ON THE USE AND MEANING OF WOOD

IN CHINESE IMPERIAL ARCHITECTURE

by

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THESIS ABSTRACT

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Wood is the primary structural building material of Chinese imperial architecture. This thesis argues that there are practical and symbolic reasons why wood was chosen instead of stone for politically and ritually important structures. Stone is connected to immortality and death so for buildings that must endure through time, masonry was the preferred building material for funerary contexts. Wood represents life and regrowth and was thus the preferred material for living structures. However, wood is vulnerable and such buildings degraded over time, so they had to be habitually rebuilt. This thesis then seeks to explore the ways in which this practice of rebuilding works within modern theories of architectural authenticity and modern conservation methods. It will argue that Imperial Chinese architecture does work within certain types of architectural authenticity and conservation methods.

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CHAPTER I

INTRODUCTION

Chinese imperial architecture stands out among that of many other civilizations for its emphasis on wood as a primary structural building material for its major monuments. The politically and ritually important buildings of Imperial China were constructed from a tripartite system of architecture composed of a stone faced platform with a wooden column and bracket structure topped with a heavy upturned tile roof (Figure 1; see Appendix A for all figures). The structural system used wood as the primary building material. An obvious consequence of using timber as the primary structural building material is degradation of the building over time. This necessitates rebuilding of the structure to allow it to continue to be used. In comparison, the use of stone as a building material appeared comparatively late in China and was largely limited to funerary contexts. This thesis will explore the reasons behind the continued choice to use wood instead of stone for the primary building material of Chinese imperial architecture and will examine how such rebuilding is viewed in the light of modern theories of architectural authenticity and modern preservation practices.

This thesis evolved out of reading about practices of preservation and conservation of Chinese imperial architecture where the buildings are either shored up to maintain structural stability rather than structural integrity or preserved in stasis at the state in which it was first documented. These preservation practices stem from architectural traditions that are based in the understanding of the qualities of stone as the primary building material. This thesis will use the three main halls of the Ming and Qing dynasties Forbidden City, Taihedian, Zhonghedian, and Baohedian, as case studies to

explore the tradition of rebuilding; these buildings are some of the largest, most elaborate and most important within all of imperial China. Writings of various architectural historians and preservationists who are concerned with Chinese imperial architecture and wood as a construction material such as Liang Sicheng and F.W.B. Charles, among others, will be used to explore this history of Chinese imperial architecture as well as modern conservation practices. Their research will be used to elaborate on the variations of authenticity and conservation when considering wood as a primary material and Chinese imperial architecture. The Theory of the Five Elements will also be used to support the choice of wood from a philosophical standpoint. There is a clear line of reasoning supporting China's choice to use wood in its primary structural building material and this reasoning fits within the framework modern conservation practices.

CHAPTER II

EARLY PRACTICE

Early History of Chinese Imperial Architecture

To begin to understand the use of wood in Chinese imperial architecture, an exploration of the beginnings of architecture in China is needed. Wood has always been part of building, even during the Neolithic period at sites like Banpo. The earliest written records and modern archaeological research show that the formulation of standardized architectural practices originated in the second millennium BCE. During the Shang Dynasty, the tripartite system of architecture was already developed and involved the platform, the column and beam structural system, and the roof. At this time, the platform was made of non-faced rammed earth, the structural system was of wood and the roof of was constructed of thatch. The wooden structural system stood upon stone or bronze micro-foundations to prevent sinking that would destroy the structural integrity of the entire building. The Zhou dynasty saw the creation of the precursors to the iconic bracket sets in the form of wooden cushions for beams set atop columns.[1] Documentation from the Qin Dynasty shows use of stone slabs within buildings as flooring.[2] This would be an elaboration of the earlier micro-foundations spreading out to encompass the larger surface area of the platform. In the Han Dynasty, bracket sets made of wood were established as a significant structural and aesthetic component of architecture while tile replaced thatch for roofing and the use of brick proliferated. Brick would pave the way for the use of stone facing of platforms, although brick would remain an acceptable alternative for facing. Stone and brick were also being used for gate-towers as well as

arches during this time. The structural formation of the bracket sets were at their apex during the Tang and Song Dynasties with the most efficient establishment of structural integrity. Also at this time the style of architecture was standardized and codified in building manuals such as the Song Dynasty *Yingzao fashi* (Treatise on Building Standards). This work was published in 1103 by Li Jie and sets in print various rules and guidelines for construction. It was meant to be used by builders and craftsmen as a standardized system of construction for various projects. It included a glossary of technical terms, a summation of both Classic architectural texts and inherited craftsmen knowledge as well as mathematical formulae for calculating building and monetary costs. Dozens of detailed hand drawn illustrations describe the various bracket sets, structural components and other aspects of building. During the Yuan and Ming Dynasties, changes in the structure of lintels and beams within the roof structure lessened the structural importance of bracket sets. As a result, they shrank in size and became a more aesthetic part of architecture.[3] The use of wood for the structural aspects of the superstructure of a building remained consistent throughout Imperial China for imperial, religious and government buildings.[4] As with other Imperial capital complexes, the buildings of the Ming and Qing Dynasty Forbidden City have wooden columns, beams and brackets and they are brightly painted in polychrome.[5]

At least in part, the shape and structure of Chinese imperial architecture was originally in response to environmental factors such as rain and sun. The shape of the roof was designed to prevent damage to the wooden structural beams. The overhanging eaves help to block direct sunlight during the day while allowing the maximum amount of indirect light to penetrate the structure. [6] Sunlight, especially in tropical climates and

during the summer, can have a detrimental effect upon wood as well as generating a lot of heat. By blocking the sunlight, the eaves are helping to preserve the structure of the building while making it more habitable. At the same time the large overhanging eaves prevent direct contact of rainfall onto the wooden structure while the upturned roof edges work to funnel water runoff. In the Western Zhou period, the platforms incorporated small stone conduits to drain rainwater. Archaeological evidence from the Shang and Zhou dynasties shows the importance of funneling rainwater runoff in ways that was integrated into the structure of the platform. [7] This aids the natural strength of wood by preventing one of the most damaging factors from affecting the structural beams and joints.

Emergence of Stone

The introduction of Buddhism into China during the Han Dynasty also saw the introduction and adoption of masonry as a primary building material albeit in only certain types of structures. The use of stone as a structural building material in Buddhism comes from the rock cut caves of India at sites like Ajanta and Bihar, and at stupas which housed Buddhist relics. The cave spaces were for residences of monks and for halls of worship. Eventually the solid masonry stupas would be incorporated into the latter. Here masonry plays two roles: structural material for specific types of buildings and material for religious funerary contexts. This is seen in Cave 19 at Ajanta which was carved during the 5th century (Figure 2). This cave was constructed as a worship hall with stupa and comprises two individual spaces. The front veranda space leads to an inner rock cut

chamber. Inside the main room are two rows of columns that funnel movement towards the back of the room to the stupa. The colonnades function to define the path for circumambulation around the stupa. These columns are carved to echo wooden architecture and are structurally integrated into the cave space. The barreled vaulting of the worship hall even includes remnants of wooden beams that were inlaid along the ceiling in simulation of wooden architecture, although the structural part of the ceiling is the vaulting and not the wooden beams. This shows that Indian architecture at Ajanta was using stone as a structural building material[8]. However, the stone was carved to mimic a wooden structural predecessor. This sets a progression from wood to stone as the primary structural building material in India.

As Buddhism entered China, the influence of rock cut caves and stupas from India were sinicized. The stupas developed into wooden and brick structures that drew inspiration from gate towers. When constructed of brick, these pagodas still retained some relationship to the wooden versions, however with modifications for the material. The cantilevered eaves were impossible to construct out of brick, so they were simplified until the wooden structural details became a stylized aesthetic relief formed out of brick.[9] The rock cut caves in India were also adopted in China although they became less complex. At sites like Dunhuang, Longmen, and Yungang, caves were carved out of cliff faces as spaces for housing Buddhist images. Cave 254 at Dunhuang, carved in the late 5thc century, has a veranda and inner worship hall like the caves at Ajanta (Figure 3).[10] The central pillar carved in the center of the hall is similar in shape to the stupas of India, however there are no carved columns and no ceiling beams. The room is decorated in relief carvings and polychrome paint. Here, the focus is on the paintings and sculpture

rather than stone carved like wood. Cave 53 at Yungang, carved during the Northern Wei period is similar to the Dunhuang caves. There are carved reliefs reminiscent of wooden architectural details such as bracket sets; however they are not structural integral to the cave.[11] The use of stone in China for structural purposes is different than that of India. While in India, the wooden mimicry was used in stone as a structural component of bearing load, the Chinese wooden mimicry tended towards artistic treatment of carved walls that was not part of the structural framework of the space.

A Chinese Classic references life as height above ground while death is depth below ground.[12] This is recorded in the archaeological record; tombs in China began as pit shafts in during the Shang Dynasty, like Lady Fu Hao's tomb. They eventually evolved into a horizontal format. This shows an early belief that under the surface of the ground belonged to the realm of the dead. During the Western Han, tombs began to be lined with brick or carved out of cliff faces. This is the beginning of a connection between stone and death and it was solidified during the Eastern Han when the first stone funerary monuments were constructed. These funerary monuments included above ground structures such as stele and guard towers. After the introduction of Buddhism, stone funerary monuments would be continued in the shape of stupas and some pagodas. Also, since the construction of tombs was meant to make the deceased subject an immortal and to create an everlasting home, death becomes connected to immortality. This then connects stone with immortality through death.[13] The framework here sets up a symbolic relationship that stone is a structural construction material for the dead, leaving wood as the structural construction material of the living.

Why Wood?

Economical Reasons

There are many practical qualities of wood that made it ideal for architecture. Wood is abundant in China, making it an easily accessible and renewable building material. The craftsmen at the Forbidden City were experts in timber construction employed Imperial construction manuals such as the *Yingzao Fashi*.[14] Supporting beams were from seasoned hardwoods to absorb the dead load. The building manuals stressed the importance of the joinery of wooden parts within a structure. The joints are both the strongest structural part of a building, but also the most susceptible to wear and damage. Wood has good tensile and compressive strength, but it depends upon the joints to be structurally sound and any defects in the structural members can exponentially damage the capacity of the entire building to bear load. Oak is a popular species of wood for construction because it is strong, durable and workable. In fact, if given the proper conditions, oak can outlast stone. Wood is organic and thus vulnerable to moisture, bugs, and fungus. However, different species of wood have different properties: elm lasts well when wet, ash is pliant, too much so for support, and poplar cracks under stress. However, pine can last just as long as oak.[15] *Nanmu* is a conifer and thus shares many physical aspects with pine. The wood, mainly *nanmu* and pine, used at the Forbidden City was sourced out of Sichuan, Zhijiang, Hubei, and Hunan Provinces, sparing no expense for the imperial palace.[16]

Besides being an ideal structural material, wood is also relatively easy to procure and prepare for construction. An aspect important to Chinese imperial architecture is the

idea of modularity. Beginning in the Tang, but published first during the Song Dynasty in the *Yingzao Fashi*, Chinese imperial architecture is all modular and parts are proportional to each other. This is very important when combined with wood as the primary structural building material because it allows for prefabrication and accelerates construction.[17] This saves on construction costs as well as creating an efficient, standardized system of building. A typical building of Chinese imperial architecture can have upwards of tens of thousands of parts; this does not at first seem very practical. However, the entire structure is proportional and built of modular blocks.[18] This allows for fewer large, heavy, and long beams, which are hard to find and expensive, by replacing them with smaller, lighter, repetitively shaped parts. The system becomes efficient when all the parts of the building are proportional to each other and can be divided into different groups such as columns, beams, and bracket sets.

Of course, for politically and ritually important sites, practicality and economy are not factors that are as important as magnificence and size. While having a standardized system of building helped to streamline the construction process, for a important project money was not the main issue. At the Forbidden City, for example, the large blocks of marble used to face platforms were upwards of one hundred tons in weight. They were so large that the only way to move them from the quarry to Beijing was to wait until winter and build an ice road on which to side the stone slabs.[19] This is not a cost effective way to move materials. Dozens of smaller blocks would have been more efficient. However, the more important the site, the larger the building needs to be within Chinese imperial architecture. As stated above, larger beams and columns of wood are hard to find and expensive to buy, so when building an important building, a larger investment of capital

and time are needed to supply the building materials. This is an impractical aspect of building in the standardized from of Chinese imperial architecture and shows that there must have been other factors motivating the continued use of wood as the primary structural building material of important political and religious sites in imperial China.

Symbolic Reasons

Economic reasons are not enough to justify the choice of wood instead of stone, so there might be symbolic reasons instead. Originally discussed by Tsou Yen during the Warring States Period, the Five Elements or *wu xing* describe the relationships between quintet sets of ideas in Chinese philosophy, science and the study of the natural world.[20] The Five Elements are Earth, Wood, Metal, Fire, and Water.[21] They also represent the directions: Center, East, West, South, and North respectively; as well as the seasons, times of day, and more (Figure 4). Earth represents the center and balance. Fire is described as the South, noon and summer. Wood is the East, morning and spring. Metal is attributed to the West, evening and autumn. Finally, Water is the North, midnight and winter.[22] Besides describing the sets of ideas, the Five Elements were also understood to flow in a cycling progression. Needham emphasizes the importance that the cycles were not meant to be specifically timed or set, but rather are an inevitable, continuous flow. So, Earth eventually gives way to Wood, which falls to Metal, but the continuum will eventually return and pass through Earth again; just as the sun moves on from morning to night and Summer follows Spring, but eventually gives way to Autumn. In history, this idea is represented by the progression of Dynasties. The Xia gave way to the Zhou,

followed by the Qin and the Han and so forth.[23] This thinking permeates Chinese thought and establishes the idea that everything has a beginning and everything has an ending; as well, every ending brings about a new beginning.

The relationship between the Five Elements and architecture is rather elusive. Chinese imperial architecture was habitually rebuilt, in part because of the use of wood as the primary structural building material. As the building became unstable, it had to be reconstructed. This relates to the cyclical progression of elements as well as the notion that Wood represents regrowth and renewal. Every time a structure is rebuilt, it is renewed to begin the cycle again. However, architecture relates to more than just the cycles described, it also aligns with the Five Elements themselves. Most important to the discussion of wood as the primary building material is of course the Wood Element, but also the Earth Element which would represent stone and masonry. If the Earth Element is placed at the center and is the balanced Element, it would follow that it would be a good material to use a foundation. The foundation is the beginning of the structural system of a building, so it needs to be well constructed to balance the superstructure. It would also make an ideal material for utilitarian projects such as bridges to give them the strength and sturdiness to remain functional. The Wood Element is renewal and growth, so using a material that does grow seems appropriate. Indeed, many components of the bracketing structural system of Chinese imperial architecture literally translate to terms of organic description.[24] This illustrates the brackets as flowers, making the bracket sets seem to bloom and establishing an architectural metaphor reminiscent of the descriptors of Wood as one of the Five Elements (Figure 5). So, wood as a structural building material seems acceptable considering the philosophical characteristics relating wood to growth. The

idea will be further explored in later sections to discuss the notion of original material and its connection to history and function.

As described above, there is also a relationship between life and dead symbolized as wood and stone. This shows an understanding connecting death, immortality, and endurance with construction in stone. Therefore, if wood is related to regrowth and renewal, wood is also symbolized as life. This helps to explain not only "why wood?," but also "why not stone?" If stone is death, then it is a material that should not be used by the living. It may have some practical aspects that are beneficial to construction, but the symbolism connected to stone clash with the understanding of the role of architecture in religious and political contexts which more closely aligns with the properties of wood.

Notes

[1] Steinhardt, *Chinese Traditional Architecture,* 11-13. See the chapter "Survey: Chinese Traditional Architecture" for an excellent introduction to the forms and history of Chinese architecture. Also, Liang Sicheng's *A Pictorial History of Chinese Architecture: A Study of the Development of its Structural System and the Evolution of its Types* is seminal text on the study of traditional Chinese architecture.

[2] Steinhardt, *Chinese Traditional Architecture,* 20.

[3] Steinhardt, *Chinese Traditional Architecture,* 13.

[4] Lancaster, Clay. "The Origin and Formation of Chinese Architecture." *Journal of the Society Of Architectural Historians,* Vol. 9 (March 1950), 3-10.

[5] Siren, Osvald. *The Imperial Palaces of Peking: Two Hundred and Seventy Four Plates in Collotype After the Photographs by the Author.* New York: AMS Press, 1976, 20. Siren's History of the Imperial Palaces is an excellent resource. The images are from around the time of the end of the Qing Dynasty, therefore they offer a view of the Forbidden City before the founding of the People's Republic.

[6] Steinhardt, *Chinese Traditional Architecture,* 13.

[7] Steinhardt, *Chinese Traditional Architecture,* 20.

[8] Leidy, Denise Patry. *The Art of Buddhism: An Introduction to Its History and Meaning.* Boston: Shambhala Publications, 2008, 58.

[9] Fisher, Robert E. *Buddhist Art and Architecture.* London: Thames and Hudson, Ltd., 1993, 96-100

[10]For a good overview of the history of art and architecture of Buddhism from India to Japan and everywhere in between see Denise Leidy's *Art of Buddhism: An Introduction to Its History and Meaning.* Also see, Robert Fisher's *Buddhist Art and Architecture.*

[11] Leidy, *The Art of Buddhism*, 71-77.

[12] Needham, Joseph. *Science and Civilisation in China, Vol 2: The History of Scientific Thought.* Cambridge, UK: Cambridge University Press, 1977, 272.

[13] See Wu Hung. *Monumentality in Early Chinese Art and Architecture.* Stanford, Calif: Stanford University Press, 1995. This is excellent analysis of early architecture in China and the discovery of stone, especcialy Chapter Two "Temple, Palace, Tomb."

[14] Lip, Evelyn. *Feng Shui: Environments of Power: A Study of Chinese Architecture.* London: Academy Editions, 1995, 25-58

[15] Charles, F.W.B. Charles. *The Conservation of Timber Buildings.* London: Hutchinson, 1984, 7, 40-50, 238. Especially his discussion of specific timber species. Oak is the most popular species of wood he uses in Britain because it is strong, durable and workable. In fact, he says if given the proper conditions, oak can outlast stone. Wood is organic and thus vulnerable to moisture, bugs, and fungus. However, different species of wood have different properties.

[16] UNESCO. "Imperial Palaces of the Ming and Qing Dynasties in Beijing and Shenyang." Accessed June 10, 2015. http://whc.unesco.org/en/list/439.

[17] Steinhardt, *Chinese Traditional Architecture*, 13

[18] Ledderose, Lothar. *Ten Thousand Things: Module and Mass Production in Chinese Art.* Princeton: Princeton University Press, 2000. As well as: Yin, Weida, Hirokazu Yamamoto, Mingfang Yin, Jie Gao and Stanko Trifkovic. "Estimating the Volume of Large-size Wood Parts in Historical Timber-Frame Buildings of China: Case Study of Imperials Palaces of the Qing Dynasty in Shenyang." *Journal of Asian Architecture and Building Engineering, Vol. 11 (2012), 321-326.*

[19] Li, Na. "Preserving Urban Landscapes as Public History: The Chinese Context." *The Public Historian.* Vol. 32, No. 4, 2010. 51-61.

[20] Porkert, Manfred. *The Theoretical Foundations of Chinese Medicine: Systems of Correspondence.* Cambridge, Mass.: MIT Press, 1985, 43-44.

[21] Schwartz, Benjamin. *The World of Thought in Ancient China.* Cambridge, Mass.: Harvard University Press, 1985, 362-363.

[22] Porkert, *The Theoretical Foundations of Chinese Medicine: Systems of Correspondence*, 47-50.

[23] Needham, *Science and Civilisation in China, Vol 2: The History of Scientific Thought* , 239-244

[24] Feng, Jiren. *Chinese Architecture and Metaphor: Song Culture in the Yingzao Fashi Building Manual.* Honolulu: University of Hawai'i Press, 2012.

CHAPTER III

CONSERVATION ISSUES

Having established economic and symbolic reasons for the choice of wood as the primary structural building material of Chinese imperial architecture, the issue of conservation becomes important. Because this system of architecture is based upon a different understanding of structural material than what was originally used to establish modern theory of authenticity and conservation, an exploration to situate Chinese imperial architecture is useful to situate it within acceptable modern practice. The following will use the Forbidden City and its Sanhedian to explore the documented history of rebuilding and restorations happening during the Ming and Qing dynasties at one of the most important political sites in China (see Figure 6). Once this custom of reconstruction is established as part of Chinese imperial architecture at the Sanhedian, the practice will be placed among modern theories of architectural authenticity. As well, a discussion of modern conservation practices will be undertaken to explore the overlap between Chinese practices and modern practices of repair work of architecture.

History of the Forbidden City

Since the Zhou Dynasty, the urban design of the capital city has been paramount to the display of imperial power. The layout of an imperial palace can be traced to the layouts of Zhou Dynasty temples where the religious and political centers of power were combined in a single locality. Overtime, religion and politics in China separated while

retaining similar complex layouts; political power was important for controlling a state and empire, leading to the central palace layout in Beijing. The proper layout and placement of palace, temples, and city walls within the landscape displayed and supported the Emperor's position as the Son of Heaven and thus ensured his right to rule.[1] Beijing is laid out in the tradition imperial palace centric plan. As the city has at its heart the imperial palace, so does the Emperor exist at the heart of the empire, as well as the empire resting at the center of the cosmos. By using the urban design of the capital to mimic the correct cosmological order of the universe, it reinforces the Mandate of Heaven as well as the order of the Five Elements.[2]

Beijing as a city has a history spanning over two millennia, from the Warring States period, where the city was known as Yanjing, the capital of the state of Yan; to the Liao Dynasty in the 10th century where it was the second capital. In the Jin Dynasty Beijing was named Zhongdu, the Middle Capital and during the Yuan dynasty, Khubilai Khan named the city Dadu, the Great Capital.[3] Beijing was claimed as the capital city for the Ming dynasty when Emperor Yongle moved the court north from the city of Nanjing in 1421. It then joined the lineage of imperial capital cities stretching back to the Zhou Dynasty. As the imperial capital for five centuries and during two dynasties, much of the construction and changes in Beijing were motivated by imperial decree.

Construction of Beijing began in 1419 by demarcating the basic city design, building the outer walls and starting construction on the imperial palace. The city then underwent thirty consecutive years of construction. By 1420, the three main buildings of the Outer Court were constructed, they are now known as the Sanhedian (see Figure 7). In 1428 the palaces for the imperial princesses were completed, in 1438 the outer walls

were completed and in 1442 the Ming government ministry buildings opened.[4] In the 1550s, the southern suburbs were enclosed by its own wall, creating a rectangular addition to the capital.[5] During the Qing dynasty, Beijing was divided by ethnicity; the ruling Manchus occupied the Northern City and the native Han Chinese occupied the Southern City. Also at the end of the Qing dynasty, the Qinian Dian (or Hall of Annual Prayers) was constructed behind the Altar of Heaven in the southern part of Northern City of Beijing.[6] Much of the city was destroyed after the fall of the Qing dynasty in 1911. Save for some temples, small sections of the outer wall and the Forbidden City itself, nearly all of the rest of Beijing was dismantled in the 1950s and 1960s.[7]

The Forbidden City was built upon the ruins of the imperial palace of Dadu, as was the city of Beijing. None of the buildings of the Forbidden City date from before the beginning of the Ming dynasty. This version of the city matched the idealized layout of an imperial capital city. Thus, there were three main sections to the city, nested one inside the next. The innermost section is colloquially called the Imperial Palace or the Forbidden City although its real name is *Zijingcheng*, the Purple Forbidden Enclosure; it was the home of the emperor and his family. The Imperial City is the second section with the Imperial Palace at its center; it was named *Huangcheng*, the House Compound; it separated the imperial family's gardens, warehouses and workhouses from the rest of the city. The Imperial Palace was placed at the center of the Outer City. The Outer City consisted of the rest of Beijing enclosed by the main defensive city walls, in this space the citizens of the city lived. In the 1550s, during the Ming Dynasty, Mongol raids prompted the construction of fortification walls around the suburbs south of the Outer City.[8] The design of the palace itself was also idealized, it follows *qianchao houqin* a

classical idiom that describes the layout of the palace having administrative and government space in front of the rear residential quarters.[9] It was designed to focus on a sequence of six halls aligned South to North.[10] Three of these halls will be used in as case studies to analyze their history of construction, renovation and rebuilding as related to the use and importance of timber in architecture.

Entrance to the Forbidden City was through Wumen, The Meridian Gate, the largest gate in the palace. Its monumental design features an inverted bastion style superstructure; atop the walls and at the end of each arm are two five bay, double eave roofed pavilions. They are connected by low corridors to a large nine bay pavilion above the gate itself. Beyond Wumen and a large plaza with bridges over a man made stream is Taihemen, The Gate of Supreme Harmony. This gate was only used by the Emperor. Civil servants crossed through to the east at Zhaodemen, the Gate of Luminous Virtue while military officials entered the Forbidden City through Zhendumen, the Gate of Correct Conduct. Taihemen sits atop a marble terrace of three levels; it is nine bays across and has a double roof.[11]

In the succeeding court, the Front or Outer court is a set of three buildings upon a shared platform extending from South to North, called Sanhedian or the Three Harmony Halls as a group. The Southernmost is Taihedian, the Hall of Supreme Harmony. It is the largest of the three at eleven spans wide and it has a full sloped roof. Zhonghedian, the Hall of Central Harmony, is the middle of three halls (see Figure 8). It is the smallest at five spans across; it is also square with a pyramidal roof. Finally, Baohedian, the Hall of Preserving Harmony, is the last of the three (see Figure 9). Its plan is based upon Taihedian, however it only has nine spans and its roof is simpler with half gables. Behind

all of this is the gate to the Inner or Rear Court.[12] These three halls and two gates were originally constructed between 1406 and 1420 along with the rest of the Forbidden City by the Ming Emperor Yongle.[13]

In 1562 a large reconstruction or renovation event was undertaken by Xu Gao, a master builder. This is alluded to in many paintings, but it is unclear to what extent this event reached within the walls of the Forbidden City.[14] The Sanhedian were rebuilt in 1627 under the Ming Emperors Tianqi and Chongzen. They were in fact rebuilt during a year that saw the change of rulers, so it is not know under which emperor the Sanhedian were rebuilt. During the transition from the Ming to Qing dynasty, many buildings in the Forbidden City were destroyed or badly damaged. Wumen and Taihedian were rebuilt during the beginning of the Qing dynasty, under its first emperor Shunzhi.[15] It is unclear if the two buildings were rebuilt because they were destroyed during the transition or if they were rebuilt to celebrate a new dynasty. Either way, they both seem to follow aesthetic choices of the other two Sanhedian. Finally, under the Qianlong Emperor, in 1765, all three Sanhedian were restored and repainted.[16] Of course, in the modern era, the buildings in the Outer Court have been restored multiple times, although they have yet to be completely rebuilt.[17]

The Inner Court of the Forbidden City is entered from the south behind Baohedian through a gate called Qianqingmen, the Gate of Heavenly Purity. It was built atop a three tiered raised platform and is five spans across. Like the Sanhedian, the Inner Court also has three buildings: Qianqinggong, Jiaotaidian and Kunninggong. Qiangqinggong, the Palace of Cloudless Heaven is nine spans across with a double hipped roof. In 1797, just a year after the Qianglong Emperor stepped down, all three

main pavilions in the Inner Court were destroyed by fire. Jiaotaidian, the Hall of Union is smaller than the other two buildings of the Inner Court. It is the same size as Zhonghedian. Kunninggong, the Palace of Earthly Peace is the last, most northerly of the three. It has the same plan as Qianqinggong, but has a single level hipped roof. All three were rebuilt in 1797, and those versions of Qianqinggong, Jiaotaidian and Kunninggong are the ones standing today.[18]

According to Becker in his book *City of Heavenly Tranquility,* the original design of the Forbidden City was consciously followed as buildings were replaced and repaired. When buildings were needed to be replaced or repaired, they were reconstructed to match the building before.[19] While he claims the new versions of buildings were identical to their predecessors, it seems more likely that the buildings would match the original floor plans, but the super structures could be altered slightly. Evidence of this is in Osvald Siren's observations of Qianqingmen, describing the building as distinctly and aesthetically older than the others.[20] Therefore, there was the opportunity to make slight changes to a new iteration of a building. However it is also documented that sometimes identical buildings were in fact built on the foundations of the old. Consider the work presented in the two articles by Fang et al., where they discuss the importance of replacement rather than reinforcement for timber constructions in Chinese imperial architecture. Fang and his team mathematically and scientifically show the structural importance that repairs to the tenon joints and brackets of a Chinese timber building must take into affect its frequenting dampening qualities.[21] In other words, a damaged timber building must have its parts replaced or the superstructure replaced to avoid compromising its structural integrity. The main buildings at the Forbidden City show a

chronology of repeated reconstruction events. This seems to imply a pattern of replacement and regeneration rather than a *tabula rasa*, a restart.

Considering the importance both politically and architecturally of the three main buildings of the Outer Court, known as the Sanhedian, they are useful case studies to analyze their patterns of reconstruction and renovation events. Taihedian has at least six significant events: The original construction in 1406-1420, a reconstruction in 1627, a reconstruction and renaming in 1645, a reconstruction in 1669-1698, a restoration and repair in 1765, and a restoration at the beginning of the 20th century. Zhonghedian has four main events: the original construction in 1406-1420, a reconstruction in 1627, a renaming in 1645, and minor repair in 1765. Baohedian has three main events: the original construction in 1406-1420, a reconstruction in 1627, and a restoration and repair in 1765.[22] Not much is known about the construction and any repairs to the marble platforms of the Sanhedian beyond the original construction between 1406 and 1420; however one slab was replaced behind Baohedian in 1557.[23]

The 15th century constructions were the original buildings of the Forbidden City; they do not stand on the Yuan imperial palace site. Every reconstruction of the three buildings is upon the same footprint as the original early Ming buildings. The 1627 reconstructions of the entire Sanhedian reference a possible massive imperial political move or perhaps a large fire like that of the Inner Court buildings in 1797. In 1645, the first year of the Qing dynasty, at least Taihedian was largely rebuilt, but all three buildings were renamed. This was of course a political move, giving a new beginning to the dynasty and the Forbidden City. The naming perhaps could be considered its own reconstruction since the functions of the buildings remained the same. Finally, in 1765,

under the Qianlong Emperor, all three buildings were restored and repainted. This was presumably done to the now century old buildings of Sanhedian in order to further preserve their overall structure. These reconstruction events come together within the greater history of the Forbidden City, which is itself part of the greater history of imperial Chinese cities.[24]

Authenticity

Previous sections have established the undeniable fact that wood is not an enduring material and since Chinese imperial buildings are constructed of wood, they tend to be rebuilt and replaced. From an academic viewpoint comes the issue of authenticity concerning buildings that must be reconstructed or repaired periodically. Authenticity to an architectural historian tends to value the original construction material first and foremost. There are generally considered to be three main types of architectural authenticity: objective, constructivist, and postmodern. However, Imperial China does not privilege original material. The organization of this section will first discuss the role of material culture in Imperial China, then will be based on those three types architectural authenticity and they will be used to analyze the ways in which other scholars are discussing architectural authenticity.[25] This framework will then be used to analyze the placement of Chinese imperial architecture based on the use and practices of timber construction described at the Forbidden City, specifically the three main halls of the Outer Court.

Western practices of architectural authenticity focus on the importance of original material because the past is lodged within physical objects. However, the past exists in writing in Imperial China. The *wen* character in Chinese means language and writing, unlike western cultures where civilization uses the Latin root for city.[26] The argument here is supported by the proliferation of documentary writing in Imperial China from histories and gazettes to poetry and literature. China has been writing about itself for three millennia or more. The difference then is that Imperial China locates its past in writings rather than any other part of material culture.[27] The past of Chinese imperial architecture, the Forbidden City in particular, is then placed within poetry, government documentation and other writings. Because of this, material objects did not need to be eternally preserved to archive the past. As such, material culture had the ability to end; it had the ability to be destroyed without negative consequence to the culture's past. In terms of the Five Elements, the building could be destroyed and rebuilt as long as the function remained. So, as a building is destroyed or damaged, a new or repaired version can be built to continue the function. Such is seen at Sanhedian with the habitual reconstructions and repairs of the three buildings, especially the rebuilding and renaming even at the change from the Ming to Qing Dynasty in 1645. A building could become part of this repeated cyclical system of Seasons, Elements, and Time.

Objective authenticity, though, is focused on originality: original site, original materials, original context. An emphasis is not placed on original function, however. This would include restored structures; reconstructed structures on original foundations and original structures moved to a new site would both be considered partially objectively authentic. The former would have the original foundation and presumably be of relatively

factually accurate construction techniques and materials while the latter has its site's objective authenticity destroyed.[28] For the Sanhedian, this would be the first, early 15th century constructions. Objective authenticity concerns itself with data and facts; it only considers material from the first construction phase to be authentic. It also considers the site and the structure to be of equal importance.

Constructivist authenticity, as the name suggests, focuses on a constructed image or symbolic authenticity. This takes into account different perspectives of tourists, users, and authorities. Constructivist authenticity focuses heavily on historic verisimilitude and genuine simulation and is supported by the presence of informational markers.[29] For the Sanhedian and the Forbidden City, this would be any recreation of use-space such as the throne rooms and individual palaces. In other situations, with genuine simulation, a structure with no original material and not on a historic site can be considered authentic. Constructivist authenticity uses markers to delineate architectural authentic structures, and without a marker a building or site would be considered non-authentic, especially by tourists. The marker becomes authoritative, working to promote verisimilitude and convince others of the building or site's authenticity.

Postmodern authenticity is less concerned with the physical structure. It instead focuses on the experience within the site and can be used to justify inaccuracies of authenticity through differing perspectives. [30] At the Forbidden City, this could include the way in which tourists experience the site. In other words, postmodern authenticity works to explain the emotions generated by a site. When considering Chinese imperial architecture, where the history of the site is not lodged in the material aspect of the structure, markers can function as part of the history to support verisimilitude and add

history back into the site. Postmodern authenticity has the ability to consider the continuity of function within a site and structure.[31] Function builds the experience of a site which is the important connection to Chinese imperial architecture where the habit of rebuilding is motivated by continuity of function. An unavoidable aspect of rebuilding is the loss of the original form of the structure. However, since Chinese imperial architecture is standardized for important political and religious buildings, the major structural aspects will remain the same for build to build. Only the details tend to change if anything does. Therefore the continuity of form, while not of the original material, can construct postmodern authenticity through creating a similar experience to the original building and building a sort of atemporal aspect to Chinese imperial architecture.

This tripartite division of architectural authenticity works to cover any extant structure by taking into account any repairs, movement, or tourist use. It is especially useful for discussing the authenticity of Chinese imperial architecture. The various characteristics that make up this style of architecture span and interact with all three types of architectural authenticity. Within objective authenticity, while the original material is of less importance, the original site and continuity of original function are of great importance. And yet, in some cases, the original site falls to the wayside as well, lifting the continuity of function to the forefront. Considering the importance of continuity of form as pertaining to architectural order, continuity of function, and the placement of past away from material objects, Chinese imperial architecture would consider postmodern authenticity to be the most important followed by constructivist and then objective authenticity. Continuity of form is secondary to function because function determines form in the standardized system of architecture. Since history is independent of the

physical structure, unlike Western architecture, original material becomes irrelevant to the authenticity of the site. Of course, for architectural historians, there is value to the structure to learn about past practices. However, within this framework, Chinese imperial architecture is not rendered inauthentic by being a reconstructed or renovated building. Therefore, the reconstruction events of the Sanhedian after the original 1402-1420 constructions do not violate the authenticity of the original Ming site, and neither do any modern reconstructions as long as the function is continued. However, the manner in which the reconstructions are carried out can affect the stability of the building.

Preservation

The preservation of architecture, timber in particular, is a difficult endeavor. The architectural historian and preservationist clash with the art historian because the latter wishes to preserve the original building in the state it is in currently. This would fall under objective authenticity as described previously. The architectural historian and preservationist recognize that for a building to last it must be structurally stable and able to support its load; however, nothing lasts forever, and if the building is to continue to exist, sometimes parts must be replaced or the entire building might need to be rebuilt entirely.[32] This aspect is especially important for Chinese imperial architecture. A crucial aspect to the structural abilities of Chinese imperial architecture is the heavy roof working with the joinery of beams and brackets to allow the building to sway. Movement then is imperative for the preservation of structural integrity because immobility causes excess stress within the structure.[33] Therefore, exploring the levels of conservation with

movement and thus preservation or restoration of joinery is important for the preservation of a Chinese imperial building as a whole. This is a discussion of conservation from a practical perspective to explore options more closely related to the physical structure of a building.

There are generally considered to be seven levels of conservation that are important for the preservation of timber buildings. The first is prevention, that is, the prevention of deterioration. This includes indirect conservation. The second is preservation, or keeping the building in the state it is in currently. This might be a poor choice for timber architecture depending upon the status of its structural members. The third is consolidation or direct conservation; this would be an intermediate step between preservation and the next, restoration. Restoration is reviving the original building, this can be difficult because often the original building is undocumented. The fifth is reproduction. This would be rebuilding the old building in new materials on the original site; it also means dismantling the old building. The sixth is reconstruction; this is generally a documentation based rebuilding of a building. It is differentiated from reproduction by the level documentation needed that is not building based. The seventh and last level of preservation is re-evaluation or considering adaptive use for the site. This abandons the original function of the building. Overall, conservation should always try to retain as much of the original material as possible, it should be reversible and traditional techniques should be used if at all possible.[34]

If wood is given the proper conditions it can last as long as stone while retaining structural ability. However, without those conditions, it will decay and need to be replaced. And the decayed timber must be replaced with new wood because the joints are

the most important part of the structural part of the frame. When new wood shrinks, it locks itself into the joints and thus the structure of the building. Indeed, the frame as the only part of a building that should be left alone as much as possible. Wallpaper, furniture, windows and doors can all go, but the frame must remain as it is.[35] From a practical perspective, the frame is sacrosanct because of its structural importance to the building in its entirety.

As for China's imperial architecture, the ramifications of a culture that does not place historical importance on material objects interacts in an interesting way with conservation. This means there is no historical motivations to preservation of buildings, nor is history destroyed when a building is. This means that preservation can have a purely practical approach to conservation in the Chinese context, as long as the function remains and a new building is built on the site of the old one.[36] Ise Shrine in Japan is a good example of an East Asian reconstructed building because of the way it works within the context of preservation. It is one of the best sourced buildings that practices periodic rebuilding. Ise is interesting because a new construction is not in fact built upon the original site; it trades back and forth between two adjacent sites. This seems to violate a lot of preservation and authenticity practices. However, it is the lack of original material that keeps it from the UNESCO World Heritage List.[37] Despite this, the building is considered original to its first built date. The shrine has also preserved continuity of its function despite constant reconstructions. Considering the Forbidden City, the original site is preserved, and while the complex is now a museum, it is preserved in its imperial palace function. This frees up conservation to be concerned with the practical aspects of preservation.

However, there are claims that buildings need to be preserved for non-practical reasons: one, because they define history and the cultural identification of the inhabitants, and two because tourists expect a physical link to a specific historic period. This cautions against losing too much of the original structure because that strains the relationship tourists expect to have with a historic site and aligns best with constructivist authenticity, but is very much rooted in modern Western ideals for preservation that places the greatest importance upon original material. [38] This also fits very well with the modern state of the Forbidden City. As a museum, it is situated in the imperial Qing context while retaining imperial functions.

Preservation of any building comes with benefits and detriments, however situating Chinese imperial timber architecture within the context of Western preservations practices while using actual practices and philosophies is an interesting exercise. Regardless of geographical origins, timber buildings must retain their structural integrity to hope to last for any significant amount of time. Therefore, preserving the structural members and joinery of Chinese imperial buildings ought to be paramount. The design of such buildings helps with the first conservation stage, the prevention step, by protecting structural beams from water and sunlight. Preservation becomes problematic if there are any decayed beams or joints that endanger the ability of the building to bear load, however if the structure is in fine shape then preservation becomes a viable option. Consolidation is a viable option if only minor structural members are damaged. Restoration attempts to revive the original structure, this is problematic in Chinese imperial architecture, especially at the Forbidden City, because the original building would most likely lack any documentation. Also, considering the practices of

reconstruction and rebuilding, this not an avenue practiced within Imperial China. The fifth step of reproduction is also a viable option for Chinese imperial architecture. It is a practice already followed in modern day China at sites like Pingyao.[39] Reconstruction is sometimes considered less ideal than reproduction because it involves some amount of guesswork to cover the lack of extensive documentation of the site. However, considering the rebuilding practices at the Forbidden City, using the standardized building manuals would aid in this endeavor greatly. And finally, re-evaluation would not be ideal considering the importance of the continuity of function. However, perhaps conversion to a museum or a function that shares the same form would be acceptable reasons to choose re-evaluation.

Notes

[1] Wu Hung. *Monumentality in Early Chinese Art and Architecture.* Stanford, Calif: Stanford University Press, 1995.

[2] Naquin, Susan. *Peking: Temples and City Life, 1400-1900.* Berkeley: University of California Press, 2000.

[3] Becker, Jasper. *City of Heavenly Tranquility: Beijing in the History of China.* New York: Oxford University Press, 2008, 17-18.

[4] Becker, Jasper. *City of Heavenly Tranquility: Beijing in the History of China,* 35-37.

[5] Naquin, Susan. *Peking: Temples and City Life, 1400-1900.*

[6] Sullivan, Michael. *The Arts of China.* Berkeley: University of California Press, 2008, 247.

[7] Naquin, Susan. *Peking: Temples and City Life, 1400-1900,* xxi.

[8] Naquin, Susan. *Peking: Temples and City Life, 1400-1900,* 4. Also, Steinhardt, Nancy Shatzman. "Why Were Beijing and Chang'an so Different?" *Journal of the Society of Architectural Historians,* Vol 45 (Dec. 1986), 339-357.

[9] Steinhardt, Nancy Shatzman. "Why Were Beijing and Chang'an so Different?" 342.

[10] Becker, Jasper. *City of Heavenly Tranquility: Beijing in the History of China,* 47

[11] Siren, Osvald. *The Imperial Palaces of Peking: Two Hundred and Seventy Four Plates in Collotype After the Photographs by the Author.* New York: AMS Press, 1976, 7-13

[12] Siren, Osvald. *The Imperial Palaces of Peking: Two Hundred and Seventy Four Plates in Collotype After the Photographs by the Author,* 7-13.

[13] UNESCO, "Imperial Palaces of the Ming and Qing Dynasties in Beijing and Shenyang."

[14] Clunas, Craig. *Empire of Great Brightness: Visual and Material Cultures of Ming China, 1368-1644.* Honolulu: University of Hawaii Press, 2007, 46. And Naquin, Susan. *Peking: Temples and City Life, 1400-1900,* 140-141.

[15] Siren, Osvald. *The Imperial Palaces of Peking: Two Hundred and Seventy Four Plates in Collotype After the Photographs by the Author,* 7-13.

[16] Siren, Osvald. *The Imperial Palaces of Peking: Two Hundred and Seventy Four Plates in Collotype After the Photographs by the Author,* 7-13

[17] Beijing Ancient Architecture Engineering Company. *Ancient Architecture in Beijing.* Beijing: Beijing Arts and Photography Pub. House, 1986.

[18] Siren, Osvald. *The Imperial Palaces of Peking: Two Hundred and Seventy Four Plates in Collotype After the Photographs by the Author,* 14-17.

[19] Becker, Jasper. *City of Heavenly Tranquility: Beijing in the History of China* , 47, 187.

[20] Siren, Osvald. *The Imperial Palaces of Peking: Two Hundred and Seventy Four Plates in Collotype After the Photographs by the Author,* 14.

[21] The work by Fang, et al. focuses on the physics and engineering behind the structure of Imperial Chinese construction, they found that the structural integrity was so important that damaged parts would need to be replaced rather than restored. While discussed in the context of modern conservation, this shows the ideal way to repair a building that would logically have been followed during the Ming and Qing dynasties as well.

[22] For more information see Siren, Osvald. *The Imperial Palaces of Peking: Two Hundred and Seventy Four Plates in Collotype After the Photographs by the Author* and UNESCO "Imperial Palaces of the Ming and Qing Dynasties in Beijing and Shenyang."

[23] Li, Jiang, Haosheng Chen, and Howard A. Stone. "Ice Lubrication for Moving Heavy Stones to The Forbidden City in 15th and 16th century China."

[24] Boyd, Andrew. *Chinese Architecture and Town Planning, 1500 BC-AD 1911.*Chicago: Chicago University Press, 1962, 72-73.

[25] The three part division of Objective, Constructivist, and Postmodern are based on Rickly-Boyd, Jillian M. "Establishing Authenticity in a Tourist Landscape: Spring Mill Pioneer Village." *Material Culture.* Vol. 41, (2009), 1-16.

[26] For more information on writing and art and their relationship with forgery see Hay, Jonathan. "The Value of Forgery." *Anthropology and Aesthetics,* Vol. 53/54 (2008), 5-19. In the article, Hay explores the relationship forgeries have with the original work and the placement of the author or artist. This is relevant to consider the placement of 'copies' as rebuilt versions of Imperial Chinese architecture. Also see Cahill, James and Jerome Silbergeld, "Chinese Art and Authenticity." *Bulletin of the American Academy of Arts and Sciences,* Vol. 55 (2001), 17-36. Taken from two lectures, this article describes the intersection of Western authenticity and Chinese art, specifically in relation to Chinese painting and considering specific issues when

ascribing authenticity to a painting within Chinese art.

[27] For more on this topic see Botz-Bornstein, Thorsten. "Hyperreal Monuments of the Mind: Traditional Chinese Architecture And Disneyland." *Traditional Dwellings.* Vol. 23 (2012), 7-17. Also see Mote, F. W. "A Millennium of Chinese Urban History: Form, Time, and Space Concepts in Soochow." *The Rice University Studies,* Vol. 59 (1973), 35-66.

[28] Rickly-Boyd, Jillian M. "Establishing Authenticity in a Tourist Landscape: Spring Mill Pioneer Village" and Li, Na. "Preserving Urban Landscapes as Public History: The Chinese Context." *The Public Historian.* Vol. 32, No. 4, 2010. 51-61.

[29] Rickly-Boyd, Jillian M. "Establishing Authenticity in a Tourist Landscape: Spring Mill Pioneer Village."

[30] Rickly-Boyd, Jillian M. "Establishing Authenticity in a Tourist Landscape: Spring Mill Pioneer Village."

[31] Li, Na. "Preserving Urban Landscapes as Public History: The Chinese Context."

[32] Charles, F.W.B. Charles. *The Conservation of Timber Buildings.* London: Hutchinson, 1984, 7, 239.

[33] Both Fang, D. P., S. Iwasaki, M.H. Yu, Q.P. Shen, Y. Miyamoto, and H. Hikosaka. "Ancient Chinese Timber Architecture I: Experimental Study." *Journal of Structural Engineering,* Vol. 127, (2001), 1348-1357 and Fang, D. P., S. Iwasaki, M.H. Yu, Q.P. Shen, Y. Miyamoto, and H. Hikosaka. "Ancient Chinese Timber Architecture II: Dynamic Characteristics." *Journal of Structural Engineering,* Vol. 127, (2001), 1358-1364.

[34] Charles, F.W.B. Charles. *The Conservation of Timber Buildings,* 239-241.

[35] Charles, F.W.B. Charles. *The Conservation of Timber Buildings,* 40-50, 111-133.

[36] Botz-Bornstein, Thorsten. "Hyperreal Monuments of the Mind: Traditional Chinese Architecture And Disneyland." *Traditional Dwellings.* Vol. 23 (2012), 8.

[37] Botz-Bornstein, Thorsten. "Hyperreal Monuments of the Mind: Traditional Chinese Architecture And Disneyland," 10-11.

[38] Li, Na. "Preserving Urban Landscapes as Public History: The Chinese Context," 51-57.

[39] UNESCO. "Ancient City of Pingyao." Accessed June 10, 2015. http://whc.unesco.org/en/list/812.

CHAPTER IV

CONCLUSION

Wood decays, this is an inevitable truth within architectural history. Chinese imperial architecture is constructed primarily of wood with tile and masonry playing lesser roles. This architectural style was standardized early in imperial history, with wood as the primary structural building material and stone typically used within funerary contexts. This of course means that the wooden buildings will eventually decay and require rebuilding. However, wood represents life and regrowth and this gives a symbolic reasoning for reconstruction. Stone is related to immortality and death, so for buildings that must endure through time such as tombs, masonry was the preferred building material. Chinese imperial architecture, once standardized in form, was structured through a system of modularity and proportionality. This allowed for an efficiency of construction that was also practical to a system that required periodic rebuilding. At the Forbidden City, the Sanhedian are known to have been reconstructed and repaired after fires, after changes in dynasties and for renewal of the structures. This causes a clash with modern architectural authenticity and conservation practices that privilege original material. However, Chinese imperial architectural practice falls within postmodern and constructivist authenticity as well as several stages of conservation such as restoration, reproduction, and reconstruction. This thesis concludes that Chinese imperial architecture continued to choose wood as its primary structural building material for important religious and political structures because of the material's symbolic connection to regrowth and life. Wood was also chosen because the architectural style's standardization

meant timber could be used as an efficient building system. These buildings were reconstructed because timber cannot last, however this is a continuation of a common practice of rebuilding that does not necessarily negatively impact the building's or the site's architectural authenticity and works within modern conservation practices.

APPENDIX A

FIGURES

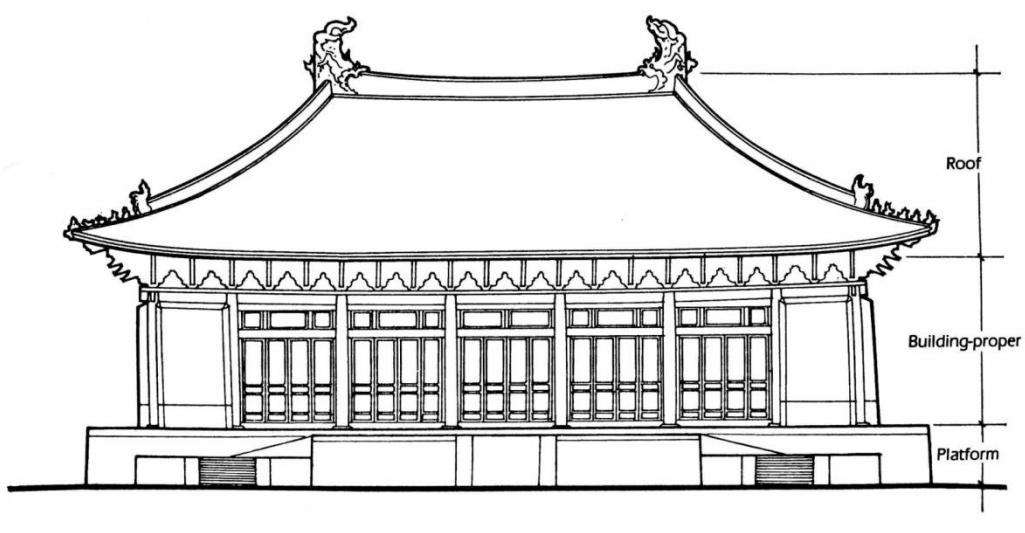

Figure 1: Example elevation of three part construction of Imperial Chinese architecture. Steinhardt, Nancy Shatzman, et al. *Chinese imperial Architecture.* New York, NY: China Institute of America, China House Gallery, 1984.

Figure 2: Interior photograph of Ajanta Cave 19. Fisher, Robert E. *Buddhist Art and Architecture.* London: Thames and Hudson, Ltd., 1993.

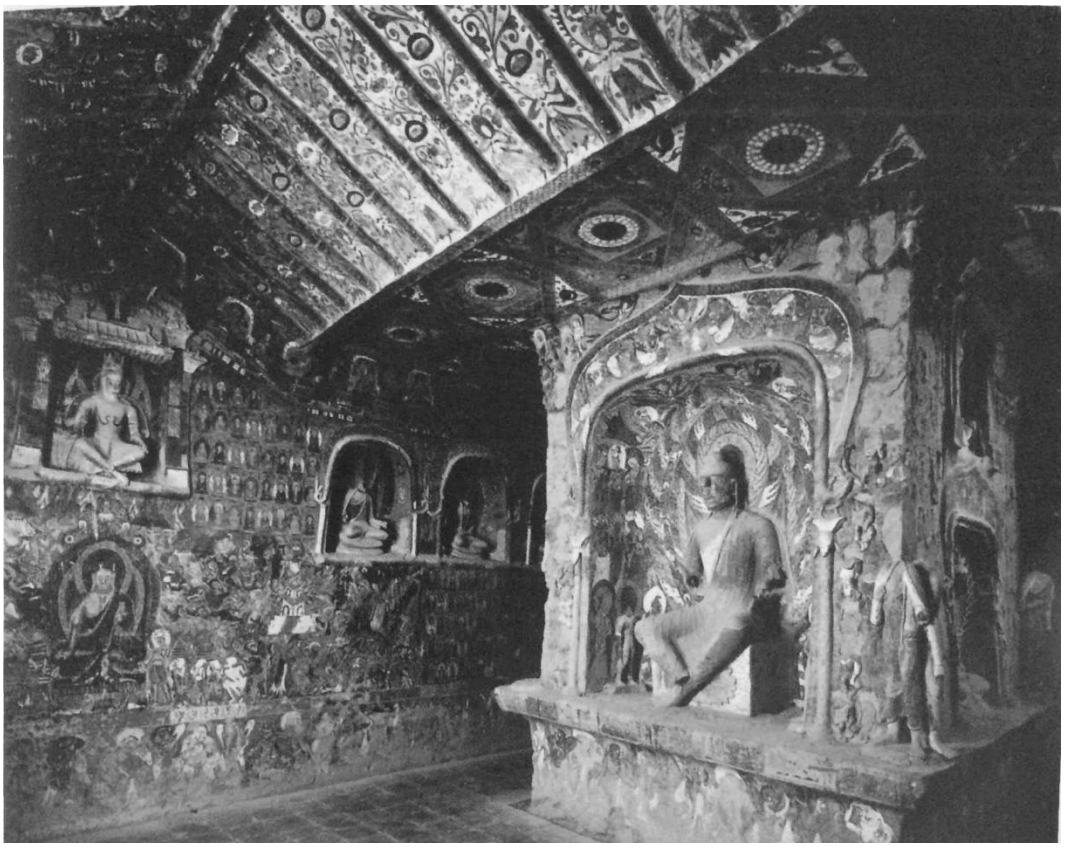

Figure 3: Interior photograph of Dunhuang Cave 254. Fisher, Robert E. *Buddhist Art and Architecture.* London: Thames and Hudson, Ltd., 1993.

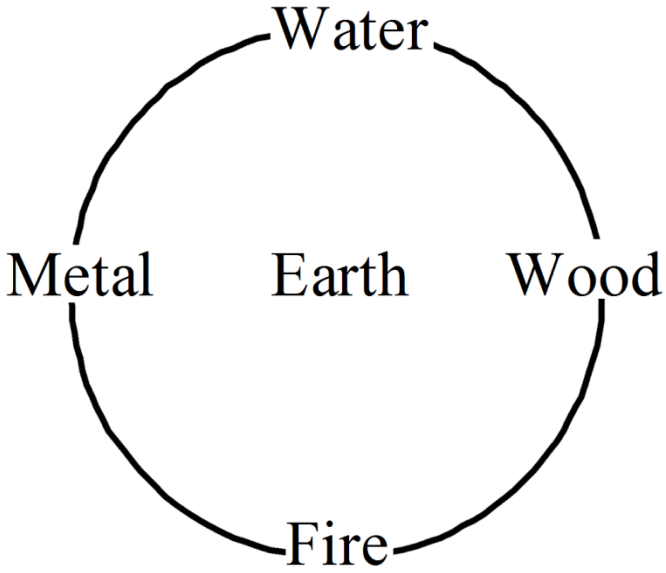

Figure 4: Diagram of the Five Elements set at the Cardinal Directions. By author.

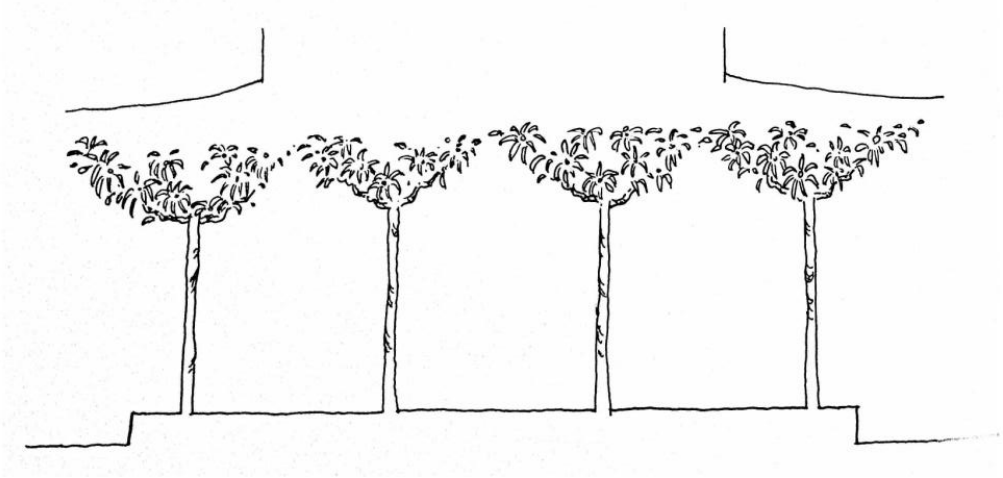

Figure 5: Illustrated representation of organic imagery in architecture. Feng, Jiren. *Chinese Architecture and Metaphor: Song Culture in the Yingzao fashi Building Manual.* Honolulu: University of Hawai'i Press, 2012.

Figure 6: Photograph of Taihedian, the most important building in the Forbidden City. By author.

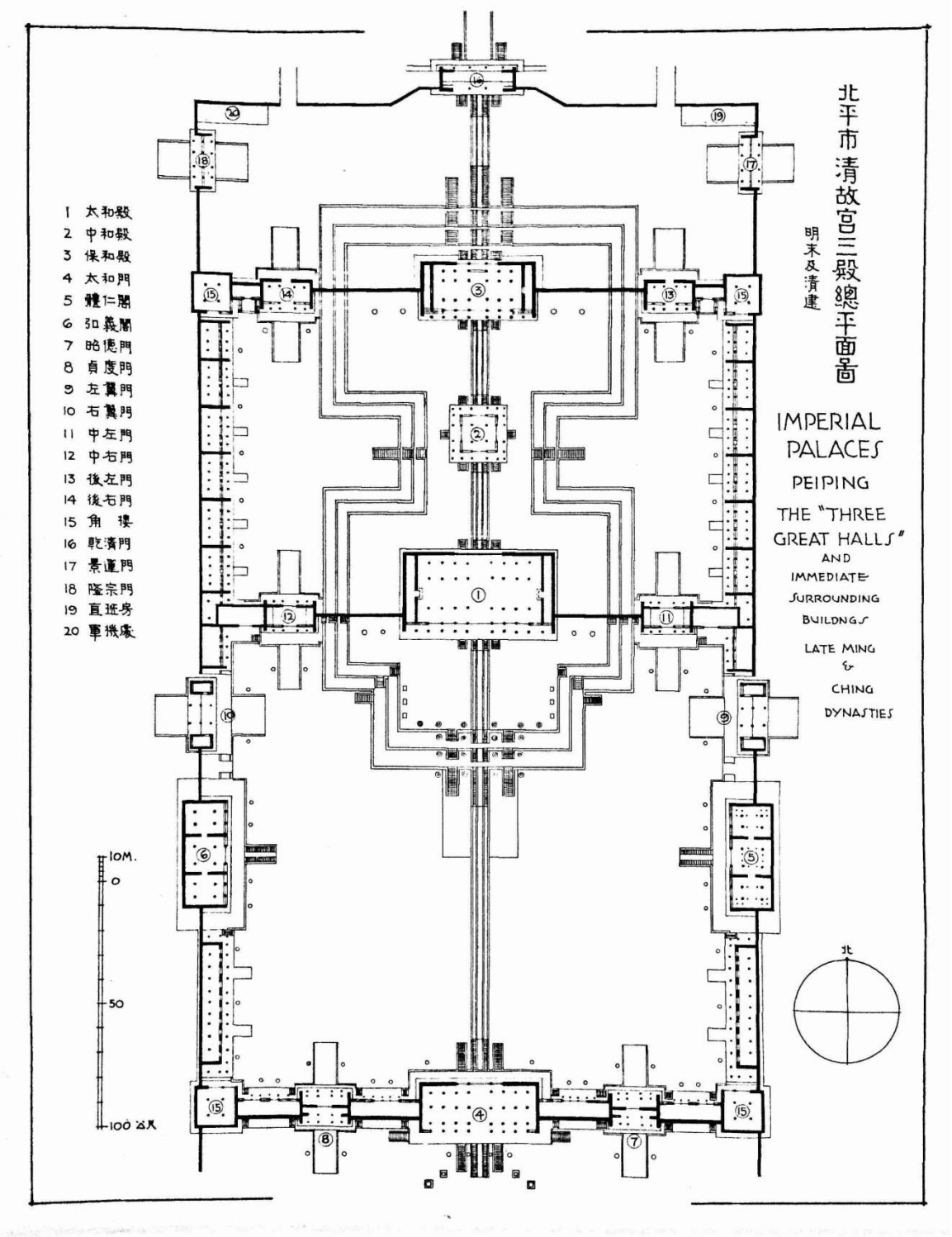

Figure 7: Layout of the Sanhedian. Liang, Sicheng. *A Pictorial History of Chinese Architecture: A Study of the Development of its Structural System and the Evolution of its Types.* Cambridge, Mass: MIT Press, 1984.

Figure 8: Photograph of Zhonghedian. By author.

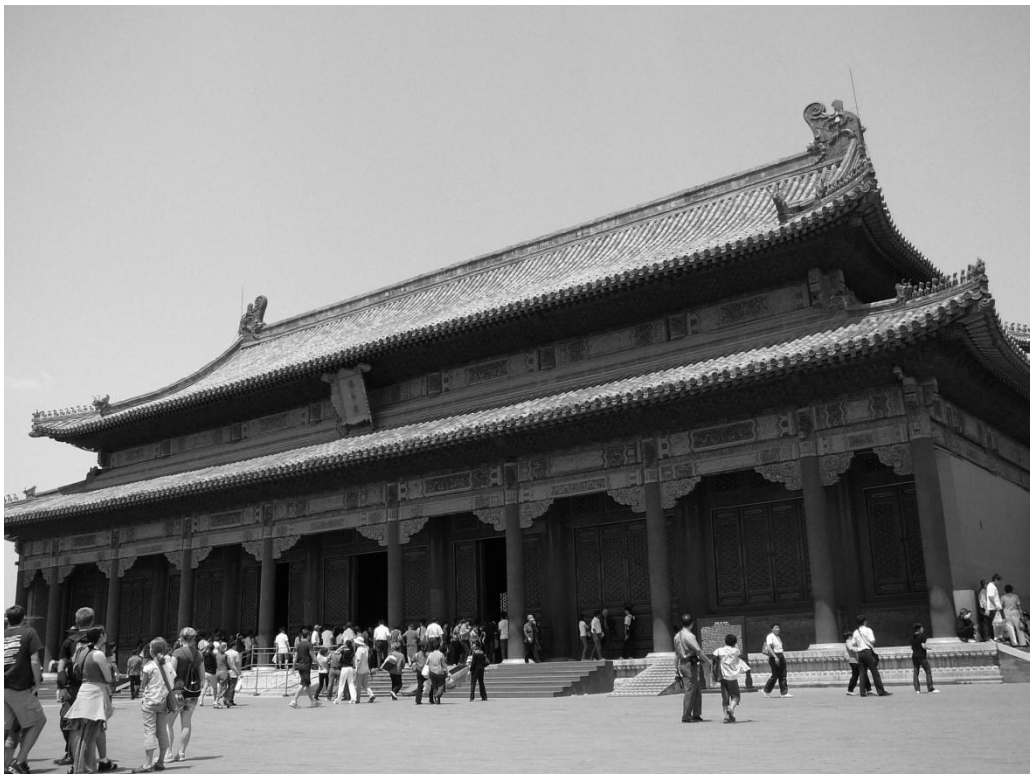

Figure 9: Photograph of Baohedian. By author.

APPENDIX B

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