

## Cultural Symbols in Chinese Architecture

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**Abstract:** Culture has been recognized as the fourth pillar of sustainable development, and culture is often viewed as a system of symbols that arises from human interpretations of the world. The cultural codes of symbols and symbolism are imperative to be reexamined for any reinterpretation of a traditional culture. This article explores the origin and meaning of the Yin Yang symbol in Chinese culture, and its subsequent numerological and color applications in classical Chinese architecture, such as Sanqing (Three Pure Ones), Wuxing (Five Natural Elements), Bagua (Eight Trigrams) in courtyard house design, and Jiugongtu (Nine Constellations Magic Square Matrix) and Jingtianzhi (Nine Squares land ownership system) in imperial Chinese city planning. The examples cited are Beijing siheyuan (courtyard houses), the Forbidden City, the Temple of Heaven, and Ningbo's Tianyi Ge library. The paper aims to inspire younger generations to continue Chinese architectural heritage, and respect traditional principles when planning and designing architectural projects. It finally proposes the Yin Yang Yuan symbol to expand traditional Yin Yang symbol, to solve the dilemma of binary thinking and to avoid extremities.

**Keywords:** Chinese architecture, Chinese philosophy, Chinese cosmology, Chinese culture, Chinese numerology, Chinese colors

### 1. Introduction

This article examines the symbols, numbers, and colors in traditional Chinese culture, and their applications in classical Chinese architecture. The notions associated with these symbols, numbers, and colors largely originated in Chinese cosmology, which gradually evolved into a trunk of worldviews – Chinese philosophy. By tracing broad history and fundamental theory of these ideas, one may gain a better understanding of the complexity of traditional Chinese culture.

#### Yin Yang Symbol in Chinese Culture

While there are many culturally important symbols in China, none is more significant than the Yin Yang symbol. In Chinese philosophy, Yin Yang balance and harmony is a fundamental concept applied to both nature

and human affairs. Yin Yang literally means “shade and light” with the word Yin derived from the word for “moon” and Yang for “sun.” The Book of Changes (Yi Jing or Zhou Yi), originated in the Western Zhou period (1000-750 BCE), suggests that complementary opposites created Heaven and Earth, Yin and Yang. When Heaven and Earth intersect, and Yin and Yang unite, it gives life to all things. When Yin and Yang separate, all things perish. When Yin and Yang are in disorder, all things change. When Yin and Yang are in balance, all things are constant. The mutual interdependence of Yin and Yang is called “和合” (hehe). The first character signifies “harmony” or “peace,” and the second character denotes “union” or “enclosure”. The

combined words imply that harmonious union of Yin and Yang will result in good fortune, and that any conflict is viewed only to reach eventual harmony. The Yin Yang idea is commonly depicted as two fish, one in white and the other in black, rotating in a circle, as illustrated below (**Figure 1**).

The *Yin Yang* symbol is a Chinese representation of the celestial and terrestrial phenomena, a schematic map to illustrate the *Dao* – the laws of nature, and the shape of a circle implies completeness. The two-fish embracing one another signifies their mutual generation and interdependence. The two dots symbolize that each time one of the two forces reaches its extreme, it contains the seed of its opposite.<sup>i</sup>

The notions of *Yin Yang* have deeply influenced Chinese culture. Applications of *Yin Yang* thought are found in Chinese architecture, art, medicine, science, and technology. For example, classical Chinese courtyard houses with solid buildings (*Yang*) surrounding the void (*Yin*) courtyard spaces is a vivid illustration of the theory in practice. *The modern binary* numeral system that uses 0 and 1, common in computer *programming languages*, also reflects the *Yin Yang* application. Nevertheless, the symbol as a representation of universal phenomena is limited to duality.

#### **Numbers in Chinese culture and architecture**

In ancient China, numbers were assigned *Yang* and *Yin* qualities. Odd numbers (1, 3, 5, 7, and 9) were *Yang*, signifying dynamism and movement, whereas even numbers (2, 4, 6, and 8) were *Yin*, denoting stillness and stability. The following brief discussion focuses on some significant numbers in Chinese culture and their applications in Chinese architecture, which include the Three Pure Ones (*Sanqing*),<sup>ii</sup> the Five Natural Elements (*Wuxing*),<sup>iii</sup> the Eight Trigrams (*Bagua*)<sup>iv</sup> in courtyard house design, and the Nine Constellations Magic Square Matrix (*Jiugongtu*) and Nine Squares land ownership system (*Jingtianzhi*) in imperial Chinese city planning.<sup>v</sup>

#### **Three pure ones (Sanqing)**

Number 3 is a cosmologically important number in Chinese culture and architecture. Religious Daoism (versus philosophical Daoism), dated to the late 4th century

BCE,<sup>vi</sup> considers the “Three Pure Ones” (*Sanqing*) as manifestations of the primordial cosmic energy *qi* (气). In the Daoist scheme of things, the Universe is ruled by the Three Pure Ones – the three original forces brought into existence through the interaction of *Yin* and *Yang*, as Laozi’s (c.571-471 BCE)<sup>vii</sup> *Dao De Jing* (verse 42) states:

The *Dao* gives birth to One [*Taiji*],

One gives birth to Two [*Yin* and *Yang*],

Two gives birth to Three [*The Three Pure Ones*],

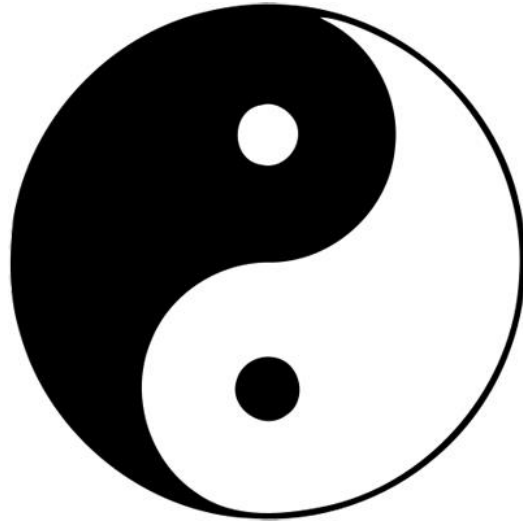
Three gives birth to all things [*all of existence*].

– Translated by Stephen Mitchell, *Tao Te Ching* (New York: HarperPerennial, 1988) [*italic added by the author*]

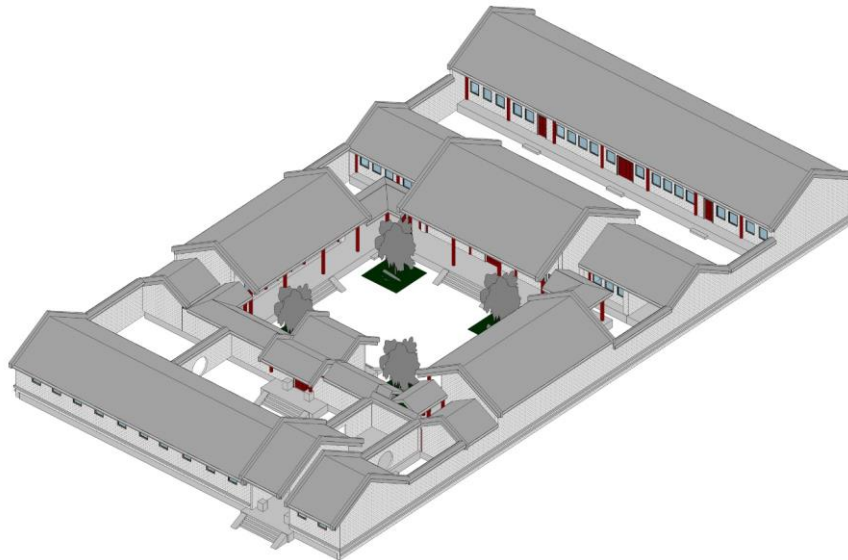
Classical courtyard houses of Beijing, commonly known as *siheyuan* (四合院, **Figure 2**), normally have three connected buildings in a line, with a central building flanked by two ear-side buildings, and there are three sets of such structures situated in the north, east, and west orientations surrounding the central courtyard, and the middle building in each set is also divided into three parts, which often constitute individual “rooms.” This divisional method is called *sankaijian*.<sup>viii</sup> It demonstrates the principle of “three” in Chinese architectural design and construction.

#### **Five natural elements (Wuxing)**

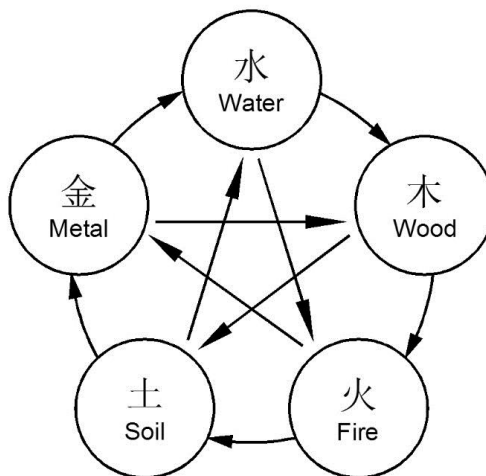
Closely associated with *Yin Yang* cosmology, ancient Chinese people also discovered *Wuxing* (**Figure 3**, table 1), which has been variously translated as the “Five Natural Elements,” “Five Agents,” or “Five Phases.” In the book *Shang Shu Hong Fan*,<sup>ix</sup> a record of events happened during the Yao and Shun (2717-2599 BCE), Xia (c.2070-1600 BCE), Shang (1600-1046 BCE), and Zhou (1046-221 BCE) dynasties, and the occurrence of the events were explained using the five elements, whose order is placed as such: “first is Water (水 *shuǐ*), second is Fire (火 *huǒ*), third is Wood (木 *mù*), fourth is Metal (金 *jīn*), and fifth is Soil (土 *tǔ*). Water nourishes downwards, fire burns upwards, wood is crooked or straight, metal shines on the surface, and soil is for growing and harvesting crops” (translation by the author).



**Figure 1.** The most popular *Yin Yang* symbol. It is said the symbol was revised by Daoist sage *Chen Tuan* (872-989 CE) based on the *Taiji* image in the Book of Changes (*Yi Jing*)



**Figure 2.** Beijing *siheyuan* (courtyard house) for an extended family. Drawing by the author



**Figure 3.** *Wuxing* in Chinese cosmology describing the mutual generative order (outer arrows) and mutual destructive order (inner arrows) of the five natural elements.

Single Form	Quality	Double Form	Triple Form
水 (shuǐ, water)	The quality in nature which is described as soaking and descending, and which causes saltiness.		淼 (miǎo, water flowing far away)
火 (huǒ, fire)	The quality in nature which is described as blazing and uprising, and which generate bitterness.	炎 (yán, heat)	焱 (yàn, flame)
木 (mù, wood)	The quality in nature which permits curved surfaces or straight edges, and which gives sourness.	林 (lín, trees)	森 (sēn, forest)
金 (jīn, metal/gold)	The quality in nature which can follow the form of a mould and then become hard, and which produces acidity.		鑫 (xīn, wealth)
土 (tǔ, soil/earth)	The quality in nature which permits sowing, growing, and reaping, and which gives rise to sweetness.	圭 (guī, jade ware)	垚 (yáo, height)
石 (shí, stone/rock)			磊 (lěi, abundant stones/rocks)

*Note:* Summary by the author; the second column on the quality of the elements is based on *Chinese Classics* (vol. 3), trans. by James Legge (Hong Kong: Hong Kong University Press, 1960), pp. 325-326. The author supplemented the last two columns and last row of the character 石 for stone/rock as a sub-element of soil/earth.

**Table 1.** *Wuxing* (Five Natural Elements) in Chinese cosmology

These five powerful forces are in an eternally cyclical movement in nature, and each represents a way of explicating the features and functioning of correlative cosmology. For instance, *Yang* is related to Wood and Fire, while *Yin* is affiliated with Metal and Water, and the balance between them is represented by the central element Soil. The connections of the five elements with *Yin* and *Yang* are further divided into two sub-states: minor *yang* (Wood), great *yang* (Fire), minor *yin* (Metal), and great *yin* (Water).

Two orders exist in the theory of Five Natural Elements: Mutual Generative Order and Mutual Destructive Order; both of which are based on the laws of nature. Mutual Generative Order is described as such: wood produces fire, fire produces soil, soil produces metal, metal produces water, and water produces wood. This generative relationship is contrasted with that of conquering: wood conquers soil, soil conquers water, water conquers fire, fire conquers metal, and metal conquers wood.<sup>x</sup> These two orders are considered a salient meth-

od for explaining the course of nature and for predicting human affairs in China. Chinese people have also invented the corresponding characters of the five natural elements in their double and triple forms to strengthen their efficacy (**Table 1**).

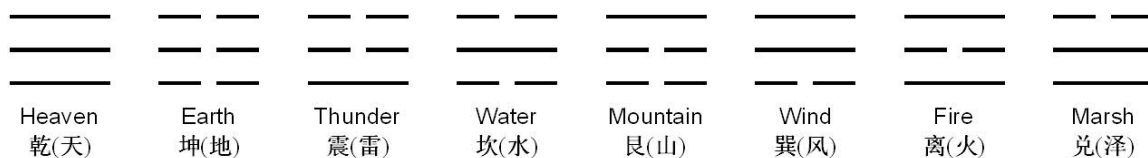
An application of *Wuxing* in Chinese architecture is in the naming of *Tianyi Ge* library (or *Tianyi Pavilion*),<sup>xi</sup> located in Ningbo, Zhejiang province of China. Founded by Fan Qin in 1561, it is the oldest existing library in China with a collection of 70,000 volumes of antique books. The library is fronted with a courtyard garden. The name *Tianyi* is linked to the water element due to the phrase *Tian Yi Sheng Shui*,<sup>xii</sup> meaning “water is generated by heaven first,” as it was believed that providing a watery name would protect the library from fire damage. While most historic libraries in China had undergone fire destruction, this one did not. People thus assume that it is probably because of its name. In 1982, *Tianyi Ge* was officially recognized as a National Heritage Site.

## Eight trigrams (Bagua) in courtyard house design

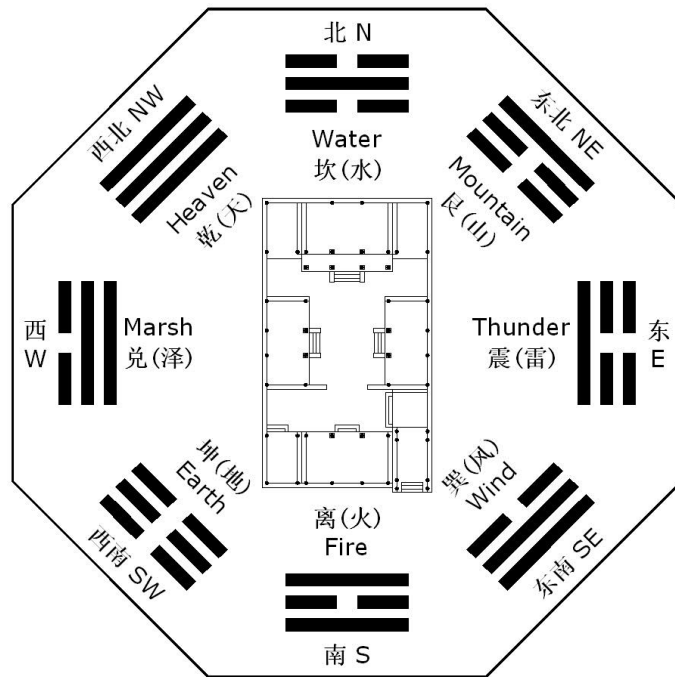
Number 8 has especially auspicious meaning in Chinese culture, not only because it is pronounced *ba*, homophonous to *fa* (fortune/wealth), but also because the Book of Changes (*Yi Jing*) establishes a rigorous mathematical structure that depicts eight natural phenomena: heaven (乾 *qián*/天 *tian*),<sup>xiii</sup> earth (坤 *kūn*/地 *dì*), thunder (震 *zhèn*/雷 *lei*), water (坎 *kǎn*/水 *shuǐ*), mountain (艮 *gèn*/山 *shan*), wind (巽 *xùn*/风 *fēng*), fire (离 *lí*/火 *huo*), and marsh (兑 *duì*/泽 *ze*). Their interactions, transformations, growth, and decline explain how things take their forms and change with time; it has been regarded as the “cosmic algebra” (*yu zhou dai shu xue*).<sup>xiv</sup> *Yi Jing* uses *Yin Yang* to explain things, for example, “–” is for *Yang* and “--” for *Yin*, then the combinations of the two will form *Bagua* (eight trigrams, **Figure 4**).

Classical Chinese courtyard houses often had their important halls and vital features (gate, kitchen, stove, etc.) positioned with the help of the verse formula *Bagua Qizheng*<sup>xv</sup> *Da You Nian*,<sup>xvi</sup> founded on the concept of “cosmic resonance” (*tian ren gan ying*)<sup>xvii</sup> that links heavenly stars with earthly homes to predict the auspiciousness or inauspiciousness of each space, thus generating eight types of residential orientations (**Figure 5** and **Figure 6**). This is called the *Bagua* method,<sup>xviii</sup> on which the legendary *Feng Shui* (“wind and water”) theory is based. The construction process took the following seven steps:

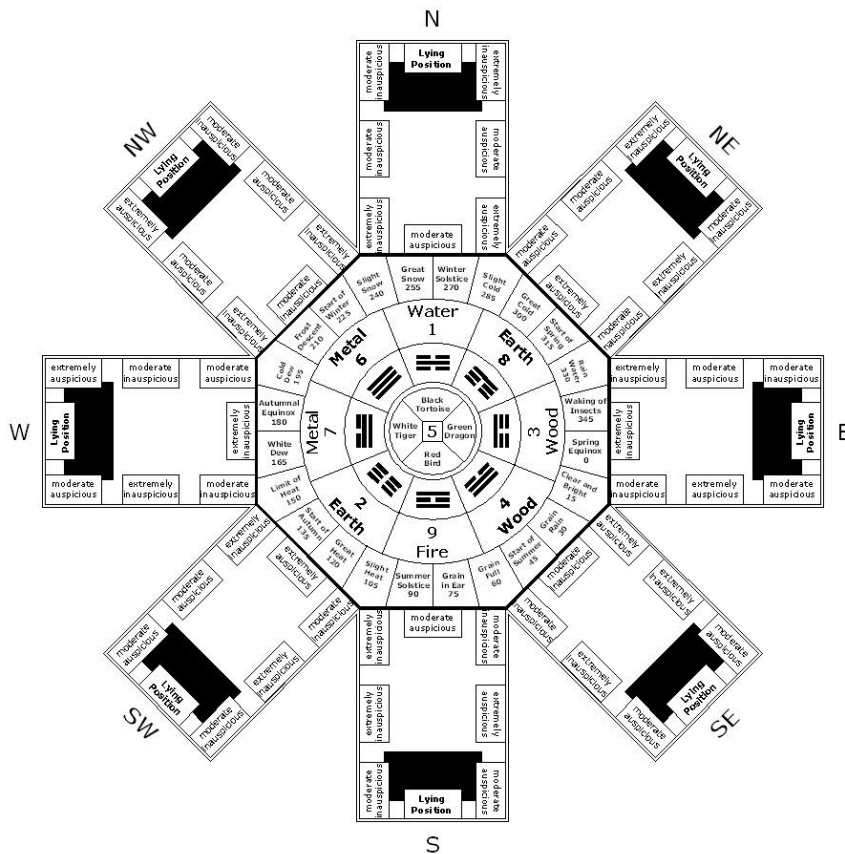
- (1) Divide the residence into nine squares and mark their orientations;
- (2) Create a central axis based on the owner’s birthday and eight characters.<sup>xix</sup> For ordinary houses, the central axis should not face direct south-north but off a little because commoners’ fates are not strong enough to uphold south-north energy. Only the imperial palaces could face direct south-north orientation;
- (3) Locate the Central Hall in the “lying position” (伏位, referring to the left and right Assistant Stars, see **Table 2**) and turn clockwise to find the positions of the other stars (**Table 2**), or take the lying position for the gate, use the verse formula to organize the other rooms;
- (4) Determine the auspiciousness or inauspiciousness of each position based on their *Yin Yang* and *Wuxing* of the stars (table 2);
- (5) Build the room size, height, or number of floors according to the degree of auspiciousness/inauspiciousness of the position;
- (6) Drain the rainwater from east to west, or it would violate the “peach blossom water,” which should be strictly avoided;
- (7) Use the “Lu Ban Chi”<sup>xx</sup> ruler to measure and cut materials for construction since the eight divisions in the central column help establish the favorable/unfavorable dimensions.<sup>xxi</sup> Take special care in measuring doors, windows, tables, and beds to ensure that their dimensions fall within the favorable range and hence bode well for the family.<sup>xxii</sup>



**Figure 4.** The *Bagua* (eight trigrams)



**Figure 5.** The *Bagua* (eight trigrams) method for courtyard house design. If taking the Northern Hall as the “lying position,” the Northern Hall, Southern Hall, Eastern Hall, and the southeast direction are all auspicious. If taking the southeast corner gate as the lying position, the result is the same. After Ma Bingjian, *The Architecture of the Quadrangle in Beijing* 《北京四合院建筑》 (Tianjin, Tianjin University Press, 1999), p. 41



**Figure 6.** The links between the concept of cosmic resonance and tangible elements as manifested in courtyard house design, and how each of the 8 orientations is connected to its attribute. Drawing by the author

English Name	Chinese Name	Chinese Astrological Name	<i>Feng Shui</i> Name	<i>Yin Yang</i>	Element	Characteristics
Dubhe	<i>tiānshū</i> 天枢	<i>pinlangxing</i> 贫狼星	<i>shengqi</i> 生气	yang	wood	extremely auspicious
Merak	<i>tiānxuán</i> 天璇	<i>jumenxing</i> 巨门星	<i>tianyi</i> 天医	yang	earth	moderate auspicious
Phecda	<i>tiānjī</i> 天玑	<i>lucunxing</i> 禄存星	<i>huohai</i> 祸害	yin	earth	moderate inauspicious
Megrez	<i>tiānquán</i> 天权	<i>wenquxing</i> 文曲星	<i>liusha</i> 六煞	yin	water	moderate inauspicious
Alioth	<i>yùhéng</i> 玉衡	<i>lianzenxing</i> 廉贞星	<i>wugui</i> 五鬼	yin	fire	extremely inauspicious
Mizar	<i>kāiyáng</i> 开阳	<i>wuquxing</i> 武曲星	<i>yannian</i> 延年	yang	metal	moderate auspicious
Alkaid	<i>yáoguāng</i> 摇光	<i>pojunixing</i> 破军星	<i>jueming</i> 绝命	yin	metal	extremely inauspicious
Assistant star (left)	<i>zuofu</i> 左辅	<i>zuofu</i> 左辅	<i>zuofu</i> 左辅	yin	wood	little auspicious
Assistant star (right)	<i>youbi</i> 右弼	<i>youbi</i> 右弼	<i>youbi</i> 右弼	unsure	unsure	unsure

Note: Summary by the author; for ease of use, the star names were translated in terms of their characteristics.

Table 2. The Big Dipper (seven stars and their two “assistant stars”)

## Nine squares land ownership system (*Jingtianzhi*) in imperial Chinese city planning

In Chinese culture, number 9 is regarded as the highest *Yang* number. In *Yi Jing*, number 9 has special philosophical meaning: it denotes lofty, infinity, immortality, and eternity. In standard Chinese, number 9 is pronounced *jiǔ*, the same as for “long-lasting” (*jiǔ*).<sup>xxiii</sup> Thus, number 9 is thought to be auspicious.

Moreover, ancient Chinese believed that Heaven had 9 fields, Earth had 9 continents, land had 9 mountains, and mountains had 9 paths. They also thought that Heaven was a circle in shape and Earth a square, as they seemed to be. As such, Earth was represented by a large square divided 3×3 into 9 smaller squares, an idea derived from the Nine Constellations Magic Square Matrix (*Jiugongtu*)<sup>xxiv</sup> (Figure 7), in ancient China.

The 3×3 square pattern is the basic planning principle for imperial Chinese cities and classical courtyard houses. The system originated from *Yi Jing* (Hexagram 48), where the symbol of a well is represented by the word 井 (*jǐng*, like the # sign), signifying a portion of land divided into 9 parts, the central square of 630 *mu*<sup>xxv</sup> (420,002 square meters/0.162 square miles/42 hectares) belongs to the public, and is cultivated by the joint labor of the 8 private owners settled on the other divisions. In the center is a water well, the joint property of all the occupants. Supposedly, the Nine Squares land ownership system (*Jingtianzhi*) (Figure 8) started during the reign of the mythical Yellow Emperor (2697-2598 BCE) and flourished during the Zhou dynasty (c.1066-771 BCE).

	North			
	6	1	8	
West	7	5	3	East
	2	9	4	
	South			

**Figure 7.** The Nine Constellations Magic Square Matrix (*Jiugongtu*) in ancient China. When adding the three horizontal, vertical, or diagonal numbers, the sum is always 15. Based on the Book of Changes (*Yi Jing*)

私 Private	私 Private	私 Private
私 Private	公 Public	私 Private
私 Private	私 Private	私 Private

**Figure 8.** The Nine Squares land ownership system (*Jingtianzhi*) in imperial Chinese city planning. Based on the *Complete Chinese Dictionary*, 1915, p. 72; *A Chinese-English Dictionary*, 1980, p. 362

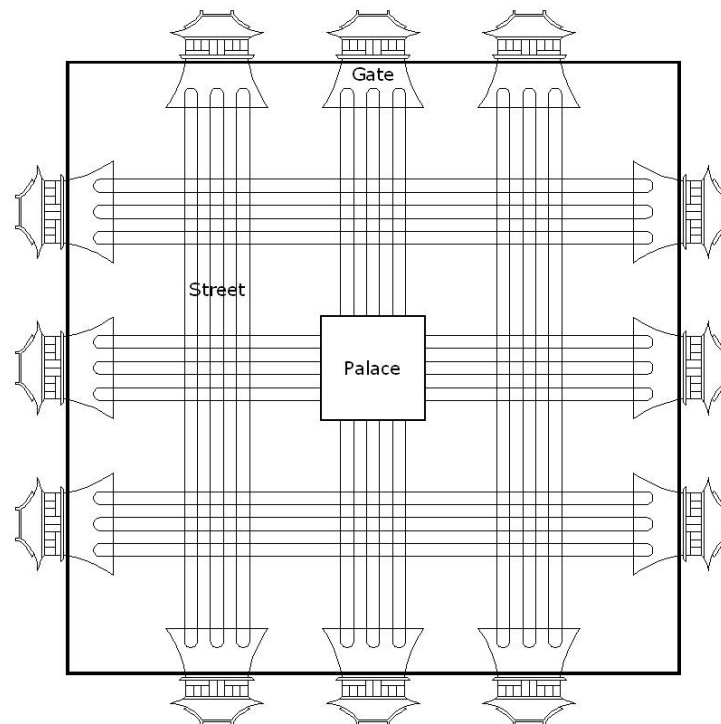


An illustration from the Qing dynasty (1644-1911) shows the ideal capital city in imperial China based on the Nine Squares land ownership system (**Figure 9**). The city is divided into *Yin* and *Yang* sections, the auspicious southern half (*Yang*) locates the imperial courts, and the less favorable northern half (*Yin*) situates the markets. Confucian emphasis on the superior power and centrality of the emperor as the “Son of Heaven” is manifested in the central location of the Imperial Palace, and the supreme number 9 is associated with the emperor.<sup>xxvi</sup>

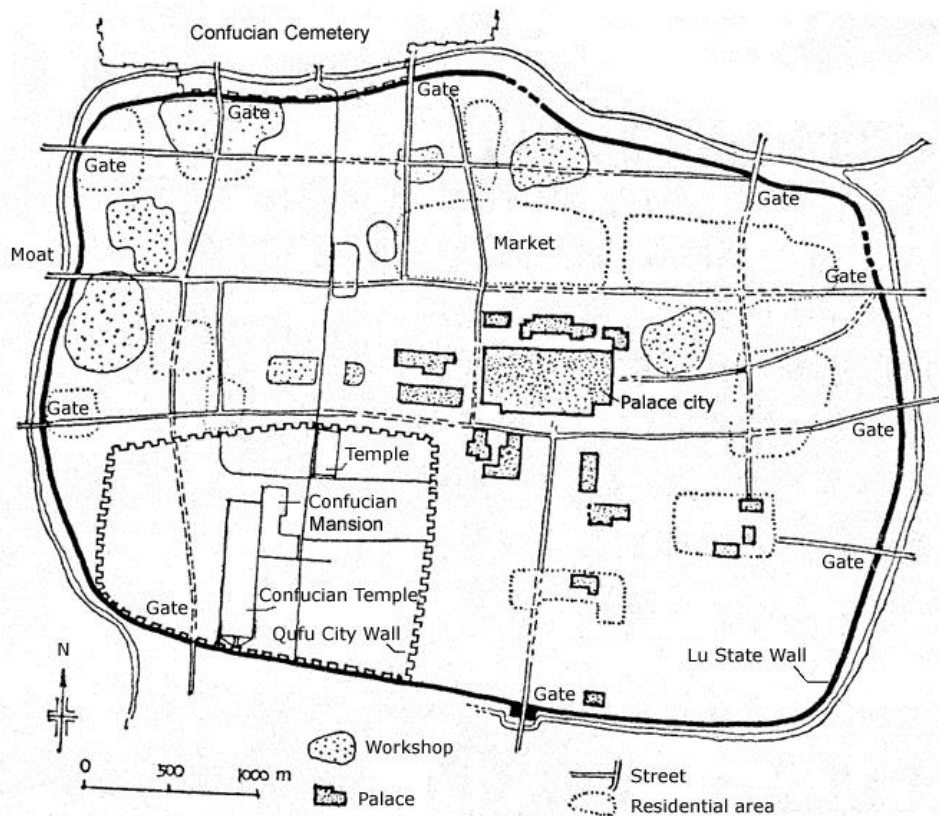
All imperial Chinese capital cities strove to achieve this idealized form, but no city in China is found *exactly* matching this plan. The closest example is Qufu (figure 10), the capital of Lu in today’s Shandong province where Confucius was born and lived, and where his temple was built in 478 BCE.<sup>xxvii</sup>

As early as the Spring and Autumn (770-476 BCE) and Warring States (475-221 BCE) periods, the Record of Trades (*Kao Gong Ji*) and the Record of Rites (*Li*

*Ji*)<sup>xxviii</sup> had regulated: “The Hall for the Son of Heaven/Emperor should be 9 *chi* [2.7 m],<sup>xxix</sup> for senior officials 5 *chi* [1.5 m], and for junior officers and scholars 3 *chi* [0.9 m].” The imperial buildings must have measurements that fall within 9 or 5. Number 9 is the highest *Yang* number while number 5 is in the middle, thus, 9 and 5 represent the authority of the emperor, resulting in the phrase “Ninth and Fifth of Respect.”<sup>xxx</sup> Beijing’s Forbidden City, now called the Palace Museum, home of 24 emperors from the Ming (1368-1644) and Qing (1644-1911) dynasties, is often said to have 9999.5 rooms, and the names of the three main halls along the central axis: the Hall of Supreme Harmony (**Figure 11**), the Hall of Central Harmony, and the Hall of Preserving Harmony, all reflect the ideal of *harmony* in *Yi Jing*. The Hall of Supreme Harmony has a width of 9 *jian* and a depth of 5 *jian* – a *jian* (bay) is the basic spatial module of Chinese buildings that constitutes not only the distance between frontal columns, but also the area between four columns and the three-dimensional volume.



**Figure 9.** The Ideal Capital City in imperial China from the Record of Trades (*Kao Gong Ji*) in the Rituals of Zhou (*Zhou Li*, c.1066-221 BCE). All measurements within the imperial Chinese capitals were multiples of heavenly number 3. After Liu Xujie “The origins of Chinese architecture” in Fu Xinian, Guo Daiheng, Liu Xujie, Pan Guxi, Qiao Yun, Sun Dazhang, and N. S. Steinhardt, ed., *Chinese Architecture* (New Haven, Yale University Press, 2002), p. 24



**Figure 10.** Map of Qufu, capital of Lu in today's Shandong province, China. Translated by the author after History of Chinese Architecture Editorial Group, *History of Chinese Architecture* 《中国建筑史》 (Beijing: China Architecture and Building Press, 1986/2009), p. 35



**Figure 11.** The Hall of Supreme Harmony in Beijing's Forbidden City has yellow glazed tile roofs. Photo by Junmin Zhang 2010, print with permission

In ancient China, Heaven was thought to be a circular shape and the circumference of a circle is 3 times its diameter, thus 3 is the number for Heaven, and multiples of 3 were considered lucky. As the highest *Yang* number, 9 implies a reverence for Heaven. Earth was considered to be a square shape. Because the circumference of a square is 4 times its length/breadth, and it consists of 2 pairs of equal sides, hence 2 is the number for Earth (*Yi*

*Jing*, Appendix 5). Ancient Chinese people avoided pointed shapes such as triangles or diamonds and preferred psychologically safe shapes such as circles or squares. Circles (*Yang*) are dynamic and squares (*Yin*) are static; their combination establishes balance and harmony.

Beijing's Temple of Heaven as a place of worship has applied Chinese numerology. The Hall of Good Har-

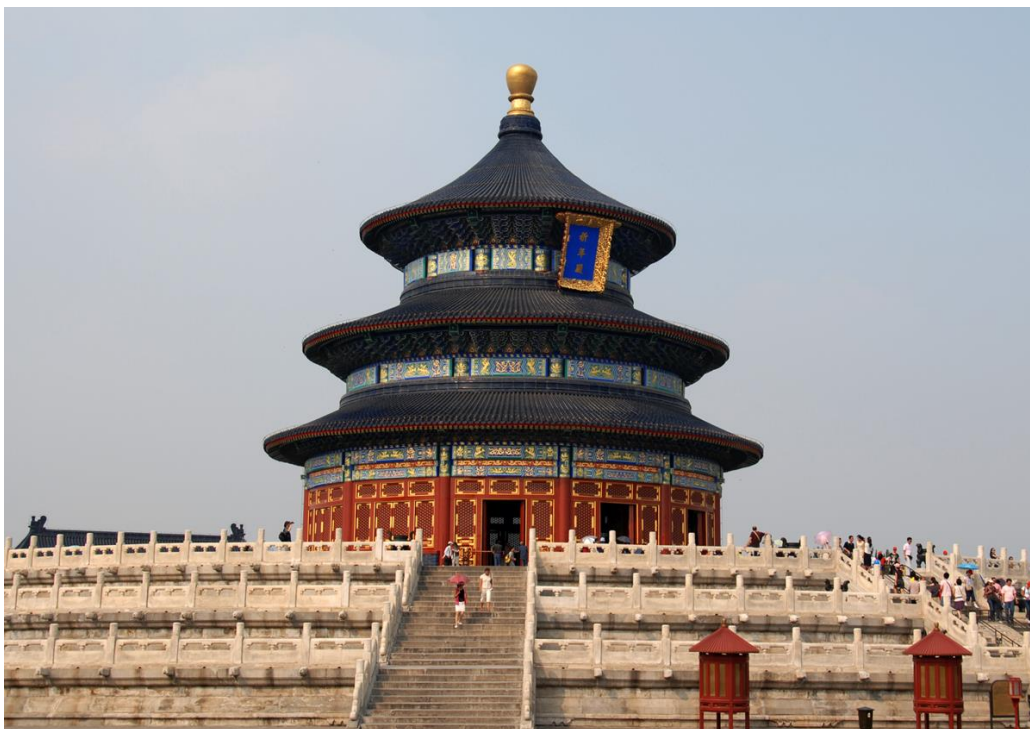
vests (figure 12) is a sacred space to pray for favorable weather for the crops. It sits on 3 layers of circular white marble pedestals and has 3 layers of rings at the roof ( $3 \times 3 = 9$ ); its height is 9.9 *zhang* (丈) (33 m),<sup>xxxii</sup> which is double 9s, a metaphor of the Ninth Heaven – the highest of heavens, an infinite space. The 4 columns in the inner circle of the Hall represent the 4 seasons; the 12 golden columns in the outer circle indicate the 12 months; the 12 eave pillars symbolize the 12 two-hour periods into which the day was traditionally divided. These double 12 add together signify the 24 solar terms; its total 28 columns designate the 28 constellations, and so on. Thus, the Hall of Good Harvests can be considered as “Time Architecture,”<sup>xxxiii</sup> it is a tangible embodiment of *Yi Jing* theory in practice.

The Circular Mound Altar at the Temple of Heaven is an open-to-sky space using odd numbers to form a *Yang* or positive magnetic field. It has 3 levels, and the numbers of paving stones and balustrades on each level are a multiply of 9 ( $1 \times 9$ ,  $2 \times 9$ ,  $3 \times 9 \dots 9 \times 9$ ). The top level has 72 ( $8 \times 9$ ) balustrades; the middle level has 108 ( $12 \times 9$ ); and the lower level has 180 ( $20 \times 9$ ); it totals 360 balustrades, which approximates the number of days

per year. The diameter of each level is 9 *zhang* (29.7 m), 15 *zhang* (49.5 m), and 21 *zhang* (69.3 m), respectively, which encompass the odd numbers of  $3 \times 3$ ,  $3 \times 5$ ,  $3 \times 7$ , and totals 45 *zhang* (148.5 m). It follows the rule of 9 or 5, bestowing the emperor with a heavenly place. Thus, the Circular Mound Altar can be regarded as “Space Architecture,”<sup>xxxiii</sup> another concrete realization of *Yi Jing* theory.

## Colors in Chinese architecture

The full name of the Forbidden City was “Purple Forbidden City,” because in Daoist legend, the celestial Palace of the Jade Emperor<sup>xxxiv</sup> was viewed as a star near Polaris, which was perceived to be in purple color and located at the center of the universe. Hence, the Chinese emperors in the Ming (1368-1644) and Qing (1644-1911) dynasties had their Purple Forbidden City built at the center of Beijing, with a central axis penetrating through the entire complex. They believed that such a way of building their Palace would align it with Polaris, to signify it being at the celestial center of the world.<sup>xxxv</sup> The color purple and radiance of Polaris, symbolizing the center of the universe, heighten the sacredness of the Imperial Palace.



**Figure 12.** The Hall of Good Harvests in Beijing’s Temple of Heaven has blue glazed tile roofs. Photo by Yitong Lok 2016, print with permission

Moreover, there is the Daoist notion that “Purple *qi* comes from the east,”<sup>xxxvi</sup> implying that auspicious air/cosmic energy comes from the east. Moreover, *Wuxing* is associated with five colors and orientations: green (wood) in the east, red (fire) in the south, white (metal) in the west, black (water) in the north, and yellow (soil) in the middle (**Figure 13, Table 3**).

Yellow was also the royal color for Chinese emperors. The glazed tile roofs in the middle part of the Imperial Palace are yellow (**Figure 11**), signifying honesty and moderation of the earth. The roofs in the eastern section are green because east is characterized by wood and the season spring when organisms are germinating and growing; it is the orientation for the successor to the

throne, thus the expression: “Crown Prince of the East Hall”<sup>xxxvii</sup> (translated by the author). West is white and is characterized by metal, whose quality is cold; it represents cleanness, desolation, and scarcity. The West Hall was reserved for the Empress Dowager, as the term indicates: “Empress Dowager of the West Hall”<sup>xxxviii</sup> (translated by the author). The gate and walls in the north of the Palace are black because north is characterized by water, represented by the color black. The Gate of Heavenly Peace (*Tiananmen*) is in the south and characterized by fire; no trees are planted there because fire burns wood. Nevertheless, the exterior walls and columns of the Forbidden City are all painted vermilion red, denoting righteousness and honor.<sup>xxxix</sup>



**Figure 13.** Chinese colors in the Altar of Earth (based on Han tile)

Green-Dragon-Wood-East-Spring:	Living and growing, and has the attribute of kindness
Red-Bird-Fire-South-Summer:	Happiness and luck, and favors propriety
White-Tiger-Metal-West-Autumn:	Cleanness and misery, and its province is modesty
Black-Tortoise-Water-North-Winter:	Misfortune, and is the representation of wisdom
Yellow-Soil-Middle-Solstices:	Dignity and royalty and is characterized by fidelity

*Note:* Summary by the author based on various sources.

**Table 3.** Color connotations associated with *Wuxing*, orientations, and the four seasons





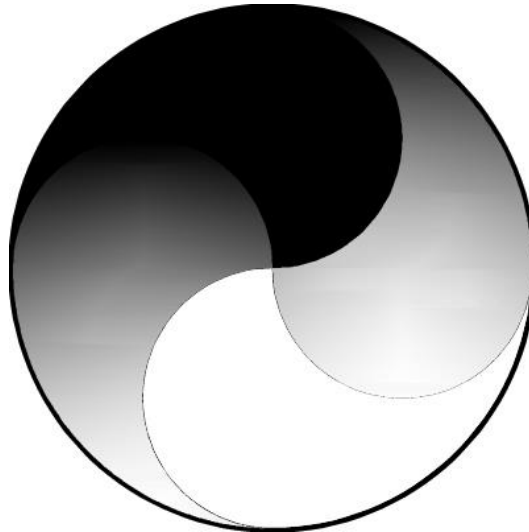
**Figure 14.** Yinandian at Prince Gong's Mansion (*Gong Wang Fu*) in Beijing has green glazed tile roofs. Photo by Junmin Zhang 2010, print with permission



**Figure 15.** Beijing *siheyuan* (courtyard houses) normally have grey tile roofs. Photo by the author 1991

The Hall of Good Harvests (**Figure 12**) at the Temple of Heaven has blue glazed tile roofs to echo the color of a clear sky. The roof colors reflected social hierarchy in imperial China: yellow was exclusively used for Palaces (**Figure 11**), green for government officials' mansions (**Figure 14**), and grey or black for commoners'

homes.<sup>x1</sup> For example, Beijing *siheyuan* (courtyard houses), normally have grey tile roofs (**Figure 15**). Similarly, Suzhou vernacular houses often have black tile roofs. The exterior walls of *siheyuan* are made of grey bricks, in contrast to the red walls surrounding the Forbidden City.<sup>x1</sup>



**Figure 16.** Proposed *Yin Yang Yuan* (阴阳元) symbol depicting gradual, cyclic movements of sunlight and the four seasons. It expands traditional *Yin Yang* symbol (figure 1) by offering clearer demarcations of the start of each season and highlights triadic and quadric than dualistic divisions. Design and drawing by the author

<p><b><i>Yin Yang Yuan Triad</i></b></p>	<ul style="list-style-type: none"> <li>• Past-Present-Future</li> <li>• Sun-Moon-Stars</li> <li>• Heaven-Earth-Humans</li> <li>• South Pole – North Pole – Equator</li> <li>• Morning-Afternoon-Evening</li> <li>• Day-Night-Twilight</li> <li>• Up-Down-Middle</li> <li>• Hot-Cold-Temperate</li> <li>• Dry-Wet-Moist</li> <li>• Interior-Exterior-Transitional space</li> <li>• Positive-Negative-Neutral</li> <li>• Active-Inactive-Passive</li> <li>• Maximum-Minimum-Optimum</li> <li>• Yes-No-Unsure</li> <li>• Hard-Soft-Moderate</li> <li>• Mountains-Rivers-Plains</li> <li>• Father-Mother-Child</li> </ul>
<p><b><i>Yin Yang Yuan Quadrant</i></b></p>	<ul style="list-style-type: none"> <li>• Spring-Summer-Autumn-Winter</li> <li>• Sun-Moon-Stars-Planets</li> <li>• Heaven-Earth-Humans-Self</li> <li>• South-North-East-West</li> <li>• Morning-Afternoon-Evening-Night</li> <li>• Dawn-Midday-Dusk-Midnight</li> <li>• Up-Down-Left-Right</li> <li>• Father-Mother-Son-Daughter</li> </ul>

*Note:* Summary by the author.

**Table 4.** Connotations of the proposed *Yin Yang Yuan* symbol

## Proposed Yin Yang Yuan Symbol

The author has conceived the *Yin Yang Yuan* (阴阳元)<sup>xlii</sup> symbol (**Figure 16, Table 4**) as an expansion of traditional *Yin Yang* symbol (**Figure 1**), aiming to overcome the philosophical dilemma of binary thinking to avoid extremities. It depicts gradual, cyclic movements of sunlight and is supported by the concepts of Central Harmony in Daoism and the Middle Way in Confucianism. It relates to the study in that a courtyard house is also termed “quadrangle” because of its four-sided enclosure, and that the courtyard at the center allows direct observations of light changes throughout the year that lead to seasonal festivities.

## Summary and Conclusion

Culture has been recognized as the fourth pillar of sustainable development, and culture is often viewed as a system of symbols that arises from human interpretations of the world. The cultural codes of symbols and symbolism are imperative to be reexamined for any reinterpretation of a traditional culture. This article explained the origin and meaning of the *Yin Yang* symbol in Chinese culture, and its subsequent numerological and color applications in classical Chinese architecture, such as *Sanqing* (Three Pure Ones), *Wuxing* (Five Natural Elements), *Bagua* (Eight Trigrams) in courtyard house design, and *Jiugongtu* (Nine Constellations Magic Square Matrix) and *Jingtianzhi* (Nine Squares land ownership system) in imperial Chinese city planning. The examples cited are Beijing *siheyuan* (courtyard houses), the Forbidden City, the Temple of Heaven, and Ningbo’s *Tianyi Ge* library. The paper aims to inspire younger generations to continue Chinese architectural heritage, and respect traditional principles when planning and designing architectural projects. It finally proposed the *Yin Yang Yuan* symbol to expand traditional *Yin Yang* symbol, to solve the dilemma of binary thinking and to avoid extremities.

## References

<sup>i</sup> F. Capra, *The Tao of Physics* (Boston, MA, Shambhala Publications, 1975/1999).

<sup>ii</sup> 三清: The Three Pure Ones

<sup>iii</sup> 五行: *Wuxing*

<sup>iv</sup> 八卦: *Bagua*

<sup>v</sup> 井田制: The Nine Squares land ownership system

<sup>vi</sup> R. Kirkland, *Taoism: The Enduring Tradition* (New York, Routledge, 2004), p. 61.

<sup>vii</sup> Although some scholars doubt that Laozi was a historical figure, current Chinese scholarships confirm that Laozi was a real person. See, for example, 20140818 《文明之旅: 老子的智慧》 Journey of Civilization: The Wisdom of Laozi (talk by Zhao Shilin). Retrieved September 19, 2016 from:

<https://www.youtube.com/watch?v=hTzU4uA10Ko>

<sup>viii</sup> 三开间: Sankaijian

<sup>ix</sup> 《尚书·洪范》: Shang Shu Hong Fan

<sup>x</sup> T. Kuwako ‘The philosophy of environmental correlation’ in M. E. Tucker and J. Berthrong, ed., *Confucianism and Ecology: The Interrelation of Heaven, Earth, and Humans* (Cambridge, MA, Harvard University Press, 1998), pp. 151-168 (p. 153); R. P. Weller, and P. K. Bol ‘From heaven-and-earth to nature: Chinese concepts of the environment and their influence on policy’ in M. E. Tucker and J. Berthrong, ed., *Confucianism and Ecology: The Interrelation of Heaven, Earth, and Humans* (Cambridge, MA, Harvard University Press, 1998), pp. 313-342 (p. 320).

<sup>xi</sup> 天一阁: Tianyi Ge

<sup>xii</sup> 天一生水: Tian Yi Sheng Shui

<sup>xiii</sup> The first character is the classical Chinese term and the second is the modern interpretation of it. See, for example, Journey of Civilization, Qicheng Zhang: *The Wisdom of Zhou Yi* (CCTV-4 中文国际频道《文明之旅》20160711 张其成《周易》的智慧). Retrieved July 16, 2016 from:

<http://tv.cctv.com/2016/07/12/VIDE81GQIFyVXJ60dQ6iIMfh160712.shtml>

<sup>xiv</sup> 宇宙代数学, in Ma Bingjian, *The Architecture of the Quadrangle in Beijing* 《北京四合院建筑》 (Tianjin, Tianjin University Press, 1999), p. 38.

<sup>xv</sup> *Qizheng* (七政) are the seven coordinate points casted by the sun along a reversed ‘S’ line, from which the *Yin Yang* symbol derived.

- <sup>xvi</sup> 八卦七政大游年:“乾六天五祸绝延生;坎五天生延绝祸六;艮六五绝延祸生天;震六绝祸生延天五;巽天五六祸生绝延;离六五绝延祸生天;坤天延绝生祸五六;兑生祸延绝六五天。”
- <sup>xvii</sup> 天人感应: Cosmic Resonance
- <sup>xviii</sup> R. G. Knapp, *China's Living Houses* (Honolulu, University of Hawai'i Press, 1999); R. G. Knapp, *Chinese Houses* (North Clarendon, VT, Tuttle Publishing, 2005), pp. 55-58; Ma Bingjian, *The Architecture of the Quadrangle in Beijing* 《北京四合院建筑》马炳坚编著 (Tianjin, Tianjin University Press, 1999); D. Zhang, *Courtyard Housing and Cultural Sustainability* (Oxfordshire, UK, Ashgate/Routledge, 2013).
- <sup>xix</sup> 生辰八字: birth year, month, day, and hour, each consists of one Heavenly Stem (天干) and Earthly Branch (地支).
- <sup>xx</sup> ‘Lu Ban Chi’ (鲁班尺) is also called ‘Ba Zi Chi’ (八字尺 ‘eight-character ruler’) or ‘Men Guang Chi’ (门光尺 ‘door brightening ruler’ because it was thought that cutting the sizes of the elements using this ruler could bring honor to one’s ancestors 光宗耀祖).
- <sup>xxi</sup> For example, the first 财 (‘wealth’) and the last 吉 (‘luck’) are most favorable; the fourth 义 (‘justice’) and fifth 官 (‘office’) are moderately favorable, and the rest four: 病 (‘illness’), 离 (‘separation’), 劫 (‘plunder’), and 害 (‘harm’) are unlucky.
- <sup>xxii</sup> R. G. Knapp, *China's Living Houses* (Honolulu, University of Hawai'i Press, 1999); R. G. Knapp ‘Siting and situating a dwelling: fengshui, house-building rituals, and amulets’ in R. G. Knapp and K.-Y. Lo, ed., *House Home Family: Living and Being Chinese* (Honolulu, University of Hawai'i Press, 2005), pp. 99-138 (pp. 114-117); Ma Bingjian, *The Architecture of the Quadrangle in Beijing* 《北京四合院建筑》马炳坚编著 (Tianjin, Tianjin University Press, 1999), p. 40; Wang Qiming, *Beijing Siheyuan* (《北京四合院》王其明著, Chinese edition) (Beijing, China Bookstore, 1999), pp. 57, 90-93.
- <sup>xxiii</sup> 久: long-lasting
- <sup>xxiv</sup> 九宫图: The Nine Constellations Magic Square Matrix
- <sup>xxv</sup> 1 *mu* = 0.066667 hectares = 666.67 square meters = 0.0002574027260355 square miles.
- <sup>xxvi</sup> Liu Xujie ‘The origins of Chinese architecture’ in Fu Xinian, Guo Daiheng, Liu Xujie, Pan Guxi, Qiao Yun, Sun Dazhang, and N. S. Steinhardt, ed., *Chinese Architecture* (New Haven, Yale University Press, 2002), pp. 11-32; Qiao Yun ‘Introduction’ in Fu Xinian, Guo Daiheng, Liu Xujie, Pan Guxi, Qiao Yun, Sun Dazhang, and N. S. Steinhardt, ed., *Chinese Architecture* (New Haven, Yale University Press, 2002), pp. 5-9.
- <sup>xxvii</sup> History of Chinese Architecture Editorial Group, *History of Chinese Architecture* 《中国建筑史》 (Beijing, China Architecture and Building Press, 1986/2009), p. 35; Pan Guxi ‘The Yuan and Ming Dynasties’ in Fu Xinian, Guo Daiheng, Liu Xujie, Pan Guxi, Qiao Yun, Sun Dazhang, and N. S. Steinhardt, ed., *Chinese Architecture* (New Haven, Yale University Press, 2002), pp. 199-260 (p. 226).
- <sup>xxviii</sup> 礼记: Record of Rites
- <sup>xxix</sup> *Chi* (尺), a unit of length, 1 *chi* = 1/3 meter.
- <sup>xxx</sup> 九五之尊: Ninth and Fifth of Respect
- <sup>xxxi</sup> *Zhang* (丈), a unit of length, 1 *zhang* = 10 *chi* = 3 1/3 meters.
- <sup>xxxii</sup> Luó Zhewen ‘Feng shui theory and ancient Chinese architectural planning and construction (foreword)’ in Luò Zhongzhao, Feng Shui and Modern Residences 《风水学与现代家居》骆中钊编著 (Beijing, China City Press, 2006).
- <sup>xxxiii</sup> Ibid; China Central Television Discovery Program, ‘Beautiful Chinese Architecture: The Same Strain’ (CCTV-10 科教频道《探索发现》20160318 《锦绣华屋》之《一脉相承》). Retrieved July 4, 2016 from: <http://tv.cctv.com/2016/03/19/VIDEOYIZ4hNzPO4L05BWNMIK160319.shtml>
- <sup>xxxiv</sup> 紫微宫: The Palace of the Jade Emperor.
- <sup>xxxv</sup> China Central Television Discovery Program, ‘Beautiful Chinese Architecture: The Great Forbidden City’ (CCTV-10 科教频道《探索发现》20160315 《锦绣华屋》之《大哉紫禁》).



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- <sup>xxxvi</sup> 紫气东来: Purple *qi* comes from the east.
- <sup>xxxvii</sup> 东宫太子: Crown Prince of the East Hall.
- <sup>xxxviii</sup> 西宫太后: Empress Dowager of the West Hall.
- <sup>xxxix</sup> Lu ò Zhongzhao, Feng Shui and Modern Residences 《风水学与现代家居》 骆中钊编著 (Beijing, China City Press, 2006).
- <sup>xi</sup> Liu Xujie ‘The origins of Chinese architecture’ in Fu Xinian, Guo Daiheng, Liu Xujie, Pan Guxi, Qiao Yun, Sun Dazhang, and N. S. Steinhardt, ed., Chinese Architecture (New Haven, Yale University Press, 2002), pp. 11-32.
- <sup>xli</sup> China Central Television Discovery Program, ‘Beautiful Chinese Architecture: The Varied Vernacular Houses’ (CCTV-10 科教频道《探索发现》 20160316 《锦绣华屋》之《广厦万千》). Retrieved June 30, 2016 from: <http://tv.cctv.com/2016/03/17/VIDEuSkD4bNikJVEhXZfp4hQ160317.shtml> (CCTV-10 科教频道《探索发现》 20160316 《锦绣华屋》之《广厦万千》).
- <sup>xlii</sup> 元 (Yuan) is a Chinese philosophical concept, referring to the basis for the world’s existence, the Dao – the way things follow their natural course, as celestial bodies all follow their own tracks. For example, the phrase 一元复始 refers to the beginning of the New Year. Nevertheless, Chinese dictionaries list several meanings of 元: its first meaning is beginning, primary, head, or origin; its second meaning is basic or fundamental; and its third meaning is a unit. The Kangxi Dictionary 《康熙字典》 says: ‘天地之大德，所以生生者也。元字从二从人，仁字从人从二。在天为元，在人为仁，在人身则为体之长。’ (Retrieved November 6, 2011 from <http://baike.baidu.com/view/6673.htm>).