning of *futou* was to cover one's head with a black cloth. Ma Zhou (601–648), a famous minister of the early Tang Dynasty, was the first person who used a square kerchief to tie a *futou*. Ma Zhou also added a lining inside the hat to make the hat shape more beautiful. As Figure 113 shows, after tying up the hair to a bun, a hard inside lining – usually made of kudzu, rattan or bamboo strips – is used to cover the bun. Then a square black cloth is used to wrap the head and the hat lining and the cloth is tied as step two to four (of the Figure 113). A standard *futou* of the early Tang Dynasty is finished. A retinue in *Emperor Taizong Receiving the Tibetan Envoy* also wears such headwear which reflects the early Tang culture although this painting is a copy from the Song Dynasty (Figure 114). This kind *futou* has two drooping tails but no standard for the tails' style. Figures 115–118 show several instances of different style *futou* from the Tang tombs.<sup>313</sup>

Until the Five Dynasties, emperors used to wear *futou* with two upturned tails. But feudal lords who wanted to claim the throne created more innovative styles as a mark of their disloyalty. They had *futou* with wide tails like fans or banana leaves, that surrounded the front of the head, as well as *futou* with curved tails that turned up then bent downward.<sup>314</sup>

In the Southern Chu (907–951), one kingdom of the Five Dynasties and Ten Kingdoms

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<sup>312</sup> Wang Pu 王溥 (Song Dynasty), *Tanghuiyao* 唐會要. Beijing: Zhonghua Book Company, 1955. and Liu Su 劉肅 (Tang Dynasty), *Datang Xinyu* 大唐新語. Beijing: Zhonghua Book Company, 1984.

<sup>313</sup> Bi Zhongxun 畢仲詢 (Song Dynasty). Tao Zongyi 陶宗儀 (Ming Dynasty), eds., Tao Tingxu 陶珽續 (Qing Dynasty), eds. and proofreads. *Mufu Yanxian Lu* 幙府燕閑錄 (Records from the Banquets in the Prefects' Office). Re-block-printed in Guangxu years, the Qing Dynasty. Original text: 古之襜頭，自隋以前，只是皂繒幕其首，唐馬周始制四腳系於上，二腳垂於後，又加巾子，制度不一。

<sup>314</sup> *Ibid.* Original text: 五代帝王多裹朝天襜頭，二腳上翹。四方僭位之主，各創新樣，或翹上而反折於下，或如團扇、蕉葉之狀，合抱於前。

period, located in current Hunan province of China, people used painted silk in *futou*. Prince Wenzhao of Chu, Ma Xifan (899–947, r. 932–947) once wore a *futou* with two extremely long flaps on both sides which were called the horns of a dragon.<sup>315</sup>

During the time of the Later Jin (936–947), when the later Shizu Emperor Liu Min (895–954, r. 951–954) of the Northern Han Kingdom held the post of the primary military officer in Shanxi province, he used *futou* with long straight tails more than one foot in length. The Song Dynasty kept this tradition as standard.<sup>316</sup>

In the Song Dynasty, several *futou* styles existed at the same time, all of them hard framed but only the straight tails *futou* was widely accepted by both upper and lower classes.<sup>317</sup> This kind of *futou* with straight long tails was the most characteristic costume in the Song Dynasty and it could be used in any situation by both emperor and other officials. In *Songshi* the chapter on “Chapter Carriage and Costume”:

*Futou*, ... became flat and straight since the Five Dynasties. It (the straight tails *futou*) was the national standard of the Song Dynasty for emperor and officials on any occasion except when taking carriages. The upward tailed *futou* was accepted as well by people in this narrow space. In the beginning, it (*futou*) was made with vine and grass towel as the inside and painted hemp for the cover. Then paint was used to harden the cover, the grass and vine towel was removed. The forehead part of the cap was folded and two iron flaps were added on both sides.<sup>318</sup>

The two tails are long and flat like a ruler and are plugged at the back of the hat and extend outwards. It was said that this kind of style was designed to prevent officials chatting with each other in meetings.<sup>319</sup> In a painting from the collection of the Hall of

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<sup>315</sup> Ibid. Original text: 偽孟蜀始以漆紗為之。湖南馬希範兩腳左右很長，謂之龍角。

<sup>316</sup> Ibid. Original text: 至漢祖始仕晉為並州衙校，裹襪頭兩腳左右長尺餘，橫直之不復翹，今不改其制。

<sup>317</sup> Shen Kuo 沈括 (Song Dynasty). Hu Daojing 胡道靜, annotated. *Mengxi bitan* 夢溪筆談 (Casual Writings from the Garden of the Stream of Dreams). Shanghai: Zhonghua Book Company, 1962.

<sup>318</sup> Tuo Tuo *et al.*, ed. *Songshi*. vol 105, Carriage and Costume 4. Original text: 襪頭，.....五代漸變平直。國朝之制，君臣通服平腳，乘輿或服上曲焉。and 初以藤織草巾子為裡，紗為表，而塗以漆。後惟以漆為堅，去其藤裡，前為一折，平施兩腳，以鐵為之。

<sup>319</sup> Cai Zi'e 蔡子譔. *Zhongguo fushi meixue shi* 中國服飾美學史 (History of The Aesthetics of

South Fragrance (南薰殿) in the Palace Museum, we can see a typical example of the straight tails *futou* in the portrait of the Taizu Emperor. (Figure 119)

*The History of Ancient Chinese Costume* by Zhou Xibao has several examples from an anonymous Song Dynasty handscroll (Figure 120).<sup>320</sup> It describes a historical scene in 1142 of the Southern Song Dynasty. The grand commandant Cao Xun brought the order of the Gaozong Emperor to greet the mother of the Gaozong Emperor, Empress Wei, as well as the coffins of the Huizong Emperor and his Empress Zheng on their return. Figures 121 and 122 are two images from the painting that depict the straight tails *futou* from the front and back side. A brick carving image from a Song tomb of Jiuliugou of Yanshi (偃師九流溝宋墓) presents an actor who wears the official costume and the straight tails *futou* (Figure 123).

However, things were different in the Liao and the Jin Dynasties which were contemporaneous with the Song Dynasty. The Qidan, the main nationality of the Liao Dynasty, were nomads and hunters. Most of their time was spent on horseback so lightweight felt hats or helmets were more suitable for them than lacquered *futou*. Furthermore, the Qidan had a custom of cutting their hair, which was called *kunfa* 髡发 in Chinese. It is characterized by shaving all or part of the hair on the top of the head, only leaving a small amount of hair on the forehead or both sideburns. According to area, ethnicity, historical period and age, the hair styles are different. In the mural paintings of the Eastern Tombs of the Liao Dynasty (Figure 124) and the No.6 tomb of the Liao Dynasty in inner Mongolia (Figure 125), we can find some *kunfa* styles. Nonetheless, *futou* did not disappear in the Liao Dynasty. In a tomb of Xuanhua, Hebei province, there is a mural painting showing performers with a kind of curving tails *futou* (Figure 126), not the straight flapped *futou*.

When the Jin Dynasty entered the central plains and destroyed the Northern Song regime,

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Chinese Dress, ZGFSMXS). Shijiazhuang: Hebei Fine Arts Publishing House, 2001, 643.

<sup>320</sup> Zhou Xibao 周錫保. *The History of Ancient Chinese Costume*. Beijing: China Drama Publishing House, 1984, 271.

the Jurchen, the main nationality of the Jin Dynasty, forced the Han nationality to obey the *kunfa* custom. But after the Hailing period (1149–1160), this decree existed in name only.<sup>321</sup> On the contrary, the degree of Chineseization of the Jin Dynasty was much higher than that of the Liao Dynasty. Basically, the head dress is a *Jinxian* hat 進賢冠<sup>322</sup> (Figure 127), sometimes also a *Xiezhi* hat 獬豸冠<sup>323</sup> (Figure 128) when officials are in attendance at important occasions. For usual morning meetings, the quadrangle cloth was more common.<sup>324</sup>

The Yuan Dynasty followed the Song standard on official costumes: “(All officials’ work clothes should wear) straight tails painted hemp *futou*.”<sup>325</sup> (Figure 129) Until the early Ming Dynasty, this tradition was still kept. “Both civil and military officials should wear painted linen *futou* with one *chi* two *cun* straight flaps for official business.”<sup>326</sup> But the shape of the *futou* was different from the Song Dynasty. The length of the flaps also became shorter as time went by. One *chi* two *cun* in the Ming Dynasty is less than 40 cm. From a Ming painting *The Portrait of Wang Ao* (1450–1542, Figure 130), it can be clearly seen that the hat shape is wider than the Song style and the tails are shorter. Besides, in the painting, the tails of *futou* are no longer as straight as the Song Dynasty, which curve

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<sup>321</sup> Cai Zi’e. *ZGFSMXS*, 699.

<sup>322</sup> A *Jinxian* hat was a hat that goes with formal dress when officials have an audience with an emperor. Originally, a *jinxian* hat was worn by Confucianists but until the Tang Dynasty, it was widely used by all officials (*Xintangshu* – Chapter Costume and Vehicle). It is always made of spun yarn with an iron frame. At the top middle of the hat, there are several beams. According to the numbers of beams, the grade of officials can be distinguished. Figure 90 shows a three-beam *jinxian* hat (Shen Congwen 沈從文. *Zhongguo gudai fushi yanjiu* 中國古代服飾研究 [The Ancient Chinese Clothing Research, *ZGGDFSJY*] Shanghai: Shanghai Bookstore Publishing House, 2005).

<sup>323</sup> *Xiezhi* 獬豸 is a legendary creature of China and it looks like a lion with one horn on the top of its head. According to the legend, Emperor Shun’s minister Gao Yao had a mythical creature called “*zhi*” 廌 (the same as the character 豸), which he used in criminal proceedings. Whenever he was in doubt, the animal instinctively knew the innocent from the guilty and butted the latter with its horn. (Jeannie Thomas Parker. *The Mythic Chinese Unicorn*. Victoria: Friesen Press, 2013.) However, the *xiezhi* hat was created by King Wen of Chu (?–675) as a symbol of justice and law. In later generations, it was widely used by officials of the law enforcement such as censors. Reputedly, the hairpin of the *xiezhi* hat (Figure 91) is similar to the horn of the creature *xiezhi*.

<sup>324</sup> Tuo Tuo *et al.*, ed. *Jinshi* 金史 (History of The Jin Dynasty). vol 43, Costumes and Vehicles. Beijing: Zhonghua Book Company, 1975. Original text: 金人常服為四帶巾，盤領衣，烏皮靴。

<sup>325</sup> Song Lian 宋濂 (Ming Dynasty), Wang Yi 王禕 *et al.*, ed. *Yuanshi* 元史 (History of The Yuan Dynasty). vol 78–80, Costumes and Vehicles. Beijing: Zhonghua Book Company, 1976. Original text: (百官公服) 襪頭，漆紗為之，展其角。

<sup>326</sup> Zhang Tingyu 張廷玉 (Qing Dynasty), *et al.*, ed. *Mingshi* 明史 (History of The Ming Dynasty). vol 64–68, Costumes and Vehicles. Beijing: Zhonghua Book Company, 1976. Original text: 文武官公服。……襪頭，漆、紗二等，展角長一尺二寸。



slightly upward at the end.

According to research by Cai Zi'e, the emergence and evolution of *futou* reflects the process of transforming the "benefit" and "convenience" principles into the "ritual" and "symbol" in Chinese costume culture.<sup>327</sup> *Futou* was invented to protect the hair. Excepting its original function of protecting the hair in war, the cloth also can defend from the hot sun and keep in warmth in cold weather. At the beginning, *futou* was an informal head wear that everyone could tie by oneself under any circumstances. It was welcomed as a simple and convenient method. However, as it developed from the aesthetic point of view, hard wood or other materials were added to the inside to make the shape look better. The principle "convenience" became "beautiful". The soft cloth was abandoned and harder materials were chosen like painted scrim, so that "benefit" – understood as "to one's advantage" – became to "form". The straight tails *futou* was created to meet aesthetic requirements rather than the practical function and till the end of the Song Dynasty, the most inconvenient and exaggerated hat reached the peak of "ritual". The straight tails *futou* was not suitable for daily life but its symbolic significance was greater than that of many other types. It shows that in the later period of the evolution process of *futou*, the aesthetics and symbolism transcended practicality and ritual became the essential purpose.

To sum up, since the *futou* was invented, its style suffered a process that changed from "convenient" to "ornamental". During the Tang Dynasty, only the emperors can use the straight tails *futou*.<sup>328</sup> In the Five Dynasties, the tails became longer and straighter. From the Northern Song Dynasty, the straight tails *futou* had been to the headwear standard of the official costumes. Based on historical documents, Liao, Jin, Yuan and Ming Dynasties all used the straight tails *futou* but from the surviving visual materials, we could see that the style of the Ming Dynasty was different from others. In *The Water Mill*, the straight tails *futou* as the common headwear of official costumes and showing such a long and straight appearance was the tradition of Song, Liao, Jin and Yuan Dynasties. Therefore, the

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<sup>327</sup> Cai Zi'e. *ZGFSMXS*, 648–650.

<sup>328</sup> *Ibid.* 500.

straight tails *futou* which appears in *The Water Mill* reflects the characteristics of official head wear from the 960s to the middle of the 14th century.

### **Costume of Senior Officials**

Officials in *The Water Mill* can be broadly divided into two categories: senior officials and junior officials.

The senior officials are the seven people who wear the straight tails *futou*: two at the top left corner under the pavilion (Figure 108) and five on the first floor of the tavern (Figure 109). The junior officials total four people: three in the pavilion, standing behind a senior official (Figure 110) and one who seems like an overseer standing on the ground in front of the pavilion, supervising the workers (Figure 111).

In Figure 108, we can see clearly that the two senior officials under the top left corner pavilion wear round neck and wide-sleeved robes. However, there are five people in the bottom right corner tavern and only one shows clear upper clothing – a light coloured Y-neck robe.

In ancient China, officials had dress codes for different occasions. Patricia Ebrey divided the Northern Song official costumes into three categories, varying in level of formality: “official” or “ordinary” dress 公服/常服, worn by officials in the everyday course of their business and for routine court ceremonies like audiences; the more formal court dress 朝服, issued from palace storehouses when it was required for occasions like the New Year’s audience, when foreign envoys were entertained; and sacrificial dress 祭服 worn by those making sacrifices.<sup>329</sup>

According to four usual events, I prefer to divide them into four different types: ceremonial dress 冕服 (also known as sacrificial dress 祭服 and full dress 禮服), formal dress 朝服, official dress 公服 and informal dress 常服. Ceremonial dress was

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<sup>329</sup> Ebrey, Patricia Buckley “Taking Out the Grand Carriage: Imperial Spectacle and the Visual Culture of Northern Song Kaifeng”, *Asia Major* (1999), 56.

for noteworthy occasions such as coronations, parades, religious rites and sacrificial ceremony. Each dynasty had the strictest standard for the ceremonial dress and this costume was the grandest clothing for each class. Formal dress was for court meetings. When officials presented themselves before the emperor, they should have worn the full set formal dress. This garment was not as gorgeous as ceremonial dress, but more suitable for everyday use. Literally, official dress was for working occasions like doing official business. It was less decorative than formal dress, only keeping occupational and graded characteristics, for instance, civil officials wore different clothing patterns and hats from the military, and had features that distinguished their ranks. The informal dress, also known as casual dress, was for private occasions. After working or in holidays, officials wore private clothing. Although based on social status and culture, the informal dress of officials was not as casual as that of the common people and some of the details such as hats, clothing colour or style also showed their social position. This kind of costume was the most informal type for ancient officials.

According to the above analysis, the senior officials of *The Water Mill* were working outside and so should wear official dress.

We can see that the official at the first floor of the tavern, facing to the audience with a Y-neck robe, is wearing a right lapel garment (Figure 131). When wearing a long robe, it should wrap over left to right, then tie at the waist to fix. This was a strict tradition called *youren* 右衽 (right lapel) in Chinese. In the chapter 'Greater Record of Mourning Rites' of *The Book of Rites*, it states: “小斂大斂，祭服不倒，皆左衽，結絞不紐。” Here, both *xiaolian* 小斂(殮) and *dalian* 大斂(殮) are ancient funeral rites. In *The Notes of the Book of Rites*,<sup>330</sup> it says “斂者趨方，或顛倒衣裳，祭服尊，不倒之也。” Which means the most significant garment was sacrificial dress and it was not reverse lapel like other burial

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<sup>330</sup> *The Notes of the Book of Rites* is one of the standard interpretations of the Five Confucian Classics. The Taizong Emperor of the Tang Dynasty ordered Kong Yingda as the main editor to manage the programme and the whole series was published in 653. The compilation of the Notes of the Five Confucian Classics is regarded as an official method to unify the ideology of Confucian studies. Kong Zi 孔子(State of Zhou during the Spring and Autumn Period), Legge, James translated. *The Book of Rites* 禮記. Readings in the Philosophy of Religion. 2017. Create Space Independent Publishing Platform; Bilingual edition (October 10, 2013).

costumes. *Niu* 纽 means Chinese button knot and *jiao* 绞 refers to the movement making a fast knot. So, this sentence can be explained as: “In funerals, except sacrificial cloth, all other burial costumes were placed with the lapel to lie on the left side, using fast knot instead of the common Chinese button knot.” Moreover, Kong Yingda has given further explanation to the sentences: “The lapel, is the cloth making up the front of a costume. The living placed the lapel to lie on the right side, which is convenient to use the left hand to untie it. The dead use the left cover lapel, which means it will never be untied.”<sup>331</sup> So the left lapelled costume only existed in tombs or in images of national minorities who do not care about the rites.<sup>332</sup>

In the foregoing discussion about the headwear of the official costumes, the straight tails *futou* was used in the Song, Liao, Jin and Yuan Dynasties, but except the Song, the other three regimes were established by a minority. Although there are right lapel images existing in the Liao, Jin and Yuan Dynasties, for instance, the portraits of the Emperors and Empresses of the Yuan Dynasty (Figures 132 and 133), figures of a tomb mural painting in Shuozhou (Figure 134) and another mural painting of the Yongle Palace (Figure 135), more evidence shows that the minority did not have strict dressing rites. In *Zhuoxie Tu* 卓歇圖,<sup>333</sup> a female is wearing a *han* style garment but with the left lapel, as well as her maids (Figure 136). The same left lapel robe can also be found in mural paintings of the Yongle Palace (Yuan Dynasty) (Figures 137 and 138) Moreover, in another painting attributed to Hu Huan, *Tartar Huntsmen in the Snow* in the Freer Gallery of Art, a huntsman is in a left lapel fur-lined robe (Figure 139). In some images, right lapel and left lapel clothing was used together, such as a Liao Dynasty tomb mural painting in Xuanhua (Figures 140 and 141) and the mural painting of the Xinghua Temple (Figure 142).

Although the right lapel garment of the official in *The Water Mill* does not prove it must

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<sup>331</sup> Kong Yingda 孔穎達 (Tang Dynasty). *Liji Zhengyi* 禮記正義 (The Notes and Commentaries of the Book of Rites). vol 45. Beijing: Zhonghua Book Company, 1980, 1664. Original text: 衽，衣襟也。生鄉（向）右，左手解抽帶便也。死則襟鄉（向）左，示不復解也。

<sup>332</sup> Right-lapel clothing also can be seen in tombs because it was ceremonial dress (sacrificial dress).

<sup>333</sup> This painting was attributed to a *qidan* artist Hu Huan of the Liao Dynasty for a long time but based on Yu Hui's research, it is a painting of the Jin Dynasty, showing the Jurchen culture ([www.dpm.org.cn/collection/paint/234629.html](http://www.dpm.org.cn/collection/paint/234629.html) accessed 2nd November 2019).

be a Song painting rather than a Liao, Jin or Yuan painting, to some extent, it may suggest that the artist could be familiar with the custom of the Han nation.

There are two senior officials under the top left corner pavilion wearing round-neck and wide-sleeved robes. The round-neck robe was widely used from the Tang Dynasty. In 618, the Gaozu Emperor of the Tang Dynasty ordered Peiji (570–629) to amend the law and it was finally enacted in 624, which was called *Wudelü* 武德律 (Martial Law). In this Chinese first administrative code, the standard of costume system had detailed stipulations: the traditional Han costume was used as ceremonial dress; *futou* and the round-collared robe were used as officials' uniform for daily official dress. From the Martial Law, the round-collared robe became the authoritative costume used in Tang, Song, Ming and Qing Dynasties.<sup>334</sup>

Although the round-collared robe was used for a long time, each dynasty had its unique style. It is easy to distinguish the official dress after the Ming Dynasty. During the Ming and Qing period, the official costume had a square rank badge on mid-front and back (Figures 143<sup>335</sup> and 144<sup>336</sup>). Such unadorned plain colour clothing without embroidery as seen in *The Water Mill* was only used before the Ming Dynasty.

Although the official costume of the Tang Dynasty looks similar to the Song Dynasty, according to Shen Congwen's research, the difference is that the Song round-neck robe has an additional collar and enormous sleeves instead of the narrow sleeves of the Tang style (Figure 145). Based on the official dress standard, the round-neck and wide-sleeved robe of *The Water Mill* (Figure 108) was the common costume of Song Dynasty officials.

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<sup>334</sup> The official dress of the Yuan Dynasty used the Y-neck robes with patterns. From *Yuanshi* – Chapter Costumes and Vehicles 1, original text: 百官公服：公服，制以羅，大袖，盤領，俱右衽。一品紫，大獨科花，徑五寸。二品小獨科花，徑三寸。三品散答花，徑二寸，無枝葉。四品、五品小雜花，徑一寸五分。六品、七品緋羅小雜花，徑一寸。八品、九品綠羅，無文。

<sup>335</sup> Figure 143 is a Ming painting that depicts a banquet in 1503. The ten attendees were all officials in power and they successfully achieved the qualification of candidates in the highest imperial examination at the same year. So this painting was also called *Ten Same Year (Scholars) Painting*.

<sup>336</sup> Figure 144 presents a portrait of the Qing official Huang Yue (1750–1841). This painting was drawn in 1823 when the Daoguang Emperor was holding a banquet and asking imperial artists to draw portraits for 15 former officials.

In the image, because of fading and covering, we cannot see if the robe has a band below the knees. Theoretically, the official costume of the Song Dynasty is *lanshan* 襴衫. (Figure 146) *Lanshan* based on the long robe, round collar or Y-neck, has a band below the knees, which is a symbol of traditional Chinese costume.

In the pre-Qin period, the ancestors of the Chinese wore tops and skirts as a set. *The Book of Changes (Yi Jing 周易)* says: “Huangdi,<sup>337</sup> Yao,<sup>338</sup> Shun<sup>339</sup> wore tops and skirts to rule the country, because it (the clothes) based on heaven (*qian* 乾) and earth (*kun* 坤).”<sup>340</sup> *Qian* means sky or heaven and *Kun* means the ground. This costume style was the most formal dress in ancient China. All the ceremonial dress and most formal dress were this type of two-piece suit until the Han Dynasty. *The Book of Rites*, in the chapter “Greater Record of Mourning Rites” also says: “衣必有裳，謂之一稱。”<sup>341</sup> Which means the tops must be worn with the skirts. However, the one-piece costume which is more convenient for wearing and daily use than the top and skirt set was created for practical purposes.

During the Zhenguan period (627–649) of the Tang Dynasty, the prime minister Zhangsun Wuji (594–659) suggested to the Taizong Emperor adding a band at the knee part of the clothes to conform to the traditional rites of the two-piece suit. The band below the knees of *lanshan* stands for the boundary between the tops and the skirts. Although the Tang Dynasty widely used *lanshan*, it was more popular in the Song Dynasty, and can be found in most portraits of the Song emperors.

The Song Dynasty also inherited the Tang tradition of using different colours to distinguish the official ranks. From records in *History of Song*, the chapter on “Cart and Costume”: “[Officials] at and above the third grade can wear purple; [officials] at and above the fifth grade can wear red; [officials] at and above the seventh grade can wear green; [officials]

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<sup>337</sup> Huangdi 黃帝 (2177–2598 BC), also known as the Yellow Emperor, whose reign dates are c.2698–2598 BC. He was one of the legendary sovereigns and the initiator of Chinese culture.

<sup>338</sup> Emperor Yao 堯 (2324–2206 BC), one of the Five Emperors of China, who reigned c.2333–2234 BC.

<sup>339</sup> Shun 舜 (?–2233 BC), a legendary leader of ancient China, regarded as one of the Five Emperors, who reigned c.2233–2184 BC.

<sup>340</sup> Zhou Xibao. *The History of Ancient Chinese Costume*, 2. Original text: 《易·繫辭下》有：“黃帝、堯、舜垂衣裳而天下治，蓋取之乾坤。”

<sup>341</sup> Kong Yingda. *Liji Zhengyi*, vol 45.

at and above the ninth grade can wear cyan blue.”<sup>342</sup> During the Yuanfeng time (1078–1085), the era name of the Shenzong Emperor (r. 1067–1085), the standard was slightly changed – the cyan blue was abandoned; the fourth grade and above officials were able to use purple; the sixth grade and above officials crimson; the ninth grade and above officials green.<sup>343</sup> The later regulations were kept till the Yuan Dynasty.

However, Zhou Xibao pointed out in his book that there existed a narrow-sleeved formal robe in the Song Dynasty – for secondary officials.<sup>344</sup> In *The Water Mill*, the official standing under the pavilion wears a cyan blue or green round-collared robe with narrow sleeves. And the senior official who is sitting behind a desk, despite the clothing colour being slightly faded, wears a more formal enormous sleeved round-collared robe (Figure 108). Yu Hui has examined the colour of the senior official’s costume in “Function of Geology in Identification Ancient Paintings”, and he thought it is purple. But the late Qing scholar Li Baoxun held the view that the senior official was in a black *futou* and red robe. Nevertheless, the image has several red units such as garment of the two officials on the right bottom tavern (Figure 109) and the wooden partition in front of the tavern (Figure 86). The contrast between the colour of the senior sitting official and the red faded colour of the painting shows that it cannot be red. Consequently, I support Yu Hui’s opinion that the senior official wears a purple robe. No matter what colour it is, either red or purple was the higher officials’ exclusive and the green or cyan blue belongs to the lower ranks. Their postures also accord with the official status.

To sum up, there are seven senior officials in *The Water Mill*, as far as we can see, one is in the right lapel Y-neck robe and two are in the round-neck robes. The right lapel robe reflected the *youren* tradition in ancient China which was a strict principle in the Han nation. The round-neck robe was used as the official dress since the early Tang Dynasty, and the additional collar and enormous sleeves were characteristics of the Song Dynasty. Using colours to distinguish the grades of officials was another tradition of ancient China,

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<sup>342</sup> Tuo Tuo 脫脫 *et al.*, ed. *Songshi*, vol 106, Carriage and Costume 5. Original text: 宋因唐制，三品以上服紫，五品以上服朱，七品以上服綠，九品以上服青。其制，曲領大袖，下施橫襴。

<sup>343</sup> *Ibid.* Original text: 元豐元年，去青不用，階官至四品服紫，至六品服緋，……九品以上則服綠。

<sup>344</sup> Zhou Xibao. *The History of Ancient Chinese Costume*, 259.

from the colours of garments in *The Water Mill*, we can see red, cyan blue/green and purple which were used during the Song Dynasty. Based on the analysis of the senior official costume, the senior officials in *The Water Mill* are wearing a Song style garment.

### Costume of Junior Officials

There are four junior officials in *The Water Mill*: three are standing behind a senior official under the left pavilion (Figure 110) and one stands on the ground in front of the pavilion, supervising the workers (Figure 111).

These junior officials did not wear *futou* like the senior officials, but their heads are wrapped with black cloth like the other labourers in the painting. In *Along the River During the Qingming Festival*, we can find the same figures (Figures 147–150). In these images, sedan chair carriers (Figure 147), boatmen (Figure 148), common people and pedlars (Figure 149), lower officials of a local administrative office (Figure 150), no matter what their occupation were, they all wore the same headwear – the black kerchief.

This tradition dates from the Pre-Qin period. Before the Qin Dynasty (221–207BC), common people were called *limin* 黎民. In *Shujizhuan* 書集傳 (Book Collection)<sup>345</sup> by Cai Chen (1167–1230), he added a note: “*Li* means black. People’s heads are all black, so called (them) *limin*.”<sup>346</sup> But here Cai Chen did not explain if the black was for the hair or cloth. The first document that stated common people used black kerchief head wrapping is *Shiji*:

When the First Emperor of Qin (247–221, r. 221–210) unified China, he divided the whole country into 36 commanderies and set officials and administrators. He also changed the name of common people, calling them “*qianshou* 黔首

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<sup>345</sup> *Shujizhuan* 書集傳 is a note on *Shangshu* 尚書 (also known as *Shu* 書, *Shujing* 書經, The Book of Documents) which is a collection of rhetorical prose attributed to the 5th century BC, and served as the foundation of Chinese political philosophy. *Shangshu* is one of the Five Classics of ancient Chinese literature and *Shujizhuan* is the highest academic achievement in the study of *Shangshu* in the Song Dynasty. It was written by the Southern Song scholar Cai Chen, commissioned by Zhu Xi (1130–1200), a Confucian scholar, historian, philosopher, politician, and writer.

<sup>346</sup> Cai Chen 蔡沉 (Song Dynasty). *Shujizhuan* 書集傳 (Book Collection). Beijing: Zhonghua Book Company, 2017. Original text: 黎，黑也，民首皆黑，故曰黎民。



(blackhead)".<sup>347</sup>

*Shuowen jiezi* states “*qian* means *li*, the black colour.”<sup>348</sup> The Qin Dynasty followed the five elements theory (*wuxing* 五行), believing that all objects were constituted with the five elements – metal, wood, water, fire and earth. However, the previous dynasty Zhou (1046–256BC) had ruled by the power of fire, which was the colour red. The First Emperor of Qin chose water, the black colour, which conquers fire, as the representative element of the Qin Dynasty. In Sima Qian’s research, it was the reason why black was the most popular colour of the Qin Dynasty, used on people’s costumes, sacrificial objects, flags, etc. The common people wore black cloth as headwear, so was called *qianshou*.

This tradition can be found in images of the Jin and Yuan Dynasties. *Chongxiu zhenghe jingshi zhenglei beiyong bencao* 重修政和經史證類備用本草<sup>349</sup> has several illustrations (Figures 151–153) which show the same headwear of labours. In *Quanxiang pinghua wuzhong* 全相平話五種, a short novel collection of the Yuan Dynasty, there are also figures with a black kerchief (Figure 154). In the Ming Dynasty, the style of headwear changed. Since the early Ming, it was stipulated that common people should wear a cuboid cloth hat (Figure 155) and skull cap (Figure 156). But most of the poor, especially peasants, used *wangjin* 網巾 (Figures 155, 157 and 158) instead of black kerchief and hats. *Wangjin* was an inner informal hat made by weaving dyed horsehair or palm fibre that can be used by all classes. Officials always used it inside the *futou* but for agriculture or worker, it was more convenient to use without an outside cover. Therefore, it can be understood that the headwear of junior officials and common people in *The Water Mill* was the black kerchief used since the Qin Dynasty and before the Ming Dynasty.

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<sup>347</sup> Sima Qian 司馬遷 (Western Han Dynasty). *Shiji* 史記 (*Shih Chi*). vol 6, The Biography of The First Emperor of Qin. Beijing: Zhonghua Book Company, 1982. Original text: 分天下以為三十六郡，郡置守、尉、監。更名民曰“黔首”。

<sup>348</sup> Xu Shen 許慎 (Han Dynasty). *Shuowen jiezi* 說文解字 (Explaining Graphs and Analysing Characters). Beijing: The Zhonghua Book Company, 1963. Original text: 黔，黎也。

<sup>349</sup> The original author of this book was Tang Shenwei 唐慎微 (1056–1136) who was an expert in agrostography and pharmacy of the Northern Song Dynasty. The first version *Jingshi zhenglei beiji bencao* 經史證類備急本草 was finished in 1082 and revised three times, separately in 1108 by Ai Sheng 艾晟, 1116 by Cao Xiaozhong 曹孝忠 and 1249 by Zhang Cunhui 張存惠 (Jin Dynasty). Finally, it changed its name to *Chongxiu zhenghe jingshi zhenglei beiyong bencao*. In 1957, People’s Medical Publishing House published this book.

These junior officials all wear the robe with slits at both sides on the crotch part. This kind of garment is called *quekuashan* 缺胯衫 in Chinese. Literally, it means unlined outwear with slits on the crotch part. From the three people under the pavilion (Figure 110), it can be seen that this clothing is round-necked with additional collar like the senior official's robe, but the sleeves are narrower. The overseer (Figure 111) stands back to the viewers so we cannot see the collar style and his sleeves are wider than those of the three people under the pavilion. According to Zhou Xibao's research, the narrower sleeved robe was for lower grade officials. From the width of the sleeves, we can tell that the three junior officials standing in the pavilion rank lower than the overseer who is standing on the ground and this overseer ranks lower than the senior official in formal dress who is standing in front of the desk under the pavilion. The senior official that sits behind the desk is the top-ranking person in *The Water Mill*.

The *quekuashan* they wear is below the knee but above the ankle. This garment was evolved from *lanshan* and the slits were created for the purpose of working. It was said that Ma Zhou of the Tang Dynasty was the person who created these clothes. According to *Xintangshu*, in the "Vehicle and Costume" chapter,

Currently, scholars use *lanshan* as top wear. ... Zhongshuling<sup>350</sup> Ma Zhou points out that *The Book of Rites* did not say anything about wearing *shan* (which means this garment did not conform to traditional etiquette). The clothing system of the Xia, Shang and Zhou Dynasties had *shenyi* (long robe), so he suggests adding a band below the knees, adding sleeves, cuff and hem on the long robe (to accord with traditional ritual). This modified clothing is called *lanshan* and was widely used by scholars as top wear. What is called *quekuashan* is *lanshan* with slits, which was used by common people.<sup>351</sup>

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<sup>350</sup> *Zhongshuling* 中书令: An official title. The institution "*zhongshu*" was set up during the Western Han Dynasty (206BC–24AD), belonging to the eunuch organization. Officials of *Zhongshu* are responsible for collecting documents and books in the emperor's library and study room. The supervisor of the institution was called *zhongshuling*. In the Tang Dynasty, it was no longer an organization governed by eunuch but a normal government institution.

<sup>351</sup> Ouyang Xiu 歐陽修, Fan Zhen 範鎮, Song Qi 宋祁 *et al.*, ed. *Xintangshu* 新唐書 (The New Tang Book). vol 24, Vehicle and Costume. Beijing: Zhonghua Book Company, 1975. Original text: 是時士人以棠苧襪衫為上服，……中書令馬周上議：《禮》無服衫之文，三代之制有深衣。請加襪、袖、襠、襠，為士人上服。開胯者名曰缺胯衫，庶人服之。

In images of the Liao and Yuan Dynasties, this garment was common (Figures 159 and 160).

It is worth noting the position of the three junior officials under the left pavilion. Their poses are same – hands clasped in front of the chest and the left hand is over the right hand (Figure 110).

Based on a study by Shen Congwen, this pose was called “*chashou li* 叉手禮”. Literally, it means cross-hands etiquette and it was a common ritual of greeting. This etiquette appeared in the Western Jin Dynasty and was popular in the Tang, Five Dynasties, Liao, Song, Jin and Yuan (Figures 161–164). Both male and female, old and young can use the pose, but in most cases, it was a ritual from the lower status to the higher status to show respect. Cross-hands etiquette is often used while standing, especially when answering questions or replying.<sup>352</sup>

In *Shilin guangji*,<sup>353</sup> there has a record of this ritual (Figure 165):

The method of cross hands – use the left hand pressing the right thumb, the little finger of the left-hand points to the right wrist. The other four fingers of the right hand are straight and the thumb of the left-hand points upwards. If you use the right hand to cover the chest, the hand cannot touch the chest. It should leave two or three *cun*<sup>354</sup> from the chest, which is the correct way to cross hands.<sup>355</sup>

However, the junior officials’ costume is simpler than senior officials’ and is closer to the

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<sup>352</sup> Shen Congwen. *ZGGDFSJ*, 405–406.

<sup>353</sup> *Shilin guangji* 事林广记: An ancient encyclopaedia of folk reference. It was an illustrated text book, including a wide range of subjects, such as astronomy, geography, politics, penal law, social custom, literature, etc. The author Chen Yuanliang was an editor of the late Southern Song Dynasty and current versions were revised by Yuan and Ming scholars. Every time it is reprinted, new content is added. By examining different versions, we can trace how society changed between different dynasties.

<sup>354</sup> *Cun* 寸: A unit of length. During the Song Dynasty, one *cun* was equal to 3.12 cm (Yang Kuan 楊寬. *Zhongguo lidai chidu kao* 中國歷代尺度考 [Research on Measure of Each Dynasty]. Beijing: The Commercial Press, 1955).

<sup>355</sup> Chen Yuanliang 陳元靚. *Shilin guangji* 事林廣記 (Records of Varied Matters). Taipei: The Commercial Press, 1972. Original text: 凡叉手之法，以左手緊把右手大拇指，其左手小指則向右手腕，右手四指皆直，以左手大指向上。如以右手掩其胸(胸)，手不可太著胸(胸)，須令稍去胸(胸)二三寸許，方為叉手法也。

garment of common people. The style of the black kerchief and *quekuashan* were both used for a long time, as well as the tradition of the cross-hand etiquette. Based on this section, the clothing of junior officials represents the characteristic between the Tang to before the Ming Dynasty.

## Costumes of Common People

The number of common people exceeds the number of any other type of group in the painting. Although costumes of ordinary people changed not as fast as garment of officials, some clothes still show features of the time both in colours and shapes. There is a total of 35 common people in *The Water Mill* (Figure 112). According to their location and behaviour, I would like to divide them in four groups:

- a. waiter (one person, on the ground floor of the tavern in the right bottom corner of the painting, Figure 166)
- b. carters (nine people, seven at the left side and two on the right side, all on the riverbank of the lower part of the image, Figure 167)
- c. boatmen and boat tracker (five people, four boatmen and one boat tracker, on the boats in the river and at the left platform, Figure 168)
- d. workers doing the milling, including grinding, transporting, carrying, sifting, etc. (total twenty people, on both side platforms and the main building, Figure 169).<sup>356</sup>

These labourers all wear the black kerchief headwear, as same as the junior officials. Some of them are also in *quekuanshan* but the lower hem of the cloth is pulled up and tucked into the waistband (Figures 170–172). However, except for some figures with their back to the audience, all clear *quekuashan* are in the Y-neck crossing lapel style (Figure 171), which is different from the round-collar style of junior officials. Based on Shen Congwen's observations, the Y-neck crossing lapel cloth is easier to wear and take off than the round-collar style, which is more convenient for working. And the rolled hem of the midi

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<sup>356</sup> These groups will also be used in later discussion – section Human Activities.

garment is for the same purpose.<sup>357</sup>

However, except for group a. (a waiter of the tavern), the other three groups all have topless labourers (Figure 173) and workers in waistcoats (Figure 174). The waistcoat had its popular period in the Song Dynasty, especially from the late Northern Song Dynasty. The same images can be found in *Along the River During the Qingming Festival* (Figures 175–177). From Figures 175–177, we can see that long robe and Y-neck crossing lapel *quekuashan* were garments of common people and ordinary vendors but for the lower-class workers such as the sedan chair carriers, carters and labours, the waistcoat was more welcome.

In Figure 177, several carriers who are wearing the waistcoat also have outer clothing attached to their waists and from the style, it has a high probability to be *quekuashan*. It can be speculated that the waistcoat was a kind of underwear which could be worn inside the usual garment.

Nevertheless, in *The Water Mill*, there is no labourer adding outwear at their waist - the waistcoat was used alone. In the season and climate section of this dissertation, it has been discussed that from 950 to 1250, the whole world went through a period of warm climate, also known as the Medieval Warm Period. The territory of the Song Dynasty was in the temperate monsoon climate and the subtropical monsoon climate. Moreover, the alcohol culture section tells us *The Water Mill* may show a scene around the Mid-Autumn Festival which was always in September or October of the solar calendar. Therefore, it is reasonable to believe that the labourers are topless and waistcoat-wearing because of the hot weather.

Shen Congwen provides another hypothesis for the short garment of the Song Dynasty – poverty.<sup>358</sup> According to his research, due to wars of more than half a century since the Five Dynasties and Ten Kingdoms, the agriculture of northern China was extremely

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<sup>357</sup> Shen Congwen. *ZGGDFSJ*, 414.

<sup>358</sup> *Ibid.* 417–418.

devastated. When the Song government unified the whole country, it soon suffered other wars from the Liao regime. Although the accounts of the treaty in the Liao records and the Song records do not tally with each other, the final result shows an unfavourable treaty to the Song Dynasty.<sup>359</sup> The Chanyuan Treaty settled for an agreement that the Song would make annual payments of 200,000 bolts of raw silk and 100,000 taels of silver.<sup>360</sup> The agreements put a serious strain on the Song State Finance Commission which ultimately transferred to the common people. To reach the amount of the agreements, the Song government intensified exploitation and increased taxation. It was rare in history that people should pay such various kinds of taxes and undoubtedly, this made ordinary people more impoverished. People's poverty influenced clothing and ordinary males had to wear less. The existing *Pictures of Tilling and Weaving* have different versions but all of them are copies by later dynasties. Even the original images are now lost, but from existing pictures and Roslyn Lee Hammers's research, we still can know that the first version, which was painted by the Southern Song artist Lou Shu (1090-1162), reflected the short garments of common people.<sup>361</sup>

However, this argument is not entirely reliable because previous murals also have short clothing or topless figures. Using murals of Dunhuang as examples, Figure 178 was painted in the golden age of the Tang Dynasty but the peasants in the painting are wearing short skirts; Figure 179 is a mural of the Five Dynasties and the potter is topless; Figure 180 is a Northern Zhou (557–581) mural which shows the labours only in shorts building a tower and some artisans are drawing murals. From these images, we can see similarities.

Compared with official costumes that have been standardized in each dynasty, garments of common people changed slower, for instance, the black kerchief was used by lower classes as headwear for more than 1,000 years. There must be reasons for economic

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<sup>359</sup> Tao, Jinsheng. *Two Sons of Heaven: Studies in Sung-Liao Relations*. Tucson: University of Arizona Press, 1988, and Wright, David. *From War to Diplomatic Parity in Eleventh-Century China: Sung's Foreign Relations with Kitan Liao*. Leiden: Brill, 2005.

<sup>360</sup> Wright, David C. "The Sung-Kitan War of AD 1004–1005 and the Treaty of Shan-üan", *Journal of Asian History* vol 1 (1998), 25.

<sup>361</sup> Hammers, Roslyn Lee. *Pictures of Tilling and Weaving*.

restrictions but it cannot be denied that social status and habits also affected people's choice – a short garment or topless was more convenient for working. However, weather and climate are also important factors that need to be considered. We could say each element can be the determinant for the creation of the waistcoat, but these factors are inseparable.

The predecessor of the waistcoat was *banbi* 半臂 (half arm, Figure 181), a short-sleeve top garment which was popular in the Tang Dynasty. The early waistcoat was also called *liangdang* 裋襠 but its shape was not the same as in *The Water Mill*. In *Shiming* (Explanation of Names), *liangdang* was explained as “covering the chest and the back”.<sup>362</sup> Therefore, this garment style was also used in the army by adding leather or iron as a breastplate (Figure 182).

However, the waistcoat style of *The Water Mill* was exclusively of the Song Dynasty. According to historical documents, this front-opening rectangle-shape waistcoat became popular from the late Northern Song. Both Zhu Xi<sup>363</sup> (1130–1200) and Lu You<sup>364</sup> (1125–1210) in their books mentioned that the previous era did not have such a garment. In the Song Dynasty, the waistcoat was suitable for all classes and both genders. Based on Cao Xun's (1096–1174) record in *Beishou jianwenlu* 北狩見聞錄 (Records of Hunting in The North), the Huizong Emperor wore this style garment.<sup>365</sup> In *Xihu Laoren Fanshenglu* 西湖老人繁盛錄 (Records of Civilian Activities by Elder of West Lake), more than one record shows that the waistcoat was welcomed by vendors and actors.<sup>366</sup>

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<sup>362</sup> *Shiming*, Chapter Explanation of Costumes. Original text: 裋襠，其一当胸，其一当背，因以名之也。

<sup>363</sup> Zhu Xi 朱熹. *Zhuzi yulei* 朱子語類 (The Analects of Zhuzi). vol 91, The Eighth Rites. Beijing: Zhonghua Book Company, 1986.

<sup>364</sup> Lu You 陸遊 (Song Dynasty). *Jiashi Jiuwen* 家室舊聞 (Family Old Anecdote). vol 1, Beijing: Zhonghua Book Company, 1993.

<sup>365</sup> Cao Xun 曹勳 (Song Dynasty). *Beishou Jianwenlu* 北狩見聞錄 (Records of Hunting in The North). Beijing: The Commercial Press, 1939. Original text: 是晚下程，徽廟出禦衣衣襠一領，拆領，寫字於領中。Then he added a footnote himself: 俗呼背心。(commonly known as the waistcoat).

<sup>366</sup> Xihu Laoren 西湖老人 (Song Dynasty). *Xihu Laoren Fanshenglu* 西湖老人繁盛錄 (Records of Civilian Activities by Elder of West Lake). Shanghai: Shanghai Classics Publishing House, 1957. Original text: 街市撲蒲合，生絹背心、黃草布衫，苧布背心。and 撲賣摩侯羅，多著乾紅背心，系青紗裙兒。

Excavated samples can be found in Huang Sheng tomb of the Fujian province.<sup>367</sup> Before the Yuan and Ming Dynasty, bellyband and waistcoat were worn by both genders and the style was same<sup>368</sup> (Figure 183 and 184). Although the occupant of the tomb was a young married woman and the material of waistcoats of the nobility was different from common people's garments, from the clothing style, we can still know what the real waistcoat was at the time (Figure 185). Eight waistcoats have been unearthed from the tomb of Huang Sheng, which also suggests how popular this costume was during the Song Dynasty. After the Yuan and Ming Dynasty, the appearance of the waistcoat changed. From unearthed objects, the usual style of that period was front-opening trapezoid-shape (Figure 186).<sup>369</sup> In ancient China, the bottom wear was skirts rather than trousers, especially for nobility and ruling class. When trousers were invented, it was for the purpose of warming the legs, so the early trousers were also called *jingyi* 脛衣 (shank garment) and the length only reached the knees. Besides, when the Han nationality began to wear long trousers, the hip part was still naked – only trouser legs were lengthened to connect with the waist.

In *The Water Mill*, several labours are wearing such split trousers (Figures 187 and 188). From these images, we can see the crotch part of their trousers is empty. In Southern Song tombs, some excavated relics have the same shape. The Huang Sheng (female) tomb of the Fuzhou, Fujian province and the Zhou Yu (male) tomb of the Jintan, Jiangsu province respectively unearthed 15 pieces (Figure 189, total 24 trousers)<sup>370</sup> and three pieces (Figure 190, total 7 trousers).<sup>371</sup> In addition, in a female tomb of Lanxi, Zhejiang province four split trousers (total 4 trousers) were found.<sup>372</sup> During the Song Dynasty, this

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<sup>367</sup> The Museum of Fujian Province, ed. *Fuzhou Nansong Huang Sheng Mu* 福州南宋黄升墓 (The Southern Song Tomb of Huang Sheng). Beijing: Cultural Relics Publishing House, 1982.

<sup>368</sup> Gao Chunming. Zhou Xun ed. *5000 Years of Chinese Costumes*. San Francisco: China Books & Periodicals, 1987, 117.

<sup>369</sup> Ibid. 119. Although Figure 148 is a female style waistcoat of the Yuan Dynasty, from the buried vest of the Wanli Emperor (1563–1620, r. 1573–1620), we learn that the shape of the male style was similar to that of females.

<sup>370</sup> The Museum of Fujian Province. “福州市北郊南宋墓清理簡報 (The brief report on the excavation of the Southern Song tomb in northern suburbs of Fuzhou)”, *Wenwu* vol 7 (1977), 5, 7.

<sup>371</sup> The Museum of Zhenjiang and the Cultural Management Committee of Jintan. “江蘇金壇南宋周瑀墓發掘簡報 (The brief report on the excavation of the Southern Song Zhou Yu tomb of Jintan, Jiangsu province)”, *Wenwu* vol 7 (1977), 21–22.

<sup>372</sup> Wang Jiyong 汪濟英 (The Museum of Zhejiang Province). “蘭溪南宋墓出土的棉毯及其他 (The excavated cotton blanket and others from the Southern Song tomb of Lanxi)”, *Wenwu* vol 6 (1975), 55.



garment was for both female and male.<sup>373</sup> We can see how popular the split trousers were from the proportion of split trousers in all excavated trousers.

However, split trousers cannot cover the private parts, therefore, other garments should be worn with them. The name of *dubiku* 犢鼻袴 (also called *dubikun* 犢鼻褌, calf nose briefs) comes from its shape – the briefs look like a calf nose. In *The Water Mill*, some workers are in this costume (Figures 187 and 191). *Dubiku* were always treated as underwear, only the poor and the lowest class would wear them without outer clothes. In *Shiji*, Sima Qian (around 145–86 BC) recorded a story of Sima Xiangru (179–117 BC): “相如身自著犢鼻褌，與保庸雜作，滌器於市中。”<sup>374</sup> The biography states that the couple supported themselves by running an ale shop and Sima Xiangru only wore a *dubikun* in public, washing drinking vessels like waiters. This behaviour forced his father-in-law to recognize their marriage.<sup>375</sup>

In *Along the River During the Qingming Festival*, there is one person in *quekuashan* and *dubikun* without outer trousers on the street of the inner city (Figure 192), but in a working scene, the brief was more common. *The Early Snow on the River* (Figure 193),<sup>376</sup> *Pictures of Tilling and Weaving* (Figure 194)<sup>377</sup> and *One Hundred Horses* (Figure 195)<sup>378</sup> all have figures wearing *dubikun*.

In summary, compared to official garments, the clothes of common people are less affected by the changes of dynasties. The black kerchief has been used since at least the Qin Dynasty and the calf nose briefs appeared in the Han Dynasty. Although the split

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<sup>373</sup> The Museum of Zhenjiang. “The brief report of Zhou Yu tomb”, 21.

<sup>374</sup> Sima Qian. *Shiji*. vol 117, The Biography of Sima Xiangru.

<sup>375</sup> Knechtges, David R., and Taiping Chang. *Ancient and Early Medieval Chinese Literature (vol. 2): A Reference Guide, Part Two*. Leiden: Brill, 2013, 972.

<sup>376</sup> *The Early Snow on the River* is a recognized Five Dynasties painting by Zhao Gan, a court artist of the Southern Tang (937–975).

<sup>377</sup> Scene of “Er yun 二耘 (The second Weeding)” from *Pictures of Tilling* which was attributed to the Yuan Dynasty artist Cheng Qi (act. c.1275). The current image might be a copy from around the 18th century (Hammers, Roslyn Lee. *Pictures of Tilling and Weaving*).

<sup>378</sup> *One Hundred Horses* is an anonymous painting. It has been attributed to the Tang or Five Dynasties but currently, academic opinion is that the artist of the painting is of the Song Dynasty (Xu Bangda. The Palace Museum, eds. *Xu Bangda ji: Guhua guoyan yanlu* 徐邦達集：古書畫過眼要錄 [Collected Works of Xu Bangda – Ancient Paintings and Calligraphy Passing Before One’s Eyes]. vol 8. Beijing: The Palace Museum Press, 2014, 267).

trousers were extremely popular during the Song Dynasty, they were a clothing used from the pre-Qin period until the Qing Dynasty. But according to Zhu Xi and Lu You, the front-opening rectangle-shape waistcoat of *The Water Mill* was exclusively of the Song Dynasty. Based on the foregoing discussion, the costume of the ordinary people reflects a characteristic of the Song Dynasty.

### **Tattoo and Song Soldiers**

From above discussion, we could learn that both official costumes and costumes of common people show the Song Dynasty culture. Besides, another phenomenon also presents the Song tradition. A significant point is that the labourers of *The Water Mill* have tattoos. From topless workers (Figure 196) and the bare skin of a figure who is wearing a waistcoat and calf nose briefs (Figure 197), it can be seen that their arms and legs have large areas of tattoos.

Tattoo was popular during the Tang and Song Dynasties, called *dianqing* 點青 (dot cyan) in Chinese. It was common among the low class (Figure 198) but people who have a large area of tattoo on the body were always soldiers or rascals. As there are officials under the pavilion beside the water mill, supervising the grinding process, the workshop would be an official water mill and the labours would be soldiers.

According to Elad Alyagon, the policy of tattooing soldiers was a unique trait of Middle Period China (from the early ninth century through the end of the thirteenth century), but especially of the Song Dynasty. During the Song period, military tattoos were an instrument for determining and fixing social hierarchy.<sup>379</sup> When the Song state standardized and expanded the practice of military tattoos in its huge standing armies and local militias, it turned them into a method of record keeping, not on paper but on skin. Northern Song military tattoos often contained the name of the soldiers' area command. By doing so, military tattoos marked the soldier as belonging to the Song army, but also to

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<sup>379</sup> Alyagon, Elad. "Loyalist Tattoos and Tattooed Generals in the Song Dynasty", *Frontiers of History in China* vol 2 (2016), 249.

which unit exactly within the army. When a soldier was transferred, his tattoo was altered accordingly.<sup>380</sup>

In *Songhuiyao jigao*, a record in 1186 described the benefit of military tattoo:

臣寮言，乞倣范仲淹措置陝西民刺手之法，凡鋪兵並與刺臂，稍大其字，明著某州某縣斥堠鋪兵某人。凡逃在他州他縣者，並不得招收。遇支衣糧，除番次留鋪傳送遞角外，其當請者驗臂支給，冒請逃竄之弊可以革絕。<sup>381</sup>

I ask that [we] follow Fan Zhongyan's method in setting up the militias in Shanxi and tattooing [their] hands. Whenever [we] tattoo the arms of the postal station soldiers, we should make the characters slightly bigger, so that it is clearly written [that this is] such and such person of the inspection postal station, soldier of such and such subprefecture of such and such prefecture. All those who escape to other prefectures and other subprefectures should not be accepted for conscription [there]. When issuing clothing and food, except [in the case of] those who in the course of the transmission cycle stay in the postal station for the transmission of documents, they should inspect the arm of the recruit and then issue him [food and clothing]. [That way] the problem of recruiting deserters against the law can be eliminated.<sup>382</sup>

Moreover, in two articles by Yu Hui,<sup>383</sup> he pointed out that the figures in *The Water Mill* including carters, boatmen and workers of the water mill were not common people but belonged to *jinjun* 禁軍. Before the Tang Dynasty, *jinjun* means the imperial guards that protected the capital city and the imperial palace. During the Tang and Song Dynasties, the regular army was called *jinjun* to differentiate from the prefectural army, *xiangjun* 廂軍.<sup>384</sup>

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<sup>380</sup> Alyagon, Elad. *Inked: Song Soldiers, Military Tattoos, and the Remaking of the Chinese Lower Class, 960–1279*. University of California, Davis, 2016, 52.

<sup>381</sup> Xu Song 徐松 (Qing Dynasty). *Songhuiyao Jigao* 宋會要輯稿 (Edition of The Compilation of Song's Regulations). vol. Fangyu 11. Beijing: Zhonghua Book Company, 1957.

<sup>382</sup> Alyagon, Elad. *Inked: Song Soldiers, Military Tattoos*, 245.

<sup>383</sup> Yu Hui. "Function of Geology in Identification" and "Research in Cart Paintings of Song Dynasty", 7-11.

<sup>384</sup> Huai Jianli 淮建利. *Songchao xiangjun yanjiu* 宋朝廂軍研究. Zhengzhou: Zhongzhou Ancient Books Publishing House, 2007.

However, according to *Songshi*, the army of the Song Dynasty was mainly divided into three tiers: “The guard of the emperor has the responsibility to protect the capital city, preparing for wars, called *jinjun*; The soldiers of counties supply labour duties, called *xiangjun*; The recruited soldiers or these chosen from the census register were called *xiangbing* 鄉兵 who were organized and practiced to take charge of defence for counties.”<sup>385</sup> From this record, we can see that the soldiers supplying labour duties would be the prefectural army.

Based on *Songhuiyao jigao*, it was common to use soldiers of the prefectural army as workers in important official industries, such as weapon manufacturing, shipbuilding, brewing, smelting, weaving, etc. These technical soldiers were called military craftsmen or artisans. In Huai Jianli’s opinion, different from the Tang Dynasty, the Song government controlled the labour force through the *xiangjun* system. It was a beneficial arrangement when the social taxation and corvee changed<sup>386</sup> and the commodity economy developed, also a method through which the Song government regulated the economy. The water mill workshops were one of the most important official industries of the Song Dynasty. In Volume 142, Soldiers 3 (*xiangjun*) of *Songshi*, there is recorded the water mill Zheng (*shuimo Zheng* 水磨鄭), the western water mill business (*xi shuimowu* 西水磨務),<sup>387</sup> the eastern water mill business (*dong shuimowu* 東水磨務), the Datong gate water mill (*datongmen shuimo* 大通門水磨) and the capital water mill (*du shuimo* 都水磨).<sup>388</sup>

In addition, the flour produced from the official water mill workshop was mainly used for army provisions. The *Songshi*, Volume 128 carefully described how prefectural soldiers delivered grain by boat and cart.<sup>389</sup> Therefore, not only the labourers of the water mill workshop but also the cart groups and the carters could belong to *xiangjun* (the

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<sup>385</sup> Tuo Tuo *et al.*, ed. *Songshi*. vol 140, Soldiers 1. Original text: 宋之兵制，大概有三：天子之衛兵，以守京師，備征戍，曰禁軍；諸州之鎮兵，以分給役使，曰廂軍；選於戶籍或應募，使之團結訓練，以為在所防守，則曰鄉兵。

<sup>386</sup> During the Tang Dynasty, artisans were employed by the official workshops without compensation, which was regarded as corvee. (Huai Jianli. *Songchao xiangjun yanjiu*. Zhengzhou, 2007, 109).

<sup>387</sup> *Shuimowu* 水磨務 was the official institution of the Song Dynasty, belonging to the agricultural department. It took charge of water mills and the ground flour or tea was provided for the court, and internal and external government agencies.

<sup>388</sup> Tuo Tuo *et al.*, ed. *Songshi*. vol 142, Soldiers 3 (*xiangjun*).

<sup>389</sup> *Ibid.* vol 128, The Food Upper Three (*bubo* 布帛, *hedi* 和糴, *caoyun* 漕運).

prefectural soldiers).

In conclusion, this part takes the costume as the breakthrough point, analysing the characteristic of garments of figures in *The Water Mill*. First, the straight tails *futou* of the officials' headwear was a distinct garment of the Song and Yuan Dynasty. The round-neck robes of the official pointed to the previous period. Although most clothes of junior officials and common people were widely used for a long period, the front-opening rectangle-shape waistcoat was exclusively of the Song Dynasty. More importantly, the tattoos on the workers correspond to the military system of the Song Dynasty. It can be believed that *The Water Mill* presents an official water mill workshop of the Song Dynasty and the workers are military craftsmen from the prefectural army.

## Architecture

As a *jiehua* painting, architecture is the most striking part of *The Water Mill*. The decorative timbers, the wooden tavern and the main building of the water mill – architecture constitutes the main body and highlights the theme of the painting. Each dynasty had its unique style and standard of construction, even the length of building materials or the proportion of structures. Through analysing the building structures and its decorations, the age and its grade could be determined. Although there is little surviving architecture of the Song Dynasty, we can still see examples in some paintings and architectural documents. *Yingzao fashi* is a comprehensive book that introduces Song Dynasty architecture by style, standard, structure, material, decoration, and so on. The aim of this section is to authenticate the time of creation of *The Water Mill* through the construction, referencing *Yingzao fashi*, surviving buildings and paintings.

### The *Jiaofu louzi* (絞縛樓子)

*The Water Mill* is a handscroll painting which should be viewed from the right to the left. When opening the handscroll, the first scene that catches the eye of the audience would be the tavern and the decorative structure at the right bottom of the painting (Figure 199). The high structure in front of the tavern was called *cailou huanmen* 彩樓歡門 (coloured

building and welcome gate) or *jiaofu louzi* 絞縛樓子 (tied up wooden timbers) in Chinese. In previous research, most scholars thought they are the same thing,<sup>390</sup> but I hold a different opinion.

In *DJMHL*, when the author Meng Yuanlao described taverns, he recorded: “凡京師酒店，門首皆縛彩樓歡門。”<sup>391</sup> Literally, it means “All the taverns of the capital city tie up the coloured building or the welcome gate at the entrance of buildings.” But two details should be noticed. First, it mentioned the capital city. Second, it said the taverns. However, not all places that sell food and alcohol can be called a tavern. During the Song Dynasty, the capital city only had 72 *zhengdian* 正店 (tavern). Others can only be called *jiaodian* 腳店 (pub). The difference between *zhengdian* and *jiaodian* was not only their scale but also the grade – *zhengdian* can brew alcohol but *jiaodian* could only sell it.

In *THJWZ*, when Guo Ruoxu recorded a *jiehua* artist,<sup>392</sup> he used “酒肆前絞縛樓子” to describe the *jiaofu louzi* in front of an alcohol shop. In *Along the River During the Qingming Festival*, we find seven decorative structures (Figures 200–206). Except for an incomplete one (Figure 202) at the edge of the painting and four simple timbers (Figures 200, 201, 203 and 206) at the entrances of small shops, two (Figures 204 and 205) are similar to the decorative structure of *The Water Mill*. But according to their appearance, only Figure 205 can be called *cailou huanmen*. This three-storied tavern has a gorgeous entrance, and the timbers of the gate tower are tied with coloured silks and papers. The colourfully decorative structure is closely linked with the entrance and the balcony of the tavern.

However, compared to the magnificent construction in Figure 205, the wooden timbers of Figure 204 has more similarities to the structure of *The Water Mill* in terms of the scale and shape – they are both higher and more independent than the main store buildings. In

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<sup>390</sup> Liu Diyu 劉滌宇. “Songdai Cailou Huanmen Yanjiu 宋代彩樓歡門研究 (Research on Song Dynasty’s Coloured Buildings and Welcome Gates”, *Architect* vol 2 (Spring 2012).

<sup>391</sup> Meng Yuanlao. *DJMHL*. vol 2 – Tavern.

<sup>392</sup> Zhi Xuan 支選, unknown people. Official of the court art academe of the Renzong Emperor period (1010–1063, r. 1022–1063). He was good at cart paintings and *jiaofu louzi* of *jiehua* paintings (Guo Ruoxu. *THJWZ*. vol 4).

Figure 204, a curtain is used to cover the middle eaves of the gate but there are no other decorations such as colourful silk or paper to decorate the rest. The *jiaofu louzi* of *The Water Mill* does not use colourful decorations either. Without colourful decorations, how could they be called *cailou huanmen* (colourful tower and welcome gate)? Additionally, from the signboard in front of it, we know that the building in Figure 205 is a *zhengdian* but what Figure 204 shows is a *jiaodian*. According to the differences between their shape, frame, decorations and the historical records in *DJMHL* and *THJWZ*, it can be inferred that only the taverns of the capital city, especially the highest-grade tavern *zhengdian*, were qualified to erect colourful buildings and welcome gates (*cailou huanmen*) at the entrance. Other restaurants, pubs and alcohol shops can only use the tied up wooden timbers (*jiaofu louzi*). In terms of this inference, there are two possibilities for why the tavern of *The Water Mill* cannot use *cailou huanmen*:

- a. the location of the tavern is not in the capital city
- b. the tavern is located in the capital city, but its grade is not high enough to use the colourful gate.

Moreover, it is clear that all the seven decorative structures of *Along the River During the Qingming Festival* are linked by the roofs of buildings, even the relatively independent shelves in Figure 204 are half inside the main architecture to reinforce its structure. But the one in *The Water Mill* is totally independent from the tavern. Furthermore, if we look carefully at the timber of Figure 204, it can be seen that the four highest pillars of the shelf are whole round logs without joints. But the square timbers of the *jiaofu louzi* in *The Water Mill* used as the pillars are obviously made up of at least three shorter timbers. This can be seen more clearly in a line drawing of the building structure of the *jiaofu louzi* in *The Water Mill* by Liu Diyu<sup>393</sup> (Figure 207).

This construction of the *jiaofu louzi* is unstable. Although a painting cannot be equated to a photograph, during the Five Dynasties and the Song Dynasty, *jiehua* artists were expected to have knowledge of mathematics and architecture. Earlier in the “Background”

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<sup>393</sup> Liu Diyu. “Research on Song Dynasty’s Coloured Buildings and Welcome Gates”.

chapter, I introduced details of how a *jiehua* artist found a mistake from a small wooden architectural model by a famous architect.<sup>394</sup>

In the Song Dynasty, there was a strict standard of building structures, accurate to the size of each wood. The *jiaofu louzi* of *The Water Mill* is near to the tavern, so the proportion can refer to that of the tavern. In Liu Diyu's article, he analysed the *jiaofu louzi* and calculated the possible height of the construction. According to *Yingzao fashi*, pavilions and small halls should use sixth-grade wood, which was 6 *cun* (18.72 cm) in width and 4 *cun* (12.48 cm) for its thickness, the same as the structural material standards for the door of tavern. Liu Diyu divide the *jiaofu louzi* into three parts (Figures 208–210) and he claimed that the biggest pillar of the foundation part (Figure 208) should be 1.45 square *chi* (45.24 cm<sup>2</sup>) and 19.5 *chi* (608.4 cm) in height. Based on the same proportion, the load-carrying wooden pole of the middle part (Figure 209) should be less than 8 square *cun* (24.96 cm<sup>2</sup>) and 22.2 *chi* (692.64 cm) in height. From the zenith of the decorative structure to the ground, the total height of the construction would be more than 60 *chi* (about 19 m).<sup>395</sup>

Even if it was expected that the *jiehua* artist painted the image in strict accordance with the proportions of Song Dynasty architecture, it cannot be denied that the *jiaofu louzi* of *The Water Mill* is a huge construction higher than a two-storied tavern. Although the pillars of the foundation part are fixed into the ground to keep the whole structure stable, such a high independent building is hard to keep balanced. From the line drawing image of the *jiaofu louzi* (Figure 207), it can be seen that the middle and the top parts of the structure are more complicated than the foundation. They have more horizontal wooden units which raises the centre of gravity.

It is well known that when encountering friction, the plane is more stressed than the

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<sup>394</sup> Once the Taizong Emperor ordered a great architect, Yu Hao, to build a temple tower. Before the project started, Yu Hao made a small wooden model as a sample to check the structure. After Yu Hao corrected all the problems of the small wooden model, Guo Zhongshu found there was still a tiny mistake at the top of the tower. When Yu Hao reviewed the model with ruler and other tools, the result proved Guo Zhongshu's words (Wen Ying. *Yuhu Qinghua*. Beijing, 1991, 15).

<sup>395</sup> Liu Diyu. "Research on Song Dynasty's Coloured Buildings and Welcome Gates".



curved surface, and the spliced main pillar with scattered force is likely to break from the middle or the upper parts. According to the conclusion of the Season and Climate section of this dissertation, *The Water Mill* may show a scene around the Mid-Autumn Festival, usually in September or October by the solar calendar. During the Medieval Warm Period, the territory of the Song Dynasty was in a period of temperate monsoon climate or subtropical monsoon climate. Besides, the monsoon climate means seasonal changes in atmospheric circulation and precipitation associated with the asymmetric heating of land and sea.<sup>396</sup> The dominant monsoon system in the world is the Asian-Australian monsoon. Seasonal changes in temperature are large over land but small over ocean waters, and monsoons blow from atmospheric heat sinks (that is, cold regions with high atmospheric pressure) toward heat sources (warm regions characterized by low atmospheric pressure). Consequently, monsoon winds typically travel from sea to land in summer and from land to sea in winter. Most summer monsoons have a dominant westerly component and a strong tendency to ascend and produce copious rainfall, which occurs as a result of the condensation of water vapour in the rapidly rising air. Conversely, the winds of winter monsoons have a prevailing easterly component and a strong tendency to diverge, subside, and cause drought.<sup>397</sup>

Around the Mid-Autumn Festival, under the influence of the monsoon climate, the north temperate zone is humid and rainy. This is good for machinery powered by hydraulics such as the water mill but not for the *jiaofu louzi*. It is hard to imagine that the decorative structure of *The Water Mill* can withstand the monsoon climate – the strong winds and storms could easily break the structure. In other words, only relying on the four main pillars, such a tall construction is impossible to keep stable.

After the Northern Song Dynasty, the *jiaofu louzi* was still popular in the capital city of the Southern Song, Lin'an<sup>398</sup> for a while. It was recorded in several documents published in

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<sup>396</sup> Trenberth, Kevin E., David P. Stepaniak, and Julie M. Caron. "The Global Monsoon as Seen Through the Divergent Atmospheric Circulation", *Journal of Climate* vol 13 (2000), 3969–3993.

<sup>397</sup> "Monsoon" written by T.N. Krishnamurti. *Britannica*.

[www.britannica.com/science/monsoon#accordion-article-history](http://www.britannica.com/science/monsoon#accordion-article-history) accessed 26 Sep 2019.

<sup>398</sup> Lin'an 臨安, the capital city of the Southern Song Dynasty from 1138 to 1276, is the current

the middle of the Southern Song Dynasty, for instance, *Mengliang lu* and *Ducheng jisheng*. However, in the late Southern Song book *Wulin jiushi*, descriptions of the *jiaofu louzi* and *cailou huanmen* disappeared. Therefore, it can be speculated that the decorative structure was gradually abandoned and finally disappeared during the late Southern Song Dynasty.<sup>399</sup> If the artist of *The Water Mill* lived after the late Southern Song, it is easily understood why the structure of the *jiaofu louzi* is unreasonable – because the artist had never seen a real *jiaofu louzi*. But according to the “Cultural Biography” chapter, the *Xuanhe* mounting style and the *Xuanhe* seals show that *The Water Mill* should be a handscroll painting before the *xuanhe* period.

However, the Huizong Emperor was not only a great collector but also a fine artist. Patricia Buckley Ebrey claims that “he is viewed as having been talented enough to have made a name for himself as an artist if he had not become emperor”.<sup>400</sup> Deng Chun also records “the Emperor Huizong has keen discernment in all areas”<sup>401</sup> and provides two stories in *Huaji* to prove his argument.<sup>402</sup> Based on these examples, it is hard to believe *The Water Mill* was a painting by a court artist, especially of the Huizong period. To the contrary, this *jiehua* painting cannot be painted by an artist who was taught by the Huizong Emperor, like Zhang Zeduan. Therefore, the possible conclusion is: *The Water Mill* was painted

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Hangzhou city of the Zhejiang province.

<sup>399</sup> Liu Diyu. “Research on Song Dynasty’s Coloured Buildings and Welcome Gates”.

<sup>400</sup> Ebrey, Patricia Buckley. *Accumulating Culture*, 8.

<sup>401</sup> Bush, Susan and Shih, Hsio-yen. *Early Chinese Texts on Painting*, 134.

<sup>402</sup> “When the Lung-te (Dragon Virtue) Palace of Hui-tsung was completed, he ordered the painters-in-attendance to execute paintings on the screens and walls of this palace. All (these men) were among the best of their time. When the Emperor came to inspect (their work), he praised none of it. All he did was to look at the *Tea Rose on a Slanting Bough* on the entablature of the veranda of the Hu-chung Hall. He then asked who the painter was. In fact, he was a youthful newcomer. The Emperor was pleased and conferred upon him the dark red silk (for the sixth grade and above), and rewarded him with extreme favour. No one could determine the cause for this. Then an intimate attendant requested an explanation from the Emperor, and his reply was: ‘There are few who are skilful enough to paint the tea rose, for its flowers, stamens and leaves all differ with the four seasons and the time of day. Here, without the slightest error, he painted one at noon on a spring day. That is why I rewarded him richly.’” And “In front of the Hsüan-ho Hall was planted a lychee tree. When it bore fruit, it brought a smile of pleasure to the Emperor’s face. By chance a peacock went beneath it. Quickly, the Emperor summoned the members of the Painting Academy and ordered them to paint it. Each one exerted his skills to the utmost so that splendid colours glittered, but the peacock was about to mount a cane stool and was (depicted) raising its right leg first. The Emperor said: ‘Unsatisfactory!’ The academicians were alarmed, for none understood. After several days they were again summoned and questioned by the Emperor, but they did not know how to reply. Thereupon he announced: ‘When the peacock ascends to a high place, it invariably raises its left leg first.’ The academicians were abashed and apologetic” (From Bush, Susan and Shih, Hsio-yen. *Early Chinese Texts on Painting*, 135–136).

earlier than the Huizong's reign or the painter of the painting was not a professional court *jiehua* artist.

## The Water Mill

### The Hall of the Water Mill

The *jiaofu louzi* is not the only unreasonable construction in *The Water Mill*, the main building of the painting – the central hall of the water mill also has a mistake.

The central hall has a single-eave crossed hip-and-gable roof (Figure 211). But as Anita Chung points out, a normal building with this kind roof should have a projecting portico under the projecting roof but this is missed out in the painting. A correct example can be found in another water mill painting of the Yuan Dynasty, *The Water Mill in Valley* (Figure 212). Anita Chung holds the view that,

the omission of the front portico of the mill in the Song version, though a technical deficiency in architectural representation, liberates the artist from the constriction of verisimilitude. Since the structure of the mill is itself complicated, pictorial clarity plays a role in suggesting the complexity of the architectural design. And if the mill is to be shown as operating, the artist has to present a cross section that automatically excludes the front portion.<sup>403</sup>

Wu Xueshan supports same opinion – an artist may present unreasonable architecture to serve the painting's theme. He used *Gaoshi tu* as example to illustrate the difference between artistic expression and the real building. When the wife presents the meal to her husband, it should be happening indoors, but the audience cannot see the scene if the building has walls. So the walls are removed and the room becomes a pavilion.<sup>404</sup>

Another *jiehua* painting, *Shuidian zhaoliang tu*<sup>405</sup> by the Southern Song artist Li Song

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<sup>403</sup> Chung, Anita. *Drawing Boundaries*, 26.

<sup>404</sup> Wu Xueshan 吳雪杉. *Zhang Zeduan "Qingming Shanghe Tu" 張擇端《清明上河圖》* (Zhang Zeduan's *Along the River During the Qingming Festival*). Beijing: Cultural Relics Publishing House, 2009.

<sup>405</sup> This painting was recorded in Liu Dunzhen 劉敦楨, ed., *Zhongguo gudai jianzhu shi* 中國古代建築史 (History of ancient Chinese architecture). Beijing: China Building Industry Press, 1980. Guo Daiheng 郭黛姮, ed., *Zhongguo gudai jianzhu shi* 中國古代建築史 (History of ancient Chinese

(1166–1243), has the same crossed hip-and-gable roof and the abridged projecting portico (Figure 213), which proves that, in some cases, the accuracy of the building structure is not one of the most important issues.

If the missing projecting portico is to enable a clearer view for the audience, a cart under the *jiaofu louzi* which has a perspective problem cannot be blamed for the same reason. Figure 214 shows an empty cart which has strange perspective – the perspective point of the wheels is obviously different from the body of the cart. Figure 215 is a small model of the cart which shows what it should look like from the two perspectives and Figure 216 is the diagrammatic drawings. However, other carts in *The Water Mill*, carts in *Along the River During the Qingming Festival*, carts in *The Water Mill in the Valley*, or carts from cart paintings of the Song Dynasty, such as an anonymous *Transport Carts* in the Palace Museum and cart paintings of Zhu Rui, have no such perspective mistake. Unless the cart has broken down, this mistake is different from the rigorous representational style of the whole painting.

Back to the hall of the water mill, during the Tang and Song Dynasties, although the hip-and-gable roof was not as worshipful as the hip roof, it had been included in the ritual system for buildings of high grade. According to *Tanghuiyao*, halls and houses for the officials over the third grade cannot be more than five *jian*<sup>406</sup> (bay) and nine purlins, if with hip-and-gable roof, cannot be more than five *jian* and five purlins; halls and houses for the officials over the fifth grade cannot be more than five *jian* and seven purlins, if with hip-and-gable roof, cannot be more than three *jian* and two purlins; officials under the fifth grade and common people can only use an overhanging gable roof.<sup>407</sup> When *Songshi* described the standard of buildings, it also states: “Houses of the common people cannot use double bracket-arms (Figure 217), caisson ceiling (Figure 218) and colourful

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architecture). Beijing: China Building Industry Press, 2009. Fu Xinian 傅熹年. “Architectural Paintings in Ancient China”, 75–94. Which can be believed as a reliable Southern Song *jiehua* painting.

<sup>406</sup> *Jian* 間 (bay), the unit used to measure the width of the building’s plane. The width between two columns is one *jian*.

<sup>407</sup> Wang Pu, *Tanghuiyao*. vol 31, The Cart and Costume Upper. Beijing: Zhonghua Book Company, 1955. Original text: 三品已上堂舍，不得過五間九架。廳廈兩頭 (the hip-and-gable roof) 門屋，不得過五間五架。五品已上堂舍，不得過五間七架。廳廈兩頭門屋，不得過三間兩架。

patterns, neither the hip roof nor the hip-and-gable roof. The room of common people was allowed to have five purlins, one door and the overhanging gable roof or the flush gable roof.”<sup>408</sup> Based on this document, it can be understood that the hip-and-gable roof was an advanced architectural standard of the Song Dynasty which cannot be used by ordinary people and lower class constructions.

The crossed-shaped hip-and-gable roof was praised by Liu Zhiping in his *Chinese Architecture Types and Structures* as “the most magnificent building”.<sup>409</sup> But documents about this architecture style such as its position in ritual system and specific craftsmanship have not been found in *Yingzao fashi* or other historical materials of the Song Dynasty. However, according to surviving *jiehua* paintings around the 10th to 13th centuries, particularly from the size, shape and purpose of architecture, the crossed-shaped hip-and-gable roof was mainly used for palaces, towers and halls. Sometimes in lower level buildings, at the corners of hip-and-gable roofs, there are also similar crossed-shaped roofs (Figures 219–222).

The structure of the hall is referred to in Appendix VIII. The hall has doors at the two sides but no door or window in front of the centre rooms. The front corridor of the hall is surrounded by low railings and two short hexagon pillars are located at each end of the railings. In *Yingzao fashi*, volume 29, there are several examples of the same style short pillars (Figure 223), although the patterns in the book are more gorgeous because their standards are higher than the pillars of *The Water Mill*. Zheng Wei pointed out that the head of the short pillar is still in the Tang style, which is the same as a *chuang* 幢<sup>410</sup> of the Foguang Temple, Wutai county, Shanxi province<sup>411</sup> (Figure 224). The two projecting porticoes at the left and right sides of the water mill hall have diamond pattern windows which is also similar to examples of *Yingzao fashi*, volume 32 – doors with diamond

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<sup>408</sup> Tuo Tuo *et al.*, ed. *Songshi*. vol 107, Carriage and Costume 6. Original text: 凡民庶家，不得施重栱、藻井及五色文采為飾，仍不得四鋪飛簷。庶人舍屋，許五架，門一間兩廈而已。

<sup>409</sup> Liu Zhiping 劉致平. *Zhongguo jianzhu leixing ji jiegou* 中國建築類型及結構 (Chinese Architecture Types and Structures). Beijing: China Building Industry Press, 2000.

<sup>410</sup> *Chuang* 幢: A symbol of Buddhism, usually a stone pillar engraved with Buddhist texts or a tubular umbrella with Buddhist text cloth.

<sup>411</sup> Zheng Wei. “*The Water Mill Handscroll*”, (1966) 18.

patterns (Figure 225), but a similar style can date from as far back as the Han Dynasty (Figure 226). The main room of the water mill hall has five bracket units (*dougong* 斗拱) – two corner sets, two sets on columns and one intermediate set. The lesser proportion of the height of the bracket units to the height of the columns shows a standard of the Tang and Song Dynasties (Figure 227).

The bracket unit in *The Water Mill* is *yitiao sipuzuo danxia'ang* 一跳四鋪作單下昂 (one jump four *puzuo* and single *ang*) style (Figure 228). From an illustration of the bracket set (Figure 229), we know that each tier of the bracket extending forward or back from the wall is called a *tiao* (jump). *Puzuo* 鋪作 was the unit of the Song Dynasty to describe how many jumps in a bracket set. This unit starts from three, so that one jump equals four *puzuo*, two jumps equal five *puzuo*, three jumps equal six *puzuo*, etc. Taking Figure 229 as an example, from the middle line of the structure (in a real building, this would be the wall), we know the outer bracket set of the construction has three jumps while the inner bracket set has two jumps, which means it is six *puzuo* outside and five *puzuo* inside the building. Moreover, the structure of Figure 229 has two *ang* 昂 which is a long-slanted lever arm balanced on the whole bracket set. Therefore, the outer bracket set of Figure 229 is *santiao liupuzuo shuangxia'ang* 三跳六鋪作雙下昂 (three jumps six *puzuo* and double *ang*) style.

The same structure as the bracket set of *The Water Mill* can be found in *Yingzao fashi*. Figure 230 and 231 respectively are the line drawing and the profile line drawing of the one jump four *puzuo* and single *ang* bracket set. Figure 232 shows the shape of the corner set of the same style.

The bracket unit of the water mill hall is similar to a surviving Song Dynasty building, Chuzu An of the Shaolin Temple (Figure 233). This construction was built from the seventh year of Xuanhe (1125) in the Northern Song Dynasty with three bays in width and three bays in depth. Although it has been repaired since it was finished, almost all units still retain the original Song style. From the profile line drawing of the bracket set of Chuzu An

(Figure 234), we can see that even if the bracket set of the Chuzu An has one more jump than the bracket set of the main hall of *The Water Mill*, the rest of them are same, such as the style of *ang* and *shuatou* 耍頭 (Figure 229, the protruding head of the beam, over *ang*). Based on this image, we can understand the construction of the bracket unit of *The Water Mill* better thanks to the artist of *The Water Mill* who carefully presented the *ang* and *shuatou* of the hall (Figure 235). When comparing it with Figure 230 and the photograph of the bracket set of Chuzu An (Figures 236 and 237), the similarity can be seen more clearly.

Liang Sicheng illustrated the evolution of the *shuatou* (Figure 238). From these images, during the Tang and the early Song Dynasty, the shape of *shuatou* was similar to *ang* but since the late Northern Song Dynasty, the shape of *shuatou* became longer at the top and lower at the bottom.<sup>412</sup> The style of *shuatou* of *The Water Mill* is the same as in *Yingzao fashi* and the real structure of Chuzu An. Based on the shape of *shuatou*, we know that the creation time of *The Water Mill* cannot be earlier than the middle of the Northern Song Dynasty.

Moreover, the changes in shape of beak of the *ang* shows the same era characteristics. Based on Liang Sicheng's research, in earlier buildings, the beak is a simple bevel, rectangular in cross section, which makes an angle of approximately 25 degrees with the underside of the *ang*. This is known in *Yingzao fashi* as the *pizhu ang* 批竹昂 (split bamboo *ang*). Another *qinmian ang* 琴面昂 (lute-face *ang*), where the bevelled portion is scooped and pulvinated, resulting in a cross section with a rounded top, is the orthodox shape of the beak of an *ang* from the time of the *Yingzao fashi* till the present day, though later the pulvination is reduced to a mere bevelling of the edges.<sup>413</sup> (Figures 239 and 240) Although Zheng Wei in his article claimed that the *ang* of *The Water Mill* is *pizhu ang*, which was the popular style in the Tang and the early Northern Song Dynasty, from Figure 235, it can be seen clearly that the *ang* has a rounded top, the same as the style of Chuzu

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<sup>412</sup> Liang, Sicheng and Wilma Fairbank. *A Pictorial History of Chinese Architecture: A Study of the Development of its Structural System and the Evolution of its Types*. Cambridge, MA: MIT Press, 1984, 84.

<sup>413</sup> *Ibid.* 81

An (Figure 236), which should be *qinmian ang*. For that reason, the artist of *The Water Mill* would have lived around the date when *Yingzao fashi* was written and published (1103).

Another Song-style structure is the cupped triangular side framing of the steps. Both the steps of the water mill hall and the steps of the two platforms have this kind of structure, which is called *xiangyan* 象眼 (elephant eyes) in Chinese (Figures 241 and 242). From Appendix VIII, it can be seen that ninth-century architecture (the main hall of Foguang Temple, built in 857) had a plane triangular side of the step but the building of the twelfth century used the cupped triangular side framing. According to *Yingzao fashi*, there were two types of step in the Song Dynasty - one was ramp stairs (*mandao* 慢道) and one was normal stairs (*tadao* 踏道). All steps in *The Water Mill* are ramp stairs. *Yingzao fashi* also presented regulations for *xiangyan*:

兩頭象眼，如階高四尺五寸至五尺者，三層。高六尺至八尺者，五層、或六層。皆以外周為第一層，其內深二寸又為一層，逐層準此。<sup>414</sup>

The *xiangyan* locates at both sides of steps. If the height of stairs between four *chi* five *cun* (1.404 m) to five *chi* (1.56 m), it should use three layers *xiangyan*. Five or six layers *xiangyan* is for the stairs' height between six *chi* (187.2 m) to eight *chi* (2.496 m). The outermost layer, as well as the edge of the side, is the first layer for *xiangyan*. Each layer is two *cun* (6.24 cm) in width.

Figure 241 shows that the ramp stair of the main hall has three layers for its triangular side, which is the same as a line drawing model (Figure 243) in volume 29 of *Yingzao fashi*. The ramp stairs of the platform are higher than that of the water mill hall but due to the viewpoint we cannot see the flank sides of the stair. Based on the record in *Yingzao fashi*, it should be a five- or six-layer structure.

## The Water Mill and Watermill Technology

*The Water Mill* is not the only ancient Chinese painting showing a water mill. According to

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<sup>414</sup> Liang, Sicheng. *Yingzao fashi zhushi* 營造法式注釋 (Notes of *Yingzao fashi*). In *Collected Works of Liang Sicheng*, vol 7. Beijing: China Building Industry Press, 2001, 61–62.



Zhang Zhijie's *Investigation of Ancient Chinese Watermill Paintings*<sup>415</sup> and Shi Xiaolei's *Watermill Technology in Ancient Chinese Paintings*,<sup>416</sup> the following table can be produced:

Name	Period	Artist	Type	Source
<i>Snow on Guanshan Mountain in Spring</i>	Northern Song (1072)	Guo Xi	Vertical	<i>Painting and Calligraphy of the Palace Museum</i> , vol 5
<i>The Water Mill</i>	Northern Song (provisional)	Unknown	Horizontal	<i>Songhua quanji</i> , vol 2
<i>A Thousand Li of Rivers and Mountains</i>	Northern Song (1113)	Wang Ximeng	Vertical	<i>Collection of Paintings in The Palace Museum</i>
<i>Qingxi yuyin tu</i> 清溪漁隱圖	Song	Li Tang	Vertical	<i>Painting and Calligraphy of the Palace Museum</i> , vol 2
<i>Snow on Xishan Mountain</i>	Southern Song (provisional)	Attributed to Gao Keming	Horizontal	<i>Dongjing shanshuihua tezhan tulu</i> 冬景山水畫特展圖錄
<i>Shuidui mofang tu</i> 水碓磨坊圖	Jin (1167)	Wang Kui	Vertical	Mural of Yanshan Temple, Shanxi province
<i>Xuelu zaoxing tu</i> 雪麓早行圖	Song (provisional)	Unknown	Horizontal	<i>Liangsong minghua jinghua</i> 兩宋名畫精華
<i>Xuezhàn niúchē tu</i> 雪棧牛車圖	Song (provisional)	Unknown	Horizontal	<i>Painting and Calligraphy of the Palace Museum</i> , vol 3
<i>The Water Mill in Valley</i>	Yuan	Unknown	Horizontal	<i>Songhua quanji</i> , vol 4
<i>Copy Ju Ran's landscape painting</i>	Yuan	Unknown	Horizontal	<i>Collections of Chinese paintings</i>
<i>Copy Dachì's landscape painting</i> 仿大癡山水圖	Late Ming and early Qing	Wang Shimin	Horizontal	<i>Collections of paintings by Wang Shimin</i>
<i>Copy Song and Yuan landscape painting, No.11</i>	Late Ming and early Qing	Wang Jian	Horizontal	<i>Collections of paintings by Wang Jian</i>
<i>Xiaozhong xianda tu</i> 小中現大圖	early Qing	Wang Hui	Horizontal	<i>Collections of paintings by Wang Shigu</i>
<i>Hua qunfeng xueji</i>	early Qing	Huang	Horizontal	<i>Zhongguo lidai shanshui</i>

<sup>415</sup> Zhang Zhijie 張之傑. "Zhongguo Gudai Huihua Shuimo Tu Kaocha 中國古代水磨圖考察 (Investigation of Ancient Chinese Watermill Paintings)", *Shixin Humanity Newspaper* vol 9 (2008).

<sup>416</sup> Shi Xiaolei 史曉雷. "Watermill Technology in Ancient Chinese Paintings 從古代繪畫看我國的水磨技術", *Journal of National Museum of China* vol 6 (2011).

畫群峰雪霽		Ding		<i>huaxuan</i> 中國歷代山水畫選
<i>Shanshui huace</i> 山水畫冊	early Qing	Wang Yun	Horizontal	<i>Haiwai yizhen</i> 海外遺珍 (vol.1 Paintings)
<i>Copy Guo Xi's Cart Painting</i>	early Qing	Yuan Jiang	Horizontal	<i>Haiwai yizhen</i> 海外遺珍 (vol.3 Paintings)

However, among the 15 paintings and one mural painting, only four are vertical water wheel structures and 12 are horizontal water wheel structures. In *Science and Civilisation in China* by Joseph Needham, volume 4, “Physics and Physical Technology, Part 2: Mechanical Engineering”, he claimed:

The early spread of the vertical water-wheel was mainly northwards, and it became in due course characteristic of France, Germany, England and Wales. But the horizontal water-wheel made a peripheral perambulation ... everywhere east of Syria the horizontal wheel predominated. ... Moreover, it is the commoner form in the Chinese illustrations. ... In any case, it is distinctly simpler than the vertical mill-wheel, which needed gearing.<sup>417</sup>

Joseph Needham also provided an example of the horizontal water-wheel. (Figure 244) Nonetheless, not all paintings in the table above show a clear water mill structure; actually, most of them only portrayed a tiny or partial water wheel, as part of a landscape painting. In addition, there are some paintings where neither the artist nor the time of creation were authentic, so this section will only discuss the two images, apart from *The Water Mill*, which have a clear water mill structure and a reliable date – the Yuan anonymous hanging scroll *The Water Mill in Valley* and the mural painting *Shuidui mofang tu* 水碓磨坊圖 (The Water Trip-Hammer and The Water Mill) in Yanshan Temple.

According to Joseph Needham, references in early Chinese literature to rotary millstones driven by water power, are much rarer than those to the water-driven trip-hammer. But in his opinion, this is due to a fluidity of terminology at that time. Therefore, the water-driven quern mills were working at least as early as the hydraulic blowing-engines

<sup>417</sup> Needham, Joseph. *Science and Civilisation in China*. vol 4, 196

of the 1st century, and perhaps some time before them.<sup>418</sup> However, there may have been another reason that the water-driven mill was rarer than the water-driven trip-hammer. Based on *Tiangong kaiwu* 天工開物 (The Exploitation of the Works of Nature), a Ming Dynasty encyclopedia about agriculture, nautics, sericulture, metallurgy, gunpowder weapons, etc.:

凡稻去殼用礮，去膜用舂、用碾。然水碓主舂，則兼併礮功。……凡水碓，山國之人居河濱者之所為也。功稻之法省人力十倍，人樂為之。……設臼多寡不一，值流水少而地窄者，或兩三臼；流水洪而地室寬者，即並列十臼無憂也。江南信郡，水碓之法巧絕。……又有一舉而三用者，激水轉輪頭，一節轉磨成面，二節運碓成米，三節引水灌於稻田。此心計無遺者之所為也。

The *long* 礮 (bamboo mill, Figure 245) was used to remove the husk of rice, while *chong* 舂 (mortar and pestle, Figure 246) or *nian* 碾 (stone roller, Figure 247) were used to remove the bran. But the water-driven trip-hammer could play both roles. ... The water-driven trip-hammer was created by people living in the mountains by the river. Using it to process rice is ten times more labour-saving than manual methods, so people are all happy to use it. ... There is no limit to the number of mortars. If the flow volume is small and the place is narrow, two or three mortars are enough. But for commodious places with a large flow, then setting ten mortars side by side is not a problem (Figure 248). Xinjun of the Jiangnan area (current Shangrao city, Jiangxi province) has an extremely ingenious way to build the water-driven trip-hammer. ... In addition, fast water flow to move the water wheel could have three uses in one fell swoop: the first section is used to drive the water mill to grind the flour; the second section is used to drive the water trip-hammer to thresh rice; and the third section is used to divert water to water the paddy fields, which was created by people who considered things very well.<sup>419</sup>

In *Tiangong kaiwu*, Song Yingxing provided images for each farm tool (Figures 245–248),

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<sup>418</sup> Ibid. 396.

<sup>419</sup> Song Yingxing 宋應星 (Ming Dynasty). *Tiangong Kaiwu* 天工開物 (The Exploitation of the Works of Nature). 1637. vol 1–4 *cuijing* 粹精, *gongdao* 攻稻.

and *Shuidui mofang tu* (Figures 249 and 250) of the Yanshan Temple is a good example showing how to use the water mill and the water trip-hammer at the same time. Based on the above document, we learn two important points:

- a. The water-driven trip-hammer is used to move the husk and bran of the rice.
- b. The water-driven trip-hammer is widely used in regions south of the Yangtze River, especially the mountainous areas.

Besides, *Tiangong kaiwu* also recorded the water mill and the process to grind flour:

凡小麥，其質為麵。……凡小麥既揚之後，以水淘洗塵垢淨盡，又複曬乾，然後入磨。……若水磨之法，其詳已載《攻稻》《水碓》中，制度相同。……凡牛、馬與水磨，皆懸袋磨上，上寬下窄。貯麥數斗於中，溜入磨眼。……凡磨石有兩種，麵品由石而分。江南少粹白上面者，以石懷沙滓，相磨發燒，則其麩並破，故黑疵參和麵中，無從羅去也。江北石性冷膩，而產于池郡之九華山者，美更甚。以此石製磨，石不發燒，其麩壓至扁秕之極不破，則黑疵一毫不入，而麵成至白也。凡江南磨二十日即斷齒，江北者經半載方斷。

The essence of the wheat is flour. ... After the wheat has been winnowed, using water to wash and remove all dust and dirt. Dried it, and put into the mill. ... As for the usage of the water mill, it has been described in detail in the section *Gongdao, shuidui* [Making the rice, the water-driven trip-hammer]. The method is still the same. ... To grind the flour with the cattle, horse or the water mill, it should hang a bag with a wide upper and lower width above the mill. There are a few buckets of wheat inside, which can slowly slide into the eye of the mill. ... The stones to make the mill are two kinds and the quality of the flour varies with the difference of the stone. The south area of the Yangtze River rarely produces fine white flour, because the millstone contains dregs, which will heat up when grinding the surface. So that the broken bran is blended with the flour and cannot be removed. The stone material in the north area of the Yangtze River is cool and delicate, and the stone produced from Jiuhuashan<sup>420</sup>, Chi county is the

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<sup>420</sup> The Jiuhuashan is currently located in the Chizhou city, the Anhui province, at the south of the Yangtze River, which is opposite to the author's argument. From the historical documents, we could learn that in history, the Yangtze River has not changed its way in the Anhui province.

best. Grinding the flour with this kind of stone that will not heat when rubbing the surface, the bran is rolled flattest but not broken, so the impurities are not blended into the flour at all. Thus, the flour ground by this stone is very white. The millstone of the south of the Yangtze River may blunt the grinding teeth in 20 days, while the millstone of the north of the Yangtze River will take half a year.<sup>421</sup>

From this record, there are two further points

- a. The mill including the water mill is mainly used to grind the wheat and make flour.
- b. The stone of the north regions of the Yangtze River is more suitable to make mills than stone of the south region.

From the two records of *Tiangong kaiwu*, we learn that the trip-hammer was used to move the husk and bran of the rice while the mill was mainly used to grind wheat.<sup>422</sup> Based on the research of Zeng Xiongsheng, before wheat was introduced to China approximately 5,000 years ago, the south of China mainly planted *oryza sativa* and foxtail millet was the staple food of north China. By the middle of the Tang Dynasty, wheat had become one of the staple foods as well as millet in north China. However, wheat is hard to eat without grinding, which is different from rice and millet. The creation and improvement of mills played a significant role in popularizing wheat.<sup>423</sup> Besides, according to Song Yingxing, the stone of the north side of the Yangtze River was better for making mills than on the south side. It finally formed the diet structure of China – the south based on rice and the north based on wheat. However, whether using the water-driven mill or the water-driven trip-hammer, rapid water flow and drop height are necessary conditions for the construction of hydrodynamic structures. It is mentioned in *Tiangong kaiwu* that the water-powered trip-hammer was invented by people living beside rivers in mountain areas. According to the topographic map of China (Appendix IX),

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<sup>421</sup> Song Yingxing. *Tiangong Kaiwu*. vol 1–4 *cuijing* 粹精, *gongmai* 攻麥.

<sup>422</sup> During the Song Dynasty, the mill was also used to grind tea and millet (Tuo Tuo *et al.*, ed. *Songshi*. vol 47, Rivers and Canals 4).

<sup>423</sup> Zeng Xiongsheng 曾雄生. “Lun xiaomai zai gudai zhongguo zhi kuozhang 論小麥在古代中國之擴張 (The Expansion of Wheat in Ancient China)”, *The Tradition of Chinese Food* vol 1 (2005), 99-133.

the south and west of China is mountainous, with only small plain areas between the Yangtze and the Yellow Rivers. It can be inferred that in the early period when people could not use hydropower well, it was difficult to promote water-powered machinery in the plain areas. Although the water-driven mill is more efficient than the livestock-powered mill, they are still used in limited places. On the edges of *Along the River During the Qingming Festival*, stone rollers are everywhere (Figures 251–253). We can also see cattle that are used for ploughing and pulling (Figure 253), but there are no mills in this painting.

*Tiangong kaiwu* stated:

凡磨大小無定形，大者用肥健力牛曳轉……次者用驢磨，斤兩稍輕。又次小磨，則止用人推挨者。……凡力牛一日攻麥二石，驢半之。人則強者攻三斗，弱者半之。若水磨之法，……其便利又三倍於牛犢也。

The size of the mill does not have a standard. The large mill should be pulled by strong and powerful cattle and the lighter mill could use a donkey. The smaller mill is manpowered. ... Strong cattle can grind two *dan*<sup>424</sup> (118.4 kg) wheat per day while the donkey is half (59.2 kg) of it. Even a strong man can only grind three *dou* (17.76 kg) wheat per day and the weak is also half (8.88 kg) of it. ... The water mill is three times more effective than cattle.<sup>425</sup>

From this record, it can be seen that the efficiency of the water mill is the highest. In *Songshi*, the fourth chapter on “Rivers and Canals”, a report by Su Zhe mentions that:

The water mills were established around the capital city in recent years ... [Which] provided food and tea for the inner and outer people of the capital city. ... I heard that the income of the water mill was 400,000 *guan*.<sup>426</sup>... Moreover, the water mill was established not long ago and the government never had this income before. ... I beg for abolishing the official water mill that the common people can

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<sup>424</sup> *Dan* 石: A unit of weight measure. Based on *Mengxi bitan*, one *dan* equals 92.5 catties and one catty equals 640 grams of the Song Dynasty. Ten *dou* 斗 equals one *dan* (Shen Kuo. *Mengxi bitan*. vol 3. Shanghai, 1962).

<sup>425</sup> Song Yingxing. *Tiangong Kaiwu*. vol 1–4 *cuijing* 粹精, *gongmai* 攻麥.

<sup>426</sup> *Guan* 貫: A currency unit to describe a string of ancient Chinese cash coins.

grind tea themselves.<sup>427</sup>

Although Su Zhe held a negative view of the official water mill, from the record, we may speculate that in the area adjacent to the water mill, common people and the authorities could send wheat and tea to be ground. It will take some charges but can save cost of time, labour and other resources of peasants. This may explain why there are no mills in *Along the River During the Qingming Festival*.

According to the foregoing discussion, the water mill in *The Water Mill* is highly likely to be located on the riverside of the plain in northern China.

Based on Wang Zhen, the horizontal water mill should choose a suitable location to set up a water turbine. It can be built along the riverside or on wooden pallets. When establishing a water mill on wooden pallets, the first thing is to divert the water into another ditch or canal, then build the wooden pallet on it. The millstone is set at the top of the pallet and the water turbine is at the bottom of the pallet, using an axle to connect the two structures. The water turbine will drive the upper mill when water impacts it and this kind of water mill is several times more powerful than the general mills.<sup>428</sup>

Additionally, Wang Zhen also recorded another complex water mill which should be established on the sluice:

又有引水置閘，甃為峻槽，槽上兩旁植木作架，以承水激輪軸。軸腰別作豎輪，用擊在上臥輪一磨。其軸末一輪，旁撥周圍木齒一磨。既引水注槽，激動水輪，則上、旁二磨隨輪俱轉。此水機巧異，又勝獨磨。此立輪連二磨也。

There is also a water diversion gate, which has a steep trough. The platforms beside the trough are planted with trees and set up a wooden frame so it can

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<sup>427</sup> Tuo Tuo *et al.*, ed. *Songshi*. vol 47, Rivers and Canals 4. Original text: 近歲京城外創置水磨，……供給京城內外食茶等，……聞水磨歲入不過四十萬貫，……且水磨興置未久，自前未有此錢，……乞廢罷官磨，任民磨茶。

<sup>428</sup> Wang Zhen 王禎 (Yuan Dynasty). *Wangzhen Nongshu* 王禎農書 (The Agricultural Book of Wang Zhen). vol 19. Hangzhou: Zhejiang People's Fine Arts Publishing House, 2015. Original text: 凡欲置此磨，必當選擇用水地所，先作並（蒲浪切）岸擗水激輪。或別引溝渠，掘地棧木，棧上置磨，以軸轉磨中，下徹棧底，就作臥輪，以水激之，磨隨輪轉。比之陸磨，功力數倍。此臥輪磨也。

bear the pressure brought by the rapid water. A vertical wheel is constructed at the axis part of the structure to move the upper horizontal millstone and another lateral wooden tooth mill is driven by a water wheel at the end of the axle of the vertical wheel. Once the priming device brings the water to the trough, all water wheels are moving, which drives both the upper and the side mills at the same time. This water construction is extremely ingenious and more fantastic than the single [water] mill. The vertical wheel links the two mills.<sup>429</sup>

On the basis of the above two records, it can be established that the water mill in *The Water Mill* is the horizontal style of the first record. This type does not require a fast water flow and the wooden stack can retain water to move the mill. From the mural painting in Yanshan Temple (Figure 250), even though it is not the type of the second record – the structure of the two mills, the vertical water wheel which connects the mill and the trip-hammer still provide an example of the complex construction. However, the most complicated structure is that in *The Water Mill in Valley* (Figure 254). The lower construction of the painting shows multiple turbine wheels and wheel gears, including both horizontal and vertical structures, which require strong hydrodynamic force to move them. The masonry main hall is built for stabilizing.

The structure in *The Water Mill* has large wooden platforms with trees and pavilions only to keep the stability of the main water mill hall but also to provide space for the flour grinding processes. Although the water mill structure is the simple horizontal style, it has considerable size, enough to provide flour for the local army or neighbouring villages and towns.

From the volume on Rivers and Canals in *Songshi*, it can be learned that the summer and the autumn are wet seasons in northern China.<sup>430</sup> The Alcohol Culture section of this dissertation already discussed the possible season of *The Water Mill* – around the Mid-Autumn Festival when the river level rises and in the wet season which is beneficial

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<sup>429</sup> Ibid.

<sup>430</sup> Tuo Tuo *et al.*, ed. *Songshi*. vol 44–50, Rivers and Canals 1–7. Beijing, 1979.



for the operation of the water mill. In *Science and Civilisation in China*, Joseph Needham considered an illustration by *Nongshu* 農書<sup>431</sup> (Agricultural Book, 1313, Figure 255) and *The Water Mill in Valley* (the Yuan Dynasty, Figure 7) as the earliest examples of this iconographic tradition. However, if *The Water Mill* is proved to be a Northern Song painting, it would be the earliest image to clearly show a water mill and a precious material for researching Chinese mechanical engineering history.

The horizontal water wheels of the painting were of double-layer structure (Figure 256), which is the same as a picture in *Science and Civilisation in China* (Figure 257). The rims of the wheel protect the water wheel from centrifugal force during the rotation process and promote the stability of the water wheel, making the water mill more effective.<sup>432</sup> The mechanical engineering of the water mill hall is constituted by two structures: the water-powered mill and a water-powered flour sifter. The structure of the water-powered mill references the water mill line drawing by Wang Zhen and a line drawing by Li Chongzhou rebuilt the construction of the flour sifter<sup>433</sup> (Figure 258). Zheng Wei also provided two line drawings in his article (Figures 259 and 260). Although the specific structure of the flour sifter in *The Water Mill* is still controversial because it is obscured by the building construction, no scholars questioned the accuracy of the structure. In contrast, almost all researchers have found the mistakes in *The Water Mill in Valley*. Joseph Needham pointed out that “the artist may create the work not from the life, but in tranquil recollection, hence not being a millwright and confused paddle-wheels with gear-wheels.”<sup>434</sup> Yang Zhishui in his article also analysed the complicated combination machine structure and gave his conclusion – the structure is not reasonable.<sup>435</sup>

From *The Water Mill* to *The Water Mill in Valley*, we can see changes in the architecture and inner mechanical structure. Even though *The Water Mill in Valley* provides a correct outer hall with crossed hip-and-gable roof and projecting portico, the artist obviously did

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<sup>431</sup> Wang Zhen. *Wangzhen Nongshu*.

<sup>432</sup> Shi Xiaolei. “Watermill Technology in Ancient Chinese Paintings”, 51

<sup>433</sup> Li Chongzhou. “Development, Evolution and Vicissitude of The Water Flour Sieve”, 199.

<sup>434</sup> Needham, Joseph. *Science and Civilisation in China*. vol 4, 405.

<sup>435</sup> Yang Zhishui 揚之水. “從《開口盤車圖》到《山溪水磨圖》 (From *The Water Mill* to *The Water Mill in Valley*)”, *Wenwu tiandi* vol 12 (2002), 32–35.

not understand the internal mechanical structure very well. Conversely, the artist of *The Water Mill* may consciously omit the projecting portico of the water mill hall but shows a clearer scene of the internal view of the building. In *The Water Mill*, although the type of the water mill is the simple structure of the first style Wang Zhen mentioned in his book, the painter carefully depicted each detail including the thin lines of the flour sifter, which shows that he had knowledge of the mechanical structure.

## Other Small Objects

In front of the entrance of the tavern, there is a red wooden structure, which is called *luli* 露籬 (Figure 261). In previous research, some scholars thought this construction is the *juma chazi* 拒馬叉子 of *Yingzao fashi*.<sup>436</sup> But according to *The Recovery Research of Juma Chazi of “Yingzao fashi”*<sup>437</sup> and “*Yingzao Fashi*” *Jiedu*,<sup>438</sup> we know a normal *juma chazi* should be like Figures 262 and 263. There is also a *chazi* 叉子 in *Yingzao fashi*, which looks like the wooden fence (Figure 264). In *Ducheng jisheng*, the author recorded: “At the door of the tavern [of the capital city *Lin’an*], they set up red *chazi*, red edged curtain, the fructus gardenia shape lights with golden and red gauze.”<sup>439</sup> In *Along the River During the Qingming Festival*, we could find *chazi* at the “Sunyang zhengdian” and “Shiqian jiaodian” (Figures 265 and 266). Based on Liang Sicheng’s research, *luli* was the wooden partition wall outside of an architecture and its function was the same as a screen.<sup>440</sup> According to the record of *Yingzao fashi*, Liang Sicheng made an illustration of *luli* (Figure 267). Figure 268 is a clearer profile drawing by Pan Guxi and He Jianzhong.<sup>441</sup>

The two small pavilions on both side platforms use the pyramidal thatched roof with tiles that can increase the waterproofness of the construction (Figures 269 and 270). The tile of the small pavilion, as well as the tile of roof of other architecture of *The Water Mill*

<sup>436</sup> Liu, Heping. “*The Water-Mill*”, 571–576.

<sup>437</sup> Li Hequn 李合群, Guo Zhaoru 郭兆儒. “The Recovery Research of Juma Chazi of *Yingzao fashi*”. *Traditional Chinese Architecture and Gardens* vol 2 (2016), 16–18.

<sup>438</sup> Pan Guxi 潘穀西, et al., eds. “*Yingzao Fashi*” *Jiedu* 《營造法式》解讀 (Interpretation of *Building Legislation*). Nanjing: Southeast University Press, 2005, 131.

<sup>439</sup> Nai Deweng. *Ducheng Jisheng. Jiusi* 酒肆. Shanghai, 1993. Original text: 酒家事物，門設紅杈子、緋綠簾、貼金紅紗梔子燈之類。

<sup>440</sup> Liang Sicheng. *Liang Sicheng Quanjì*. vol 7, 184.

<sup>441</sup> Pan Guxi, et al., eds. “*Yingzao Fashi*” *Jiedu*, 132.

(Figure 271), used the same standard – the overlapping parts of the tilework are narrow. It accords with the record of *Yingzao fashi* “cover the forty percent [of the tile] and remain sixty percent”, which is different from the standard of the Qing Dynasty – “cover the sixty percent [of the tile] and remain forty percent” or “cover the seventy present [of the tile] and remain thirty percent”<sup>442</sup> (Figure 272).

Whether the tavern or the water mill hall, at the side of the roof ridge, under the bargeboard, are hanging fish and triangular decorations (Figures 228 and 271). Hu Jie has compared their style of *The Water Mill* to that in the *Yingzao fashi*.<sup>443</sup> From the illustrations in *Yingzao fashi* (Figures 273 and 274), we see that the hanging fish does not have a central seam and there are no nails on both the bargeboard and decorative boards. A real example can be found in a northern Song building, Chuzu An (Figure 275). But in *The Water Mill*, the hanging fish is covered in nails, as well as the bargeboard and the triangular decorations, and the hanging fish is made of two symmetrical planks. In *Along the River During the Qingming Festival*, although there are no nails on the bargeboard and the decorative structures, and the hanging fish is made by two symmetrical planks. In *Along the River During the Qingming Festival*, although there are no nails on the bargeboard and the decorative structures, the hanging fish has the middle seam. (Figures 276 and 277) However, in a small hip-and-gable roof of the *Qingming* painting, we find the only hanging fish with a whole plank (Figure 278), which is the same as the hanging fish of *luli* in *The Water Mill* (Figure 261). If it was not the negligence of the artist of the *Along the River During the Qingming Festival*, we could conclude that the spliced or the whole plank hanging fish only related to the size.

In other paintings around the Song and Yuan Dynasties, such as *Shuidian zhaoliang tu* 水殿招涼圖 (Figure 279), *Four Seasons Landscape Paintings*<sup>444</sup> (Figure 280), *The Water Mill*

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<sup>442</sup> Ibid. 160.

<sup>443</sup> Hu Jie 胡洁. *Architecture Research of Song Painting – Shuidian Zhaoliang Tu* 宋畫《水殿招涼圖》中的建築研究. Master Dissertation, Urban Planning and Design Faculty of Beijing Forestry University, 2009, 11.

<sup>444</sup> The *Four Seasons Landscape* handscroll painting was the work of the Southern Song court artist Liu Songnian (about 1131–1218), which is collected in the Palace Museum and recorded in *ZGMSQJ* (*Paintings* vol. 4, 1988, 81), *Zhongguo minghua jianshang cidian* 中國名畫鑒賞辭典 (Shanghai, 1993,

*in Valley* (Figure 281) and *Yueyang Tower*<sup>445</sup> (Figure 282), we can see different styles of hanging fish but none of them has nails on the hanging fish like that in *The Water Mill*. However, in a Yuan Dynasty mural painting of the Yongle Palace,<sup>446</sup> a hip-and-gable roof tower shows a similar bargeboard and decorative structures with nails (Figure 283). Based on record, the hall where the mural painting is, was built in 1262 and the mural painting was drawn in 1358. From Figure 283, we can see that the bargeboard, the hanging fish and the triangular decorations all have nail holes, which is the same as the construction of *The Water Mill*.

However, the decorative pattern is not like the structure of the architecture which changes slowly and follows strict standards in different dynasties. Different areas may have dissimilar decorations at the same period. In *All Receding Together, One Hundred Slanting Lines: Replication, Variation, and Some Fundamental Problems in the Study of Chinese Paintings of Architecture*, Jerome Silbergeld pointed out four details of the architecture of *The Water Mill* and questioned the time of creation of the painting:

- a. The white pentagon pattern of the water mill hall (Figure 284) was first found in a late Northern Song mural painting and widely used in the court paintings and mural paintings of the Southern Song Dynasty.
- b. The crossed pattern of the pillars of the main hall (Figure 285) is the typical characteristic of the Southern Song Dynasty.
- c. The roof bridge of the architecture in *The Water Mill* has the round pattern (Figure 286) which has not been found in pieces before the late Southern Song Dynasty.
- d. The diamond pattern of the ramp stairs (Figure 287) is rare in *jiehua* before the Yuan Dynasty and the pattern of the right ramp stair is only found in pieces of the Yuan Dynasty.

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345), etc.

<sup>445</sup> The artist of the *Yueyang Tower* was Xia Yong (?-?) of the Yuan Dynasty. According to the inscription on the painting, it was painted in 1347. This painting is currently collected in the Palace Museum and recorded in *Shiqu baoji* 石渠寶笈(續編).

<sup>446</sup> The original location of the Yongle Palace was in the Yongle county, Ruicheng, Shanxi province. The Palace was established from 1247 and finished in 1358. During 1959–1964, due to the project of the Sanmenxia Dam, the whole palace was moved to Longquan village, 20 km from the original location.

The appearance of one pattern can only define the earliest date of a painting, although we could find similar patterns from other pieces to compare with the specific pattern of *The Water Mill*, as with the hanging fish and bargeboard. If there are no official documents or standards, the patterns that are widely used in a certain period can only prove what was popular during that time. Moreover, as discussed in the Introduction, few early works have a reliable date, and in fact there are not many early pieces. If the sample size itself is insufficient, then a conclusion that based on the benchmark with fewer surviving works is biased.

For the problems pointed out by Jerome Silbergeld, the appearance of the white pentagon pattern in the mural painting of the late Northern Song Dynasty indicates that the pattern was used during that time, and appeared widely in the pieces of the Southern Song Dynasty, showing that it was popular at that time.

According to *Yingzao fashi*, to increase the friction, the ramp stairs should have sawtooth on the surface. If using the brick with patterns on the surface, it does not need the sawtooth because the pattern itself can have an anti-slip effect.<sup>447</sup> The angle between the hypotenuse of the diamond pattern and the horizontal line provides greater friction than the square or rectangular patterns. This kind of diamond pattern could be the product of practicing and experience. We cannot find the actual surviving building nor the surviving images of the Northern Song Dynasty to prove this hypothesis. But to judge the time of the creation of *The Water Mill* based on this diamond pattern of the ramp stairs which was widely used in the Yuan Dynasty is undesirable.

The same reason is also suitable for the crossed pattern of the pillars of the water mill hall and the round pattern of the roof ridge. In the mural paintings of the Yanshan Temple, we can find the same patterns in a building as those in *The Water Mill* (Figure 288), as well as a ramp stair that also used a large diamond pattern (Figure 289). Based on the records, the Wenshu Palace was built in 1158 and the mural paintings were finished in 1167 by the

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<sup>447</sup> Pan Guxi eds. *“Yingzao Fashi” Jiedu*, 216.

court artist Wang Kui (1100–?) and other artisans.<sup>448</sup> According to Fu Xinian’s research, Wang Kui could be one of the court artists of the Northern Song Dynasty who was captured by the Jin army when the Northern Song government was defeated in 1127 and became a court artist of the Jin government. From the inscription of the temple and a record on the west wall of the Wenshu Palace, we know that Wang Kui took the order of the emperor of the Jin Dynasty to draw the mural paintings for the Yanshan Temple and was 68 when he finished it.<sup>449</sup>

The palace and the mural painting come from the time of the Southern Song Dynasty, but the temple is located in Fanshi County, Shanxi province, far from the territory of the Southern Song, in the original territory of the Northern Song Dynasty. Besides, the main artist of the mural painting was already a skilful artist (28 years old) when he was employed by the Jin government. Currently, we cannot know where these patterns came from. They may have been popular in Southern Song society and been introduced into the Jin Dynasty, or perhaps Northern Song society originally had them. Either way, without other surviving pieces to compare, it is hard to deduce the age of *The Water Mill* only based on pattern details.

To sum up, it is unscientific to conclude the earliest time of a type of pattern or an architectural detail only on the basis of surviving visual documents. A large number of ancient paintings and buildings were damaged or destroyed and the surviving pieces are only a small part of the original amount. We cannot know if there are the same or similar images in some of the lost pieces. Additionally, genre paintings generally reflect the popular styles and common themes of a certain period, which is not equal to the history of the evolution of architecture. Therefore, many patterns or architectural details appearing in pieces of a specific period should be understood as popular during that time, rather than exclusive to the period.

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<sup>448</sup> Chai Zejun 柴澤俊. “The Mural Painting of Wenshu Palace, the Yanshan Temple”, *Mt Wutai Researches Contents* vol 4 (1990), 31–38.

<sup>449</sup> Fu Xinian. “The Preliminary Analysis of Mural Painting in Yanshan Temple”, *Architectural History Research* vol 1 (1982), 97.

Another possible interpretation is *bubi* 補筆 (to fill the image). Most of the ancient Chinese paintings have been remounted several times and the painting content may fade or damage during its collection history. When the later generation artists repair an ancient piece, although the probability is small, some artists with insufficient qualifications may bring the later style into an earlier piece. As Jerome Silbergeld pointed out, the patterns of the ramp stairs of *The Water Mill* are different. The left ramp stair from the water side to the terrace (from the audience's view) has a unique diamond pattern from other ramp stairs in the painting.<sup>450</sup> (Figures 241 and 242, 287). If this was not a mistake by the original artist or an intentional idea, a possible explanation is that it was a *bubi* by a later artist.

Nonetheless, for the authentication of ancient Chinese paintings, excessive interpretation of details, especially for that without reliable information such as historical documents, only based on similar details from other unauthenticated paintings, often falls into the situation where inconsistency cannot be justified. Consequently, the method that focuses on the whole piece and the key point but does not ignore the details, which combines the painting content and the frame/mounting, is a more reliable way of authentication.

All in all, although some of the buildings of *The Water Mill* are not according to actual construction, the overall style of the architecture in the painting reflects the characteristics of the Northern Song Dynasty, and most of the structures can be found in *Yingzao fashi* with the corresponding records. In particular, the style of the *ang* and the *shuatou* locates the time of creation to after the middle of the Northern Song. Although some decorative patterns could not be found in the surviving images of the Northern Song Dynasty and more common in the Southern Song even the Yuan Dynasty, we cannot give the verdict that this is a painting no earlier than the Southern Song or the Yuan Dynasty. Moreover, compared with the decorative details, the building structure can more accurately reflect the characteristics of the times. Therefore, according to the analysis of the architecture chapter, *The Water Mill* shows late Northern Song elements.

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<sup>450</sup> Silbergeld, Jerome. "All Receding Together, One Hundred Slanting Lines", 138.

## The Cart Group and the Grinding Process

In *The Water Mill*, the transport carts are the secondary theme and the painting provides three different vehicles: the closed cart (Figure 290), the flat-bed cart (Figure 214), and the wheelbarrow (Figure 291).

In *DJMHL*, we find records of different freight transport and one of them is similar to the closed cart:

東京般載車，大者曰「太平」，上有箱無蓋，箱如構欄而平，板壁前出兩木，長二三尺許，駕車人在中間，兩手扶捉鞭裏駕之，前列騾或驢二十餘，前後作兩行；或牛五七頭拽之。車兩輪與箱齊，後有兩斜木腳拖夜（曳）；中間懸一鐵鈴，行即有聲，使遠來者車相避。仍于車後繫騾驢二頭，遇下峻險橋路，以鞭唬之，使倒坐絙車，令緩行也。可載數十石。官中車惟用驢差小耳。

The large transport carts of Dongjing city (the capital city of the Northern Song, current Kaifeng city) called *taiping*, which had a trunk without a cover. The board of the trunk like flat wooden railing (*goulan*) and two woods exceed the side boards, each two to three *chi*. The carter walks in the middle between the two boards and uses the whip to drive the cart. In front of the cart, more than twenty mules or donkeys are arranged in two rows; or using five to seven oxen to pull the cart. The two wheels of the cart are flush with the trunk, and two slanting wooden legs tow behind the cart. An iron bell is hung at the middle which will make a sound when the cart driving, so that other carts in the distance can avoid it. Two mules or donkeys are tied behind the cart. When encountering a dangerous downhill road or crossing a bridge, using the whip to frighten the mules or donkeys, making them sit to slow down the cart. [Each cart] can carry dozens *dan*. The official carts are using smaller donkeys.<sup>451</sup>

However, in current visual materials, all carts in this style have extra covers, such as that in *The Water Mill* (Figure 290), in *Along the River During the Qingming Festival* (Figure 292),

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<sup>451</sup> Meng Yuanlao. *DJMHL*. vol 3 *Banzai zamai* 般載雜賣.



in *Transport Carts* (Figure 293) of the Palace Museum,<sup>452</sup> in *The Water Mill in Valley* (Figure 294), in *Landscape of Travelling in Winter* (Figure 295),<sup>453</sup> in *Travelling among Mountains and Brooks* (Figure 296)<sup>454</sup> and in *Transport Carts* (Figure 297) in the Museum of Fine Arts.<sup>455</sup>

Generally, if the item transported inside the cart needs to be protected from moisture, it is reasonable to have a cover. Taking *The Water Mill* as an example, the item that the cart group transported would be wheat or flour, therefore, a cart canopy is necessary. So in the record, what Meng Yuanlao described as “the trunk without the cover” may only mean the trunk’s cover rather than the cover for the cart.

Although in *The Water Mill*, the drivers are walking beside the cart, in *Landscape of Travelling in Winter* (Figure 295) and *Transport Carts* (Figure 297), we see instances where the driver sits or walks in the middle in front of the cart. According to Meng Yuanlao, the *taiping* cart was pulled by more than 20 mules or donkeys, or five to seven oxen, but only in *Transport Carts* (Figure 293) in the Palace Museum, the cart uses five oxen. The carts in other paintings use two to three oxen at most. The possible explanation is they are of lower standard than the normal *taiping* cart, unless the artists only presented a symbolic number instead of depicting many animals.

Most of the carts have a reclining wooden structure at the back, some of them are upward (Figures 293 and 297), including the cart in *The Water Mill* (Figure 290). But in *Landscape of Travelling in Winter* (Figures 295 and 298), all carts have the downward style. What *DJMHL* recorded is that the downward style and the role of the slanting wooden

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<sup>452</sup> This anonymous painting is owned by the Palace Museum and its pre-owner was the famous Qing Dynasty collector Liang Qingbiao. Although it does not have a signature, the widely accepted opinion is that it was a Song Dynasty painting (Whitfield, Roderick. “Material Culture in the Northern Song Dynasty”, 49–70).

<sup>453</sup> This painting is owned by the Shanghai Museum. From the signature, it can be seen that the artist’s surname is Zhu. It was attributed to the Five Dynasties artist Zhu Cheng, but Xu Bangda and Fu Xinian regard it as a Southern Song piece by Zhu Rui (ZGLDHMDD, 486).

<sup>454</sup> The artist of *Travelling among Mountains and Brooks* was Zhu Rui. This painting was owned by the Qing Dynasty collector Geng Zhaozhong (1640–1686) and collected by the Shanghai Museum (ZGLDHMDD, 485).

<sup>455</sup> This painting was attributed to Zhu Rui because it has his signature (ZGLDHMDD, 487).

legs is to support the cart while parking. From the upward style of *The Water Mill* and other paintings, it can be speculated that the reclining wooden structure is movable, and it could be placed upward when not needed.

The carts in *The Water Mill*, at the middle of the canopy, above the trunk, have small iron bells (Figures 299 and 300). In an oxen cart in *Along the River During the Qingming Festival*, an object supposed to be an iron bell is also hung at the same position (Figure 301). In all of these paintings, there are no mules or donkeys tied at the end of the carts, but through images, we know that the labourers played the same role as mules or donkeys – to slow down the cart when meeting a dangerous downhill road or crossing a bridge<sup>456</sup> (Figures 302 and 303). Based on these details, there is reason to believe the cart group in *The Water Mill* uses the *taiping* cart to transport goods.

Furthermore, each *taiping* cart in *The Water Mill* has several hay rolls hung at the back under the board. It is possible that this is food for the oxen, another possibility is that it is straw for the labourers to sleep at night. Whatever the case, it shows that the cart group needs to travel a long distance.

The items on the canopy of the cart are also interesting. Each cart has two items above the canopy – a round basket and a square stool. The round basket (Figures 299 and 300) could be the flour or wheat sifter, the same as the item that the labourers on the right-side platform are using (Figure 304). The square stool (Figure 305) can be found in *Landscape of Travelling in Winter* (Figure 298) as well.

The single ox cart near the *jiaofu louzi* (Figure 214) could be the *pingtou* 平頭 cart of the *DJMHL*:

其次有『平頭車』，亦如『太平車』而小，兩輪前出長木作轆木，梢橫一木，以獨牛在轆內，項負橫木，人在一邊，以手牽牛鼻繩駕之，酒正店多以此載

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<sup>456</sup> Roderick Whitfield points out, “in the case of the cart coming off the slope of the bridge, another man to slow its course by hanging on behind” (Whitfield, Roderick. “Material Culture in the Northern Song Dynasty”, 60).

酒梢桶矣。

Secondly, there is the *pingtou* cart, similar to the *taiping* cart but smaller. Two long boards extend from the body of the cart, in front of the wheels, as thills of the cart. A yoke crosses the tips of the thills, with a single ox inside, carrying the yoke at the neck. People can hold the ox's nose rope to drive the cart from the side. The taverns (*zhengdian*) usually used this cart to carry alcohol barrel.<sup>457</sup>

In *Along the River During the Qingming Festival*, we can see a moving *pingtou* cart with carrels. (Figure 306)

The wheelbarrow under the *jiaofu louzi* (Figure 291) can also be found recorded in *DJMHL*:

又有獨輪車，前後二人把駕，兩旁兩人扶拐，前有驢拽，謂之『串車』，以不用耳子轉輪也。般載竹木瓦石。但無前轆，止一人或兩人推之。此畫往往賣糕及糕糜之類人用，不中載物也。

There is also the wheelbarrow which should be controlled by two people at the front and the back of this donkey-drawn cart and two people at both sides take the role of driving direction, called *chuanche*. It does not need the axle and the wheels on both sides. When carrying bamboo, wood, tile or stone, the front thills can be taken off and only one or two people pulling the cart is enough. This style cart was always used by vendors selling cake or rice cake, not suitable for carrying heavy items.<sup>458</sup>

The wheelbarrow in *The Water Mill* is empty but in *Along the River During the Qingming Festival* and the *Transport Carts*, we can see some instances of how the cart is driven (Figures 307–310).

Various scholars have discussed the grinding process in *The Water Mill* and Jerome Silbergeld summarized them in "All Receding Together, One Hundred Slanting Lines:

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<sup>457</sup> Meng Yuanlao. *DJMHL*. vol 3 *Banzai zamai* 般載雜賣.

<sup>458</sup> *Ibid.*

Replication, Variation, and Some Fundamental Problems in the Study of Chinese Paintings of Architecture”.<sup>459</sup> According to Roderick Whitfield, *The Water Mill* “with a sequence of events that both begins and ends at the lower right corner. ... Each of the terraces provides ample working space, on the left for unloading and measuring the grain, on the right for sifting and hulling.”<sup>460</sup> Anita Chung thought “raw grains are transported to the terrace on the left of the tower and then carried into the mill for grinding into flour, which later is sifted on the terrace on the right.”<sup>461</sup> While Heping Liu held a different opinion that “the right terrace, where the newly harvested raw wheat is being winnowed from the chaff through two suspended sieves. The winnowed wheat is washed and then carried to the mill for grinding and sifting by two horizontal waterwheels underneath. The processed flour is taken to the left terrace to be sun dried. Finally, the finished flour is bagged, shipped by ferry across the water, and loaded onto the carts in the lower left foreground.”<sup>462</sup>

From the image, we can see there are cloth mats under the grain on the right terrace while the heap of grain on the left terrace has nothing to separate the grain from the ground, so I prefer the argument of Roderick Whitfield and Anita Chung – the grain on the left terrace is raw grain and on the right terrace is processed grain.

Based on *Tiangong kaiwu*, “after the wheat has been winnowed, using water to wash and remove all dust and dirt. Dried it, and put into the mill.”<sup>463</sup> On both terraces, we can see two large water vats at the corner and several baskets filled with grain to be dried (Figures 311 and 312).

In Song Yingxing’s record, the wheat should be ground and sifted several times.<sup>464</sup> While during the Ming Dynasty, mill technology required repeated grinding, during the Song

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<sup>459</sup> Such as Anita Chung in *Drawing Boundaries*, Heping Liu in “*The Water-Mill*”, Roderick Whitfield in “Material Culture in the Northern Song Dynasty”, etc.

<sup>460</sup> Whitfield, Roderick. “Material Culture in the Northern Song Dynasty”, 58–59.

<sup>461</sup> Chung, Anita. *Drawing Boundaries*, 21.

<sup>462</sup> Liu, Heping. “*The Water-Mill*”, 567.

<sup>463</sup> Song Yingxing. *Tiangong Kaiwu*. vol 1-4 *cuijing* 粹精, *gongmai* 攻麥.

<sup>464</sup> Ibid. Original text: 凡麥經磨之後，幾番入羅，勤者不厭重複。

Dynasty it required more times. There are two sieve structures on the right terrace, sitting on the blue cloth mats (Figures 313 and 314). If you look carefully, both the bottom of the heap has white powder which is consistent with the flour milled by the central water mill. Moreover, the significant point is that the density of grain of the two heaps under the sieve structures are different – the upper one is greater than the lower one. Besides, there is no basket, bamboo dustpan and whisk broom beside the upper sieve structure and the two labourers are carrying baskets with grain from the lower sieve structure to the water mill hall. The inference is that after rough machining, the upper sieve structure is the first process to sift the wheat middlings and the lower sieve structure is the second process to sift the germ. The remaining endosperm is collected into baskets and sent to the water mill hall to be ground for flour.

The left boat is full of bags and the right boat is empty. According to different processes at the two terraces, besides Roderick Whitfield's understanding that "the boats on the waterway arrive laden on the left and depart empty on the right", another possible explanation is the two boats are responsible for different jobs. The left one takes charge of transporting raw wheat from the opposite side to the left terrace and the right boat is in charge of delivering flour from the right terrace to the opposite bank. This arrangement would save time. When the offloading is completed, the loading process is also finished, so that the cart group can start immediately.

However, some questions still need to be answered. What is the identity of the two people near the *pingtou* cart? Are they local soldiers like other labourers in the painting or only common workers? Why are several labourers walking to the outside of the painting with bags on their shoulders? Jerome Silbergeld speculated that the original painting may be longer on both sides,<sup>465</sup> is there any other process on the left terrace beyond the screen? Currently, this dissertation cannot answer these questions. There is hoped that further research or other scholars can find the answers.

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<sup>465</sup> Silbergeld, Jerome. "All Receding Together, One Hundred Slanting Lines", 136.

## Conclusion

The main purpose of this dissertation has been to authenticate the possible artist and the time of creation of *The Water Mill* by analysing its cultural biography and image content. Chapter Cultural Biography discussed the handscroll through the seals and colophons on mounting and historical records. *The Water Mill* is still in its original *Xuanhe* mounting style and retains the six of the seven *Xuanhe* seals at the edges between the painting content and the separators. Therefore, the latest creation time should be the *xuanhe* period of the Huizong Emperor of the Northern Song Dynasty. From the Northern Song to the Qing Dynasty, until the painting was owned by the Museum of Shanghai, each dynasty has at least one seal on the handscroll, which shows a complete collection history for *The Water Mill*. There are four inscriptions on the Korean colophon paper after the image content, although at least one is fake (the inscription by Wang Duo is a later forgery as discussed in Chapter Two). However, the handscroll may have been cut and the real inscription of Wang Duo, and seal and colophon of Ni Xiaofang were lost. Based on the historical documents, which prove the collection history of *The Water Mill*, the painting image has not been cut or damaged. From the signature remaining on the painting, “Wei Xian *gonghui*” can be determined as the fake and the original artist is the painter whose surname was Zhang. According to strokes of the signature and the historical materials discussed, the possible artist of *The Water Mill* is the son-in-law of the Yingzong Emperor Zhang Dunli and the painting may have been created around 1068–1100.

Chapter Image Content focused on the painting details. The analysis of the image content of *The Water Mill* has two purposes: authentication and interpretation. The words on the poster near the tavern confirm the alcohol culture of the Song Dynasty. Moreover, through the analysis of the plants in the painting, the scene can be located in the temperate monsoon climate or the subtropical monsoon climate, which were inside the Northern Song and the Southern Song territory. The interpretation of costumes considers both official costumes and garments of the ordinary people. Although the clothing of common people did not change much with the changes of dynasties, official dress had strict standards in different governments. The costume of *The Water Mill* reflects

characteristics of the Song Dynasty. The tattoos on the labourers also confirm that they are local soldiers rather than common workers, so the water mill is an official workshop. The analysis of the architecture is mainly based on *Yingzao fashi*, also referencing mural paintings and silk paintings of the approximate period. Even if some patterns of *The Water Mill* are more common in the pieces of the Southern Song and Yuan Dynasties, the architectural structure reflects the character of the middle and the late Northern Song Dynasty. Other objects such as carts, and the *jiaofu louzi* can also be found in *DJMHL* and other records about the customs of the Northern Song Dynasty. In brief, the image content is in line with the cultural biography of *The Water Mill*, and it can be concluded that this is a piece of the late Northern Song Dynasty.

Now, it is possible to answer the following questions.

### **Why was *jiehua* popular during the 10th to 13th centuries?**

Chapter One discussed *jiehua's* history and its position in history of Chinese art, which show that this particular painting type was popular during the 10th to 13th centuries and peaked in the Northern Song Dynasty. Based on the dissertation and my research, I would like to explain why caused it via three reasons.

First of all, it related to the establishment of the Imperial Art Academy. As far back as the Han Dynasty, the imperial artists had their exclusive positions in the court. In the Tang Dynasty, Xuanzong founded Hanlin Academy to collect scholars and artists for the empire. The Imperial Art Academy was first set up by emperor Meng Chang (919–965), the last emperor of the Later Shu (935–965), named Hanlin Art Academy. This institution was kept by the Northern Song government and developed in the Xuanhe period. As Deng Chun recorded:

When the Wu-yüeh-kuan (a Taoist temple dedicated to the Five Sacred Peaks) was first built (in 1012), famous masters throughout the empire were assembled. Several hundred men who responded to the summons were all set to painting, but most did not meet the imperial requirements. Thereafter, there was an

increasing emphasis on painting studies. In the instruction of the various craftsmen, as in that of the chin-shin (accomplished scholar) degree graduates, (Hui-tsung) had topics set to select candidates. He then established the post of po-shih (professor or dean) to assess artistic talents. ... Later on (in 1116) for the completion of the Pao-lu (Precious Insignia) Palace, painted murals were supplied by the Academy of Painting. Occasionally the Emperor came to inspect the work, and specifically indicate his commands.<sup>466</sup>

From this we find two important messages. One, each time the Imperial Art Academy expanded or developed it was influenced by constructing buildings. The first time was after building Wuyueguan and the second time was because of Baolu Palace. Indeed, the emperor and the empire were service objects for artists of the Imperial Art Academy. New palaces required more murals, decorative objects and media to record it, which also needed more artists. Second, Huizong paid a lot of attention to the Imperial Art Academy. He directed artists and promoted painting studies.

As well as this, most themes of existing *jiehua* are imperial palaces, landmark buildings, imperial activities and idealized social life. In other words, *jiehua* was not created for ordinary people, businessman or even the middle class.<sup>467</sup> It was painted for rulers, providing a window to know the social life of common people, such as *Along the River During the Qingming Festival*, or a picture to record their gorgeous palaces. However, the requirements of mathematics and architecture knowledge made *jiehua* hard to master. Even in the Imperial Art Academy, *jiehua* was the most difficult painting type. As Deng Chun wrote, "*Jiehua* of the Imperial Art Academy was the most skilful and elaborate, and new concepts in them were particularly appreciated."<sup>468</sup> All this meant civilian artists and

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<sup>466</sup> Bush, Susan and Shih, Hsio-yen. *Early Chinese Texts on Painting*, 134–135. But the original text “繪事皆出畫院”, did not mention only murals but should include paintings and screens which decorated the palace.

<sup>467</sup> However, after the Ming Dynasty, some wealthy merchants became clients of the *jiehua* artists but this dissertation only discusses the situation around the 7th to 14th centuries.

<sup>468</sup> Deng Chun. *Huaji*. In *ZGSHQS*, 723. Original text: 畫院界作最工，專以新意相尚。The last half sentence uses Bush and Shih’s translation, but I do not agree with their first half sentence which is translated by myself. This is their translation: The “ruled-line paintings” of the Painting Academy were very skillful, ... .



commercial artists rarely touched this topic. Meanwhile, literati did not like it because of traditional aesthetic opinion – appreciating “spirit resonance” rather than “correspondence to the object”. So the imperial artists were the largest group to create *jiehua* and the vicissitudes of the Imperial Art Academy also affected *jiehua*'s quantity and quality.

Additionally, imperial artists of the Song Dynasty had a high position that their predecessors never reached. Based on *Huaji*:

According to the old system of the present court, although they could wear the dark red and purple silk (of the sixth and fourth ranks and above respectively), none who entered in the arts were permitted to wear the fish pendant at the waist. During the Zhenghe and Xuanhe eras (1111–1126), some accredited officials in the Calligraphy and Painting Academies were allowed to wear the fish pendant as an exceptional distinction.<sup>469</sup>

When Song migrated to the south, Hanlin Art Academy was broken up. Based on Huiping Pang's research, the system of Court Art Academy of the Southern Song was different from the Northern Song Dynasty. Without an emperor like Huizong who was fond of art, the artists' position in the Southern Song declined and the large organized court academy also disappeared.<sup>470</sup> In the Yuan Dynasty, artists were treated as artisans and the Imperial Art Academy was abolished. Therefore, the Imperial Art Academy and court artists affected *jiehua* paintings' quality and quantity. During the 10th to 13th centuries, the Imperial Art Academy was fully developed, which is one reason that *jiehua* was popular during this time.

Second, it related to the interests of the emperor. Although most *jiehua* came from imperial artists' hands, the emperor's interests and orders were their motivation. Huizong was a person who was extraordinarily skilled in observation. He could catch details and

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<sup>469</sup> Bush, Susan and Shih, Hsio-yen. *Early Chinese Texts on Painting*, 137.

<sup>470</sup> Pang, Huiping. *“Southern Song Painting Academy”: Its Organization and Post – 1279 Historiographical Reconstruction*. Beijing: Peking University Press, 2018.

characters of objects. There are several stories of him discussed in the section on Architecture.

Although Huizong has not been regarded as a virtuous emperor by later history writing, no one can deny his achievement in art. Even professional artists of his Imperial Art Academy did not have such careful discernment as him. In the section *jiaofu louzi*, there are two examples of the Huizong Emperor, showing his keen powers of observation. *Jiehua* is as representational as he liked, and he developed this feature to a superlative. Deng Chun has recorded how representational *jiehua* of the Northern Song Dynasty can be in his book *Huaji*:

I once saw a scroll that was really lovable and delightful. It depicted the verandah of a palace, in dazzling gold and green. A scarlet door was half open, and a palace lady was partially revealed outside the door in an attitude of throwing away nutshells contained in a dustpan. Such varieties as giongko nuts, lichee nuts, walnuts, yew-nuts, chestnuts, hazelnuts, and water chestnuts could each be distinguished, and each was separate from the other. There exist (Academy paintings) of this sort, in which brushwork is refined and ink subtle.<sup>471</sup>

According to Max Loehr, the Song painting was “a representational art which brings the forms of the real world to consciousness.”<sup>472</sup> It was “the last word ... in objective and highly differentiated images of the visible world, and possessed of ‘an almost scientific character’, there was a profound change around 1300. The art that followed was ‘a subjective, introspective, expressionistic, or intellectualized art ... no longer concerned with the image of nature of external reality’.”<sup>473</sup> The personal preference of the Huizong Emperor played a significant role in shaping the characteristics of the Song paintings.

Third, it was connected with social philosophy and aesthetics. As discussed, Chinese art historians ranked different painting types, with *jiehua* always put at the bottom. This situation was affected by the aesthetic theory of Xie He and Gu Kaizhi – emphasizing spirit

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<sup>471</sup> Bush, Susan and Shih, Hsio-yen. *Early Chinese Texts on Painting*, 138.

<sup>472</sup> Loehr, Max. “Some Fundamental Issues in the History of Chinese Painting”, 192.

<sup>473</sup> Elvin, Mark. *The Pattern of the Chinese Past*, 225.

resonance and looking down on representation – but what affected their opinions? Perhaps the philosophy of the same period can provide possible answers.

According to “The Period Eye” by Michael Baxandall, art can be regarded as a figurative form of aesthetic thought, and aesthetic thought is inseparable from politics and philosophy of that period.<sup>474</sup> The historical context of a given time provides references for the study of the history of art. Aesthetics usually has common points with philosophy of the time, or is affected by it. Xie He’s and Gu Kaizhi’s aesthetic theory may be affected by the philosophy of the Jin Dynasty. Before the end of the Eastern Han Dynasty, Confucianism was the mainstream of Chinese culture. But people no longer believed its creed that society was stabilized by each harmonious family because they suffered more than two hundred years of war. The foundation of Confucianism broke with the destruction of the united country. At this time, a new thought, *Xuanxue*, appeared. This was a Neo-Daoism and had the same origin as the traditional Daoism which was established by Laozi and Zhuangzi. Literally, *Xuanxue* means mysterious studies and its followers researched mysticism, occultism, esotericism and abstract issues. What Xie He and Gu Kaizhi drew attention to in their theory was “spirit” which was as abstract as the main idea of *Xuanxue*. Moreover, the “resonance” they discussed was a hazy conception that cannot be quantified nor described.

Neo-Confucianism took the place of Neo-Daoism in the Song Dynasty, becoming the official religion during the Yuan Dynasty, as each ruling class of the united country preferred Confucianism to Daoism because its doctrine was more linked to controlling people. The rationalism of Neo-Confucianism is in contrast to the mysticism of the previous Neo-Daoism. Zhu Xi, the representative philosopher of Neo-Confucianism, provided two concepts – *li* 理 and *qi* 氣. *Li* could be understood as principle while *qi* is abstract and spiritual matter. He also claimed “*Li* is the first, *qi* is behind it”<sup>475</sup> which is opposite to “spirit resonance is the first” law of Xie He.

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<sup>474</sup> Baxandall, Michael. “The Period Eye”, *Painting and Experience in Fifteenth-Century Italy* vol 2 (1972), 29–108.

<sup>475</sup> Zhu Xi. *Zhuzi yulei*, vol 91.

Mark Elvin affirmed the influence of the Neo-Confucians on aesthetics of the Song Dynasty:

the Neo-Confucians asserted the reality, the meaningfulness, and the goodness of human life and the nature in which it was embedded. ... Their strategy was to maintain that Nature embodied principles, or patterns of construction and operation, showing the morally correct principles for human society. ... Whereas the great synthesizer of Song Dynasty Neo-Confucianism Zhu Xi had urged “seeking for principle in everything”, Wang Yangming insisted that “one must look for the principle of filial obedience in oneself”. There was thus a shift in philosophy analogous to the shift in painting: away from the conceptual mastery of external nature and towards introspection, intuition and subjectivity.<sup>476</sup>

Therefore, *jiehua* – one of the few art categories that responded to the idea of Neo-Confucianism – became popular during the Song and Yuan Dynasties, even if it does not mean that the *jiehua* was welcomed by art historians and connoisseurs.

To sum up, *jiehua* was popular during the 10th to 13th centuries, especially in the Northern Song Dynasty mainly based on several reasons. The court art academy is the precondition of training a large number of professional artists and *jiehua* as a category of painting was also independently developed by this process. Although the painting was not equal to photographs, before the age of mechanical reproduction, paintings inevitably had the function of recording images. As a kind of paintings serving the emperors, recording the beauty of the palace, the specific scenes of imperial activities, and the appearance of the cities was the essence of the *jiehua*. During the late Northern Song Dynasty, because of the Huizong Emperor’s personal artistic taste and preference, the *jiehua* paintings developed and grew, reaching their peak in the 12th century. Besides, the philosophy and aesthetics of the 10th to 13th centuries also influenced the popularity and spread of the *jiehua*.

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<sup>476</sup> Elvin, Mark. *The Pattern of the Chinese Past*, 225–226.

## Why was the water mill chosen to be the main theme of this painting?

### Why was the water mill theme popular during the Song Dynasty?

From the table in the water mill and watermill technology section, half of the surviving paintings having a water mill were Song Dynasty pieces. By searching the hydraulic mechanical terms involved in the twenty-fifth history from the *Siku quanshu* 四庫全書 edition it is possible to make a table of statistics:

Frequency of the words “water mill”	Historical Documents	The time range
1	<i>Jinshu</i> 晉書 (The Book of the Jin Dynasty)	179–420
1	<i>Suishu</i> 隋書 (The Book of the Sui Dynasty)	581–619
1	<i>Beishi</i> 北史 (The History of the Northern Dynasties)	386–618
1	<i>Jiutangshu</i> 舊唐書 (The Old Book of the Tang Dynasty)	618–907
3	<i>Xintangshu</i> 新唐書 (The New Book of the Tang Dynasty)	618–907
51 (in 19 volumes)	<i>Songshi</i> 宋史 (The History of the Song Dynasty)	960–1279
2	<i>Liaoshi</i> 遼史 (The History of the Liao Dynasty)	916–1125
1	<i>Jinshi</i> 金史 (The History of the Jin Dynasty)	1115–1234
4	<i>Yuanshi</i> 元史 (The History of the Yuan Dynasty)	1271–1368
3 (in 2 volumes)	<i>Mingshi</i> 明史 (The History of the Ming Dynasty)	1368–1644
11 (in 7 volumes)	<i>Qingshigao</i> 清史稿 (The Draft of the History of The Qing Dynasty)	1636–1912

However, all “water mill” of the *Qingshigao* and two of the *Mingshi* was the name of the location. From this table, we can see that *Songshi* recorded the highest frequency of the “water mill” term than previous and later dynasties. It is not a coincidence that the two tables show the same result and not a few scholars have discussed the technology of the ancient China, such as *The Pattern of the Chinese Past* by Mark Elvin<sup>477</sup> and *Science and Civilisation in China* by Joseph Needham.<sup>478</sup> Moreover, based on his research, Joseph Needham provided the famous “Needham Question” “why, between the first century B.C. and the fifteenth century A.D., Chinese civilization was much more efficient than occidental in applying human natural knowledge to practical human need?” and “why modern science had not developed in Chinese civilization (or Indian) but only in Europe?”<sup>479</sup> A great number of researchers including Joseph Needham himself have tried to find the answer to this problem and this dissertation will not repeat their conclusions again.<sup>480</sup>

The truth is that the science and technology of the Song Dynasty was in the process of rapid development, and the emperors of the Song Dynasty attached great importance to water mills. Only based on this diagram, we could learn that the emperors of the Ming and Qing Dynasties did not pay attention to the water mill. If compared to the visits to the water mills by the Taizu and the Taizong Emperors of the Song Dynasty, the difference is more notable.<sup>481</sup>

The ruling class of the Song Dynasty attached importance to agriculture and hydraulic constructions. According to Shen Congwen, wars during more than a half-century of the Five Dynasties and the Ten Kingdoms destroyed the agriculture and economics of the North China Plain. Since the Later Shu, the emperors began to encourage farmers and

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<sup>477</sup> Elvin, Mark. *The Pattern of the Chinese Past*.

<sup>478</sup> Needham, Joseph. *Science and Civilisation in China*. 7 vols.

<sup>479</sup> Needham, Joseph. *The Grand Titration: Science and Society in East and West*. vol 21, 190.

<sup>480</sup> Lin, Justin Yifu. “The Needham puzzle: why the industrial revolution did not originate in China.” *Economic Development and Cultural Change* vol 2 (1995), 269-292. Landes, David S. “Why Europe and the West? Why Not China?” *Journal of Economic Perspectives* vol 2 (2006), 3–22. Sivin, Nathan. “Why the Scientific Revolution did not Take Place in China – or didn’t it?” *Chinese Science* vol 5 (1982), 45–66.

<sup>481</sup> Liu, Heping. “*The Water-Mill*”, 573–574.

provided a positive agriculture policy. After the Song Dynasty, each local government established a stela with the official didactic document paper to warn the local officials against bullying the common people and peasants, as well as *Pictures of Tilling and Weaving* hanging on the walls. These measures undoubtedly had a positive impact on the restoration of agriculture and the economy in the early Song Dynasty. He also pointed out that during more than 100 years of the Northern Song Dynasty, each year the capital city required 6–7 million piculs of grain and 28 million bunches of fodder, all from the countryside and most of them were transported by water ways.<sup>482</sup>

Furthermore, *jiehua* was particular painting type mainly serving the emperors. If there were no official water mill workshops and the emperors did not care about the water mill technology, few court artists would be likely to create the theme. The majority of surviving paintings with a water mill are Song pieces and the above table reflects the positive policy of the hydraulic engineering of the Song Dynasty.

Under these circumstances, the government set up special agencies to manage water mills.<sup>483</sup> In literature, the water mill also became a common theme. Based on Guo Zhengzhong, an ode about the water mill recorded in *Chang'an zhitu* 長安志圖 describes a multi-function water wheel machinery of the late Northern Song Dynasty. The author Zhang Shunmin not only recorded the structure of the construction but also presented its location and operating principle.<sup>484</sup> Another poem named “The Water Mill” by Wen Tong (1018–1079) also recorded the convenience of the hydraulic construction:

激水為磴嘉陵民，構高穴深良苦辛。  
十裡之間凡共此，麥入面出無虛人。  
彼氓居險所產薄，世世食此江之濱。  
朝廷遣使興水利，嗟爾平輪與側輪。<sup>485</sup>

<sup>482</sup> Shen Congwen. *ZGGDFSJ*, 418.

<sup>483</sup> As discussed in Chapter 3, in the section on Tattoo and Song Soldiers.

<sup>484</sup> Guo Zhengzhong 郭正忠. “張舜民《水磨賦》和王禎的‘水輪三事’設計 (*The Water Mill of Zhang Shunmin and The Design of the Three structures by one water wheel of Wang Zhen*)”, *Wenwu* vol 2 (March 1986), 89–93.

<sup>485</sup> Miao Yue 繆鉞. *Songshi jianshang cidian* 宋詩鑒賞辭典 (*The Connoisseurship Dictionary of the*

A water mill is built into the river rapids by a man of Jialing,  
Its high structure and deep foundations proclaim his hard labour.  
Folks in the neighbourhood ten *li* around all come here to share milling,  
Wheat comes in, flour goes out, one after another without ceasing.  
Despite toil and risk, the owner earns only a thin profit,  
For generations his family has made its living by the riverbank;  
Now the Sovereign is sending his men to supervise water conservancy,  
Alas, what will the fate of these horizontal and vertical water wheels be? <sup>486,487</sup>

As Heping Liu discussed, “Wen Tong’s sympathy with the private mill owner reveals his reservations about the government’s intervention in controlling water resources, a view he shared with the opponents of the New Policies reform.”<sup>488</sup> In effect, the policy about the water mill was one of the main revolutions of the Northern Song Dynasty which involved in clique struggle.<sup>489</sup> According to the volumes of the *Songshi* where there is the term “water mill”, we can see that it was to the advantage of the New Party headed by Wang Anshi. The New Party advocated that the water mill should be officially operated to increase the income of the national treasury. But as Yu Hui has pointed out, the conservative party opposed this policy.<sup>490</sup> In a report by Su Zhe, he counted several major defects of water mills near the capital city:

- a. The water mill blocked the river water, causing the Bian River to become shallow, which hindered the transportation of both official and private ships.
- b. The water mill outside the east gate of the capital city caused downstream flooding, flooded a great deal of farmland, and even destroyed the tomb of the Gaozu Emperor of the Han Dynasty.
- c. To dredge the channels required the extra workers, wasting money and manpower.

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Song Poem). Shanghai: Shanghai Dictionary Press, 1987, 191.

<sup>486</sup> The water mill slows the speed of water and is harmful to the channel, so it is often destroyed when building other hydrodynamic engineering.

<sup>487</sup> Liu, Heping. “*The Water-Mill*”, 576–577.

<sup>488</sup> *Ibid.* 577.

<sup>489</sup> *Ibid.* 576.

<sup>490</sup> Yu Hui. “Function of Geology in Identification”, 93.



- d. The income from the water mill did not reach the cost of the damage it caused.<sup>491</sup>

If the artist of *The Water Mill* is Zhang Dunli, who supported the leader of the conservative party, Sima Guang, why did he choose the water mill, the benefit of the New Party, as the main theme of the painting? From the poem of Wen Tong, what he opposed is not the water mill itself but the intervention of the government. Also, in Su Zhe's report, he begged the emperor to abandon the official water mill and give freedom to private mills. The focus of the debate between the conservative party and the new party was not on the water mill, but on whether it was officially operated.

*The Water Mill* has seven senior officials with the straight tails *futou* and long robes, four junior officials and 35 labourers. The ratio of officials to workers is 1:5. If including the junior officials, the ratio of officials to civilians can even be nearly 1:3. However, despite such a large official system, only three of them are actually working (one supervising and two clearing). Nearly half of the officials are having fun in the tavern (at least two of them are officials above the fifth grade who can wear red robes).

The artistic view of Zhang Dunli is to treat art as a tool which can reflect good and stop bad, advising people.<sup>492</sup> The painting might be a satirical piece that presented to the emperor and satirized the redundant officials of the New Party. Although the theme of the painting is the water mill and the cart group, the size of the restaurant and the *jiaofu louzi* are larger than the main hall of the water mill. The two-storey building also highlights its luxury. Jerome Silbergeld has found the unreasonable issue in his paper – “Since the painting is carefully managed, why are the bureaucrats who have the high position sitting in the small, rough, thatched roof pavilion?”<sup>493</sup> Although the position of

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<sup>491</sup> Tuo Tuo *et al.*, ed. *Songshi*. vol 47, Rivers and Canals 4. Original text: 近歲京城外創置水磨，因此汴水淺澀，阻隔官私舟船。其東門外水磨，下流汗漫無歸，浸損民田一二百里，幾敗漢高祖墳。……尋詔畿縣于黃河春夫外，更調夫四萬，開自盟河，以疏泄水患，……以此工役重大，民間每夫日顧二百錢，一月之費，計二百四十萬貫。而汴水渾濁，易至填淤，明年又須開淘，民間歲歲不免此費。聞水磨歲入不過四十萬貫，前戶部侍郎李定以此課利，惑誤朝聽，依舊存留。

<sup>492</sup> Tang Hou. *Huajian*.

<sup>493</sup> Silbergeld, Jerome. “All Receding Together, One Hundred Slanting Lines”, 138.

the officials under the left pavilion is easier to count grains which are to be transported to the terrace on the left, the artist may also have another purpose – to compare with the gorgeous tavern at the right corner of the painting. The officials who are working are placed in the simple thatched pavilion, and the redundant staff enjoy themselves in the tavern.

Combined with the previous discussion of the unfeasible *jiaofu louzi* structure, the *pingtou* cart with the incorrect perspective, the missing projecting portico of the water mill hall, *The Water Mill* may not be a painting that simply eulogized the official water mill and the productive process of the grinding. Instead, the artist of the painting hopes to use this image to satirize the official water mill, the New Policies and the redundant staff of the New Party.

In conclusion, this painting chose the water mill as the main theme related to the prosperity of the technology and the development of the hydraulic constructions of the Northern Song Dynasty, in other words, they are the precondition. The identity and political opinion of the painter may also have an impact on presenting particular objects in the image. In Yu Hui's view, the background of *The Water Mill* is the struggle of the conservative party and the revolutionary party of the Northern Song Dynasty.<sup>494</sup> This *jiehua*, also a genre painting, like the *Along the River During the Qingming Festival*, has a political purpose in its creation. On the one hand, it presents the custom of the Northern Song Dynasty in architecture, costume, technology, alcohol culture, climate, transportation, soldier system, and so on, while on the other hand it also reflected the policies of that time. In brief, *The Water Mill* is the earliest image showing the water mill technology and a rare Xuanhe mounting treasure reflecting the peak achievement of *jiehua* in the Northern Song Dynasty.

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<sup>494</sup> Yu Hui. "Function of Geology in Identification", 93.

## Appendices

### Appendix I 海王村所見書畫錄

五代衛賢盤車圖

絹本，高一尺八寸，長六尺，界畫古朴。人物舟車用筆沉著，生氣遠出，信非宋以後人所能到。中作一水閣，下有水車，激水轉輪，即今之水磨是也。運糧人約數百，皆赤膊作用力之狀，棚中一官居中坐，烏紗帽紅衣，旁列吏胥數人，並指顧如生。有益王之章、內府圖書之印、晉府圖書，更有數古印不可辨，押縫宣和政和小璽。

神品上 此三字在本身絹首上方楷書

衛賢恭繪 在本身絹尾，只餘半字，須細覓始見

功名身外即浮爾，丘壑胸中實過之。盤車壽康懷李愿，輞川瀟灑友王維。何人使筆鐵如意，老子放懷金屈卮。市井收聲良夜永，竹風山月亂書帷。

庚午暮春中浣 鍾峰王守仁識 下押王守仁印

按此題必為贗作，原詩必是盤谷壽康懷李愿也。

筆法師唐，精嚴古秀。宋人之以古勝者，譬之禦轂也者，以為利者也。轡琴相得，車不契需，眼焉各焉，則謂之曰國工。

穉嶽公寶之 丙戌崧樵王鐸跋 不用印

按盤車圖非李待詔不能畫，非罔卿秋嶽公不能藏，非覺斯先生不能跋。倘御轂有緣，朽人當執鞭從之矣，馳質高明，以識尚友。

甲午初夏 無款，下押磐石父，白文印

按宣和畫譜五代胡翼有盤車圖二，衛賢有盤車圖四，皆藏御府。此卷前宣政璽，當是譜所載也，鄭邸收古物最富，然雛鳳樓中寶繪，須以此為第一，與漢瓦唐琴輝映千古。

嘉慶丁巳八月之望 成親王觀因題 下押成親王印

按此卷國初，為曹秋嶽先生故物，乾隆中歸鄭邸，皆賞鑒家。且經覺斯先生，暨成（親）王題識，不知何以俱未見款識，予在倪小舫光祿處見之，光祿亦以無款為歉，予凝神諦觀，竟辨出衛賢恭繪四字在卷尾，惜為裱工截去其半，當亦由未見款字，故率耳操觚也。筆彩齋劉姓亦見之，以告光祿。

光祿狂喜累日，且卷中寫市井牌榜有新酒二字，與此筆法正同，知非後人蛇足矣。即以楷法論古拙之趣，亦非宋以後人所能到。

賢長安人，江南李氏時為內供奉，長於樓觀人物，當作春江圖。李氏為題漁父詞於其上，至其為高崖巨口，則渾厚可取，至妙處則為唐人罕及。……即閘口盤車也，此等高古神妙之筆，惟往年在南中所見董源龍宿郊民圖可與抗衡，餘未見其比也。古人界畫樓臺，能寓至巧於至拙，今人巧則落纖，拙則真拙矣。觀此，真令仇實父輩無處生活，不惟界畫家須從此討消息，即山水家能得些子氣息，出筆自然奇古，大遠于庸史之所為。惜神物罕有，不能標為準的，令描摹小子盡撲，去俗塵三鬥也。

## Appendix II 無益有益齋讀畫詩

衛賢盤車圖卷

妙筆翻從拙取妍，盤車圖出勢翩翩。不因化蝶裝池落，點染誰知屬衛賢。

衛賢盤車圖，見宣和畫譜，絹本橫卷重設色。陽明、香光及國朝成親王題跋均疑為賢作而無確據。余見於廠肆，就日下細審，卷尾隔水綾邊破處有衛賢署款。惜為裝工裁割，止餘半字矣。

## Appendix III Songshi, vol 223

張敦禮，熙甯元年選尚英宗女祁國長公主，授左衛將軍、駙馬都尉，遷密州觀察使。元佑初，疏言：「變法易令，始于王安石，成于蔡確。近者退確進司馬光，以臣觀之，所得多矣。」進武勝軍留後。

章敦為政，言：「敦禮忘德犯分，醜正朋邪。密封章疏，詆毀先烈。引譽罪首，謂當褒崇，欲其黨儔盡見收用。」乃責授左千牛衛大將軍，勒止朝參。徽宗立，有司以敦禮在貴籍，奏審恩賜，帝與欽聖後皆以為當與。敦等執前疏，欽聖曰：「戚裡何必預知朝廷事，當時罰亦太重矣。」復和州防禦使，進保信軍留後。

崇甯初，拜甯遠軍節度使。諫官王能甫言：「敦禮以匹夫之賤，一日而富貴具焉。神宗親愛隆厚，禮遇優渥，而敦禮詆毀盛德，罪大謫輕。今復與之節鉞，無乃傷陛下『紹述』之志乎！」乃奪節，仍為集慶軍留後。大觀初，復節度寧遠軍，徙雄武。卒，贈開府儀同三司。

Appendix IV Climate Zones, 2001-2025, Asia

Population, Landscape, and Climate Estimates, v3:  
Climate Zones, Scenario A1F1 2001 - 2025, Asia

National Aggregates of Geospatial Data Collection



This map illustrates emissions scenario A1F1 of the Köppen-Geiger Climate Classification system: a world with quick economic growth and a quick launch of new and efficient technologies, fossil fuel intensive. This system is based on annual and monthly averages of temperature and precipitation ranges. These maps illustrate projected data using the TYN SC 2.03 (Mitchell et al., 2004) data set, averaged over periods of 25 years. The results show ensemble-means runs against 5 global climate model (GCM) projections illustrating 1 of 4 emissions scenarios described by the IPCC. Map data were received by CIESIN as 30 arc-minute grids and resampled to match the extent and resolution of GPW v3 of 2.5 arc-minutes.

<b>A: Tropical</b>	Aw - winter dry	Am - monsoonal	Af - fully humid	As - summer dry
<b>B: Dry</b>	BSk - cold, steppe	BWk - cold, desert	BSh - hot, steppe	BWh - hot, desert
<b>C: Temperate</b>	Cfc - fully humid, cool summer	Cfb - fully humid, warm summer	Csb - summer dry and warm	Csc - summer dry and cool
	Cfa - fully humid, hot summer	Cwa - winter dry, hot summer	Csa - summer dry and hot	Cwb - winter dry, warm summer
	Cwc - winter dry, cool summer	Dwc - winter dry, cool summer	Dwb - winter dry, warm summer	Dfb - fully humid, warm summer
	Dfd - fully humid, cool summer	Dsa - summer dry and hot	Dsb - summer dry and warm	Dsc - summer dry and cool
	Dwa - winter dry, hot summer	Dwb - winter dry, hot summer	Dwd - winter dry, extremely continental	Dfd - fully humid, extremely continental
	Dsd - summer dry, extremely continental	<b>E: Polar</b>	EF - frost	ET - tundra

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March 2012

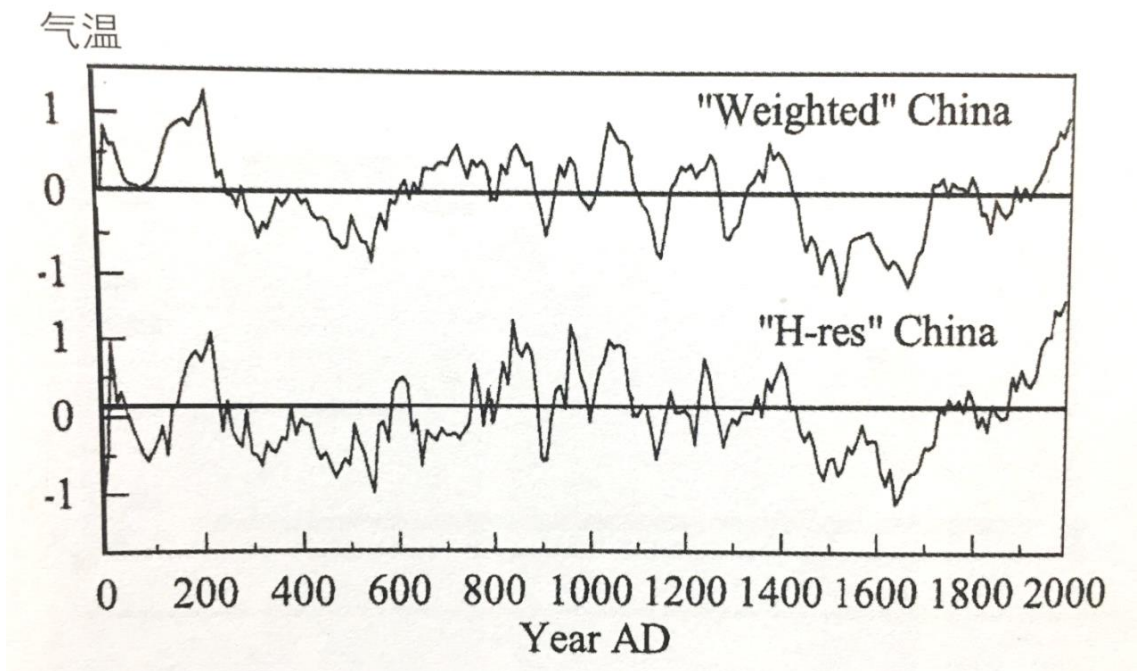


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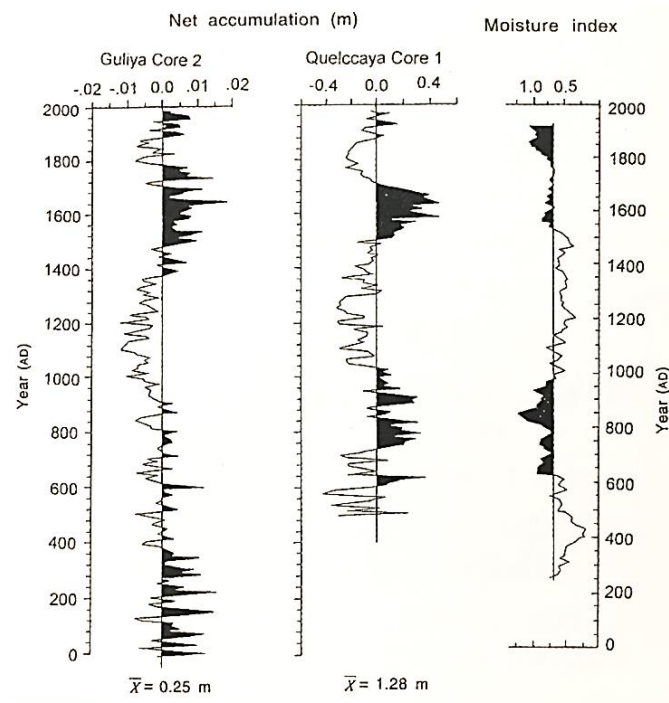




## Appendix VI Temperature Reconstruction of China



Source comes from Bao Yang *et al.*, "General characteristics of temperature variation in China during the last two millennia", *Geophysical Research Letters* vol 9 (2002), 38, figure 3.



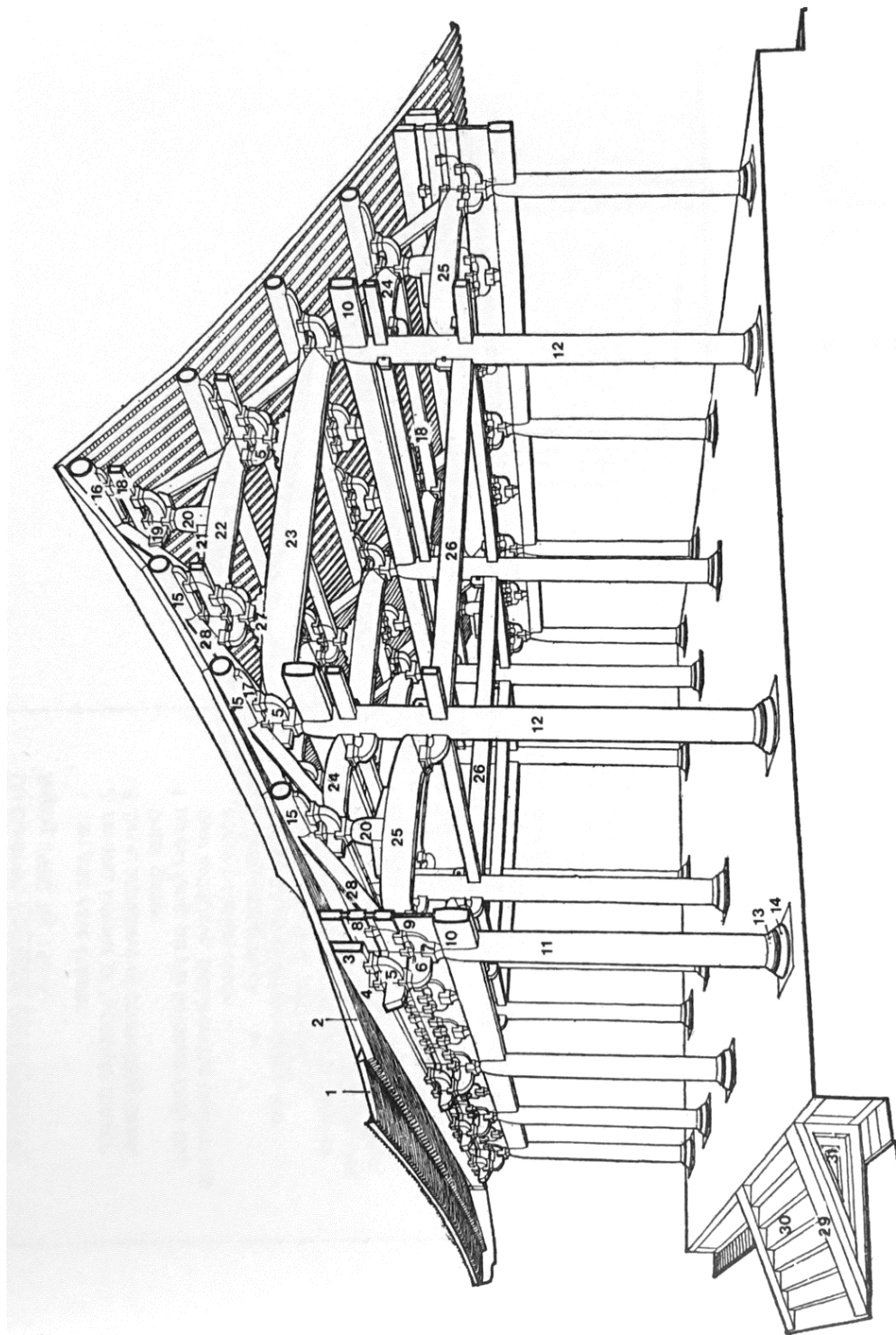
Source comes from Huiping Pang, "The Season of the *Qingming Shanghe Tu* scroll", in *A Story of Qingming Shanghe Tu*. Beijing: The Palace Museum, 2012, 61, figure 29.







# Appendix VIII Ancient Chinese Architecture Illustration



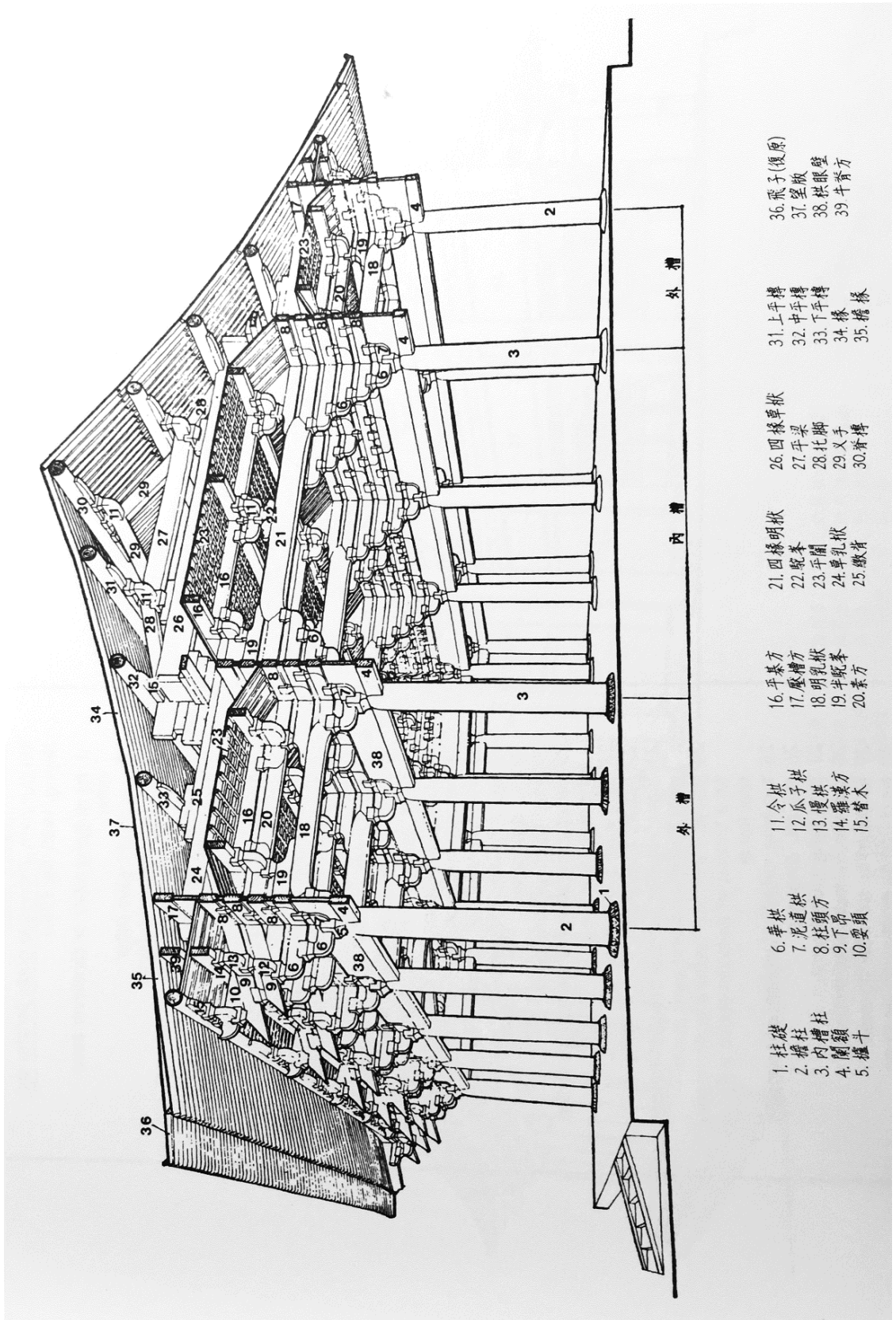
- 1. 梁子
- 2. 檐椽
- 3. 椽椽方
- 4. 斗
- 5. 拱
- 6. 華拱
- 7. 榑斗
- 8. 柱頭方
- 9. 拱頭壁板
- 10. 圍額
- 11. 檐柱
- 12. 內柱
- 13. 柱樹
- 14. 柱礎
- 15. 平椽
- 16. 索椽
- 17. 替木
- 18. 樑間
- 19. 丁華拱
- 20. 蜀柱
- 21. 合溜
- 22. 平梁
- 23. 四椽狀
- 24. 斜椽
- 25. 乳椽
- 26. 圓椽串
- 27. 駝木
- 28. 叉手、托脚
- 29. 副子
- 30. 櫺
- 31. 象頭

TWELFTH CENTURY HALL

**Plate 3 Lower-ranking hall (ting tang) of twelfth century, after Yingzao fashi.**

Liu Dunzhen, Zhongguo gudai jianzhu shi, Beijing, 1980, fig. 134-2.

- 1 fei zi: flying rafter or cantilever eave rafter
- 2 yan chuan: eave rafter
- 3 liao yan fang: eave purlin
- 4 dou: bracket block
- 5 gong: bracket-arm
- 6 hua gong: transversal bracket-arm
- 7 lu dou: capital-block
- 8 zhu tou fang: axial tie-beam
- 9 gong yan bi ban: board onto which bracket sets adhere
- 10 lan e: architrave
- 11 yan zhu: eave column
- 12 nei zhu: interior or hypostyle column
- 13 zhu zhi: column footing
- 14 zhu chu: plinth
- 15 ping tuan: roof purlin
- 16 ji tuan: ridge purlin
- 17 ti mu: wooden support between longitudinal bracket-arm and eave purlin
- 18 pan jian: tie-beam under a purlin, resting on a bracket or tie-beam above a strut in roof frame
- 19 ding hua mo ke gong: transversal bracket-arm supporting side-brace for ridge
- 20 shu zhu: king post
- 21 he ta: joining bracket at junction of king post and beam or lintel
- 22 ping liang: cross-beam
- 23 si chuan fu: four-rafter tie-beam
- 24 ta qian: short beam connecting the bracket atop the porch king post and the interior column
- 25 ru fu (mingfu yueliang): main aisle exposed tie-beam
- 26 shun fu chuan: additional transversal tie-beam
- 27 tuo feng: camel's-hump-shaped support
- 28 cha shou or tuo jiao: inverted V-shaped brace
- 29 fu zi: side coping
- 30 ta: step
- 31 xiang yan: triangular side framing of stairway



- 1. 柱礎
- 2. 檐柱
- 3. 內柱
- 4. 額枋
- 5. 攪斗
- 6. 華拱
- 7. 泥道額枋
- 8. 柱頭
- 9. 下昂
- 10. 耍頭
- 11. 令拱
- 12. 瓜拱
- 13. 慢拱
- 14. 羅漢方
- 15. 管木
- 16. 平基方
- 17. 殿槽方
- 18. 明乳栱
- 19. 半駝峯
- 20. 素方
- 21. 四椽明栱
- 22. 駝峯
- 23. 平闇
- 24. 草乳栱
- 25. 欂栳
- 26. 四椽單栱
- 27. 平梁
- 28. 北脚
- 29. 叉手
- 30. 齊椽
- 31. 上平椽
- 32. 中平椽
- 33. 下平椽
- 34. 椽
- 35. 檐椽
- 36. 飛子(復原)
- 37. 望板
- 38. 椽眼壁
- 39. 牛脊方

NINTH CENTURY MAIN HALL

**Plate 1 Main Hall of Foguang si,  
ninth century.**

Liu Dunzhen, *Zhongguo gudai jianzhu shi*,  
Beijing, 1980, fig. 86-6.

- 1 zhu chu: plinth
- 2 yan zhu: eave column
- 3 nei yan zhu: interior or hypostyle column
- 4 lan e: architrave or connecting-beam,  
lintel, girder
- 5 lu dou: capital-block
- 6 hua gong: transversal bracket-arm
- 7 ni dao gong: longitudinal bracket-arm
- 8 zhu tou fang: tie-beam or axial tie-beam
- 9 xia ang: down-pointing cantilever
- 10 shua tou: wooden member parallel to  
and on topmost transversal bracket-arm,  
intersecting eave purlin, with front end  
exposed
- 11 ling gong: longitudinal bracket-arm of in-  
termediate length
- 12 gua zi gong: longitudinal bracket-arm of  
shortest length
- 13 man gong: longitudinal bracket-arm of  
longest length
- 14 luo han fang: luohan tie-beam
- 15 ti mu: wooden support between longitu-  
dinal bracket-arm and eave purlin
- 16 ping qi fang: paneled ceiling tie-beam
- 17 ya cao fang: wooden member on which  
the main-beam rests
- 18 ming ru fu: exposed tie-beam
- 19 ban tuo feng: semi-camel's-hump-shaped  
support
- 20 su fang: plain tie-beam
- 21 si chuan ming fu (yueliang): four-rafter  
exposed tie-beam
- 22 tuo feng: camel's-hump-shaped support
- 23 ping an: lattice ceiling
- 24 cao ru fu: rough tie-beam
- 25 jiao bei: wood support above rough tie-  
beam
- 26 si chuan cao fu: four-rafter rough tie-  
beam placed above ceiling
- 27 ping liang: cross-beam
- 28 tuo jiao: side brace connecting cross-  
beam with purlin
- 29 cha shou: inverted V-shaped brace
- 30 ji tuan: ridge purlin
- 31 shang ping tuan: upper purlin
- 32 zhong ping tuan: intermediate purlin
- 33 xia ping tuan: lower purlin
- 34 chuan: rafter
- 35 yan chuan: eave rafter
- 36 fei zi: flying rafter or cantilever eave  
rafter
- 37 wang ban: roof board
- 38 gong yan bi: board onto which bracket  
sets adhere
- 39 niu ji fang: ox-spine tie-beam



Appendix IX Topographic Map of China



Image comes from [www.maps-china-cn.com/china-topographic-map](http://www.maps-china-cn.com/china-topographic-map)

## Glossary of Chinese Characters<sup>1</sup>

*Jiehua* 界畫: Literally, it means to draw paintings by *jiechi* 界尺 (ruler). In Chinese history of art, artists used special rulers to draw the straight lines of buildings and architectural structures, and *Jiehua* equals to architectural painting to some extent.

*Xuanhe* 宣和: The 6th reign title of the Huizong Emperor (r. 1100–1126), used from around February 1119 to 1125, of the Northern Song Dynasty.

*Liulichang* 琉璃廠: The name of a street in Beijing where there are many famous stores engaged in the curio business.

*Tiantou* 天頭 (heaven): The beginning paper or silk of a handscroll painting, in order to protect the painting because it is the outermost layer when the handscroll is rolled up.

*Geshui* 隔水 (separator): Literally, it means “separate from water”. The location of separators is always either side of the image.

*Jinqu'e* 金屈卮: The name of a flower whose shape looks like drinking vessel. People also use this word to substitute “drinking”.

Iron *Ruyi* 铁如意: A tickling tool.

*Daizhao* 待詔: Literally, it means waiting for the order from the Emperor. After the Tang Dynasty, it becomes a name of the official who works in the government. During the Song and Yuan Dynasties, people called craftsman, artisans and artists *daizhao*.

*Jiongqing* 冏卿: Another name for the minister of The Court of the Imperial Stables. He was generally in charge of managing the imperial horse pasturage, stables and corrals, as well as maintaining the vehicles for use by the imperial household and members of the central government.

*Xinjiu* 新酒: Also called clear alcohol or sake, raw alcohol.

*Zhujiu* 煮酒: Adding additional steps of steaming and boiling from *xinjiu*, cooked alcohol.

Cold Food Festival: A traditional Chinese holiday which takes place on the 105th day after *dongzhi* (one of the 24 solar terms, marking the winter solstice), mostly in early April before the Qingming Festival.

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<sup>1</sup> Glossaries with \* reference from Liang, Sicheng and Wilma Fairbank. *A Pictorial History of Chinese Architecture: A Study of the Development of its Structural System and the Evolution of its Types*. Cambridge, MA: MIT Press, 1984.

*Futou* 襜頭: Headwear used by male in ancient China.

*Lanshan* 襪衫: Based on the long robe, round collar or Y-neck, has a band below the knees.

*Quekuashan* 缺胯衫: Unlined outwear with slits on the crotch part.

*dubikun* 犢鼻褌 or *dubiku* 犢鼻袴: Calf nose briefs.

*Zhongshuling* 中書令: An official title.

*Cun* 寸: A unit of length. During the Song Dynasty, one *cun* was equal to 3.12 cm. One *cun* was ten *li* 厘, ten *cun* were one *chi* 尺.

*Xiangjun* 廂軍: Prefectural army.

*Cailou huanmen* 彩樓歡門: Coloured building and welcome gate.

*Jiaofu louzi* 絞縛樓子: Tied up wooden shelves.

*Jian* 間 (bay): The unit used to measure the width of the building's plane. The width between two columns is one *jian*.

*Chiwen* 鴟吻/螭吻 or *chiwei* 鴟尾: The fish-like, hornless dragon with a very truncated body and large, wide mouth, which usually found along roof ridges (as if swallowing the roof beams). Its presence on roofs is also said to guard against fires.

*Xuanyu* 懸魚 (hanging fish): Architectural ornament which looks like a hanging fish.

*Erfang* 耳房 (ear rooms): Appentice, sideward rooms of the main building.

*Tadao xiangyan* 踏道象眼 (elephant eyes of steps): The triangular portion of the side of the step.

*Que* 闕: A form of gate. But it only keeps the gate's concept not the shape. *Que* always consists of two symmetrical buildings, usually towers, with a palace on top. According to different grades, single, double or triple *que* can be used in front of the main gate.

*An* 庵\*: Convent.

*Ang* 昂\*: A long-slanted lever arm. Its "tail" bears the load of a purlin and is counter-balanced by the eave load at the lower end, in Tang and Song construction.

*Jingchuang* 經幢\*: Freestanding small Buddhist monument in form of column or pagoda.

*Qinmian ang* 琴面昂\*: "Lute-face" *ang* (with pulvinated concave-bevel beak).

*Pizhu ang* 劈竹昂\*: "Split bamboo" *ang* (with straight-bevel beak).

*Chonggong* 重栱\*: Two arms forming double tier to support a lintel.

*Fang* 枋\*: Small beam or lintel.

*Fen* 分\*: The basic Song unit for measuring module.

*Wudian* 廡殿\*: Hip roof.

*Xieshan* 歇山\*: Gable-and-hip roof.

*Gong* 宮\*: Palace.

*Ge* 閣\*: Multi-storied pavilion.

*Guan* 觀\*: Taoist temple.

*Lou* 樓\*: A building of two or more stories.

*Dian* 殿\*: Monumental hall.

*Gong* 拱\* (bracket arm): Bow- shaped timber, set in a bearing block. It supports a smaller block at each upraised end and often in the centre.

*Dougeng* 斗拱\*: Bracket set.

*Liang* 樑\*: Beam.

*Ling* 檁\*: Purlin.

*Shuatou* 耍頭\*: Head of the beam (protruding).

*Tiao* 跳\*: An upward projection or tier of a bracket set outward or inward; “jump”.

*Zaojing* 藻井\*: Caisson ceiling.

*Yan* 簷\*: Eave.



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## Chronology of Chinese dynasties<sup>i</sup>

Name	Chinese (Traditional)	From	To	Term
Xia Dynasty	夏	About 2029 BC	About 1559 BC	470 years
Shang Dynasty	商	About 1559 BC	About 1046 BC	513 years
Western Zhou Dynasty	西周	About 1046 BC	771 BC	275 years
Eastern Zhou Dynasty	東周	770 BC	256 BC	515 years
Spring and Autumn Period	春秋	770 BC	403 BC	367 years
Warring States Period	戰國	403 BC	221 BC	182 years
Qin Dynasty	秦	221 BC	207 BC	15 years
Western Chu Dynasty	西楚	206 BC	202 BC	5 years
Western Han Dynasty	西漢	202 BC	AD 8	210 years
Xin Dynasty	新	AD 8	AD 23	15 years
Xuan Han Dynasty	玄漢	AD 23	AD 25	3 years
Eastern Han Dynasty	東漢	AD 25	AD 220	195 years
Three Kingdoms	三國	AD 220	AD 280	60 years
Wei Kingdom	曹魏	AD 220	AD 266	46 years
Han Kingdom	蜀漢	AD 221	AD 263	42 years
Wu Kingdom	孫吳	AD 229	AD 280	51 years
Western Jin Dynasty	西晉	AD 266	AD 316	51 years
Eastern Jin Dynasty	東晉	AD 317	AD 420	103 years
Sixteen Kingdoms	十六國	AD 304	AD 439	136 years

Name	Chinese (Traditional)	From	To	Term
Southern and Northern Dynasties	南北朝	AD 420	AD 589	169 years
Sui Dynasty	隋朝	AD 581	AD 619	38 years
Tang Dynasty	唐朝	AD 618	AD 907	290 years
Zhou Dynasty	周朝	AD 690	AD 705	6 years
Five Dynasties	五代	AD 907	AD 960	53 years
Ten Kingdoms	十國	AD 891	AD 979	89 years
Liao Dynasty	遼	AD 916	AD 1125	210 years
Kingdom of Dali	大理國	AD 937	AD 1253	317 years
Northern Song Dynasty	北宋	AD 960	AD 1127	167 years
Western Xia	西夏	AD 1038	AD 1227	189 years
Jin Dynasty	金	AD 1115	AD 1234	119 years
Western Liao	西遼	AD 1124	AD 1218	94 years
Southern Song Dynasty	南宋	AD 1127	AD 1279	152 years
Yuan Dynasty	元	AD 1271	AD 1368	97 years
Ming Dynasty	明	AD 1368	AD 1644	276 years
Post Jin Dynasty	後金	AD 1616	AD 1639	23 years
Qing Dynasty	清	AD 1636	AD 1912	276 years

<sup>i</sup> This chronology considers several sources, including Twitchett, Denis Crispin., Fairbank, John King., and Feuerwerker, Albert *et al.*, ed. *The Cambridge History of China*. Cambridge University Press, 1978., Lewis, Mark Edward., and Kuhn, Dieter *et al.*, ed. *History of Imperial China*. Harvard University Press, 2010., and *Twenty-Four Histories*. Beijing: Zhonghua Book Company, 2000.