

AN ANALYSIS OF THE EVOLUTION OF LOTUS IMAGES IN TRADITIONAL CHINESE ART AND THEIR BOTANICAL CAUSES

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Abstract: Despite the significant impact of social, cultural, and individual factors on artistic creation, which to a large extent shape the produced works, the undeniable influence of natural phenomena on creative activities must also be acknowledged. This paper reviews various types of lotus imagery, summarizes their evolutionary characteristics, and seeks to identify the shaping factors from a natural science perspective. It reveals that the growth and evolutionary patterns of lotus in nature are largely consistent with the representation and transformation of lotus imagery in art. The preliminary conclusion is that natural phenomena significantly influence the selection and depiction of artistic subjects. Artistic creation and the resulting works are completed and formed within the dynamic tension of mutual influence and constraint between the ‘objective’ and the ‘subjective’.

Keywords: Chinese lotus flower, natural objects, artistic images, image evolution

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1. Introduction

Traditionally, we have examined floral imagery from the perspective and methodologies of the humanities and social sciences. We interpret the intentions behind creations and the symbolic meanings of the depicted objects through the lense of cultural studies, religious studies, and sociology. Additionally, we appreciate the artistic imagery, structure, composition, brushwork, and colouration from an art history standpoint. However, we have often neglected the interpretation of the

subjects of these creations from the perspective of natural sciences. The selection of content, the evolution of form, and the development of styles in traditional floral imagery may find certain explanations within the field of botany.

2. The natural preconditions for the emergence of traditional lotus imagery: cultivation history and geographical distribution

Regarding the origin of art, the ‘mimesis theory’, which posits that art originates from the imitation of reality, holds a significant position. The ancient Greek philosopher Democritus even straightforwardly asserted that art is a ‘mimicry’ of nature (Su 2006: 12). Although the ‘mimesis theory’ has many aspects open to debate, from the perspective of art genesis, nature undoubtedly serves as an essential source of inspiration and reference for the origin, development, and evolution of art. For botanical imagery, the corresponding natural objects are crucial references for artistic creation. When natural objects become part of human life and their connection with people grows increasingly close, the likelihood of these objects being chosen as subjects for artistic creation and representation rises. In the case of the lotus imagery discussed in this paper, the long history of lotus cultivation and its extensive geographical distribution form the natural preconditions for its entry into the realm of artistic creation and its widespread development.

2.1. The long history of lotus cultivation in China

The lotus is an ancient angiosperm that, according to paleobotanical research, has existed on Earth for at least 130 million years (Wuhan Botanical Garden 1987: 1). Throughout its long evolutionary history, the multifaceted value of the lotus gradually became recognized by people. In China, the lotus entered daily life very early on and, through its interactions with humans, became increasingly socialized, culturalized, and artistic.

Current archaeological findings show that the lotus had entered human living space over 7,000 years ago. In 1973, excavations at the Hemudu cultural site in Luojing Village, Yuyao, Zhejiang Province, uncovered lotus pollen fossils dated to 7,000 years ago using radiocarbon (^{14}C) dating. Additionally, in 1972, excavations at the Yangshao cultural site in Dahe Village, northern Zhengzhou, Henan Province, discovered charred grains and two lotus seeds on a hearth inside a house, dated to 5,000 years ago using ^{14}C dating (Xing 1983). This indicates that, at least 5,000 years ago, the lotus had become an important food source for people, and 7,000 years ago, it had entered their field of vision. Moreover, ancient lotus (or water lotus) remains have been found in various regions of China, including Shandong, Liaoning, Beijing, Hebei, Hunan, and Qinghai. Thus, from an archaeological perspective, the lotus had long been part of human life, laying the natural groundwork for the exploration and construction of related material and spiritual cultures.

From a purely literary perspective, the lotus entered the realm of written expression very early on. Once a subject of writing, the lotus’s integration into the construction

of human life had already reached a certain level of development. The earliest documented mention of the lotus appears in China's first anthology of poetry, the "Book of Songs" (Shijing) (circa early to late Western Zhou period). In the "Book of Songs," terms such as 'he' (荷), 'handan' (菡萏), and 'hehua' (荷花^a) refer not only to plants growing in marshy ponds like 'zepei' (泽陂) and 'xi' (隰), but they also serve as vehicles for emotional expression, embodying the sentiment of "beautiful scenery evoking sorrowful feelings." In addition to the emotive descriptions found in the "Book of Songs," there are rational records in the "Erya," the earliest known Chinese dictionary. The "Erya" provides a detailed introduction to the structure of the lotus, with specific names for its various parts. This indicates that artificial cultivation of the lotus had begun at least 2,500 years ago (Wuhan Botanical Garden 1987: 3). These early literary records underscore the significant cultural and symbolic value attributed to the lotus in ancient Chinese society. They illustrate not only the early domestication and cultivation of the lotus but also its deep-rooted presence in the cultural and emotional landscape of the people.

Furthermore, numerous classical texts such as the "Nanfang Caomu Zhuang" (A description of plants of the South), "Qimin Yaoshu" (Essential techniques for the welfare of the people), "Youyang Zazu" (Miscellaneous morsels from Youyang), "Bencao Tujing" (Illustrated classic of materia medica), "Bencao Gangmu" (Compendium of materia medica), "Zunsheng Bajian" (Eight discourses on the art of living), "Qunfang Pu" (Manual of various flowers), "Nongzheng Quanshu" (Complete book on agricultural administration), "Huaqing" (Mirror of flowers), "Guang Qunfang Pu" (Expanded manual of various flowers), "Gonghe Pu" (Treatise on the cultivation of lotus), as well as various historical notes, poems, and essays, all contain references to the lotus. These records mainly highlight three dimensions:

Value dimension: This includes the edible and medicinal values of the lotus.

Botanical dimension: This encompasses cultivation techniques and varietal evolution.

Spiritual and cultural dimension: This pertains to the role, function, and significance of the lotus in folklore, religion, and the arts.

From the perspective of historical documentation, it is evident that the lotus was deeply integrated into human social life as early as 2,500 years ago. This widespread involvement implies that the lotus had likely entered the creative consciousness of people at a very early stage.

2.2. Wide geographical distribution of the Chinese lotus

The archaeological findings of ancient lotus demonstrate the extensive distribution of lotus in ancient times, spanning not only the Yangtze and Yellow River basins, but also reaching inland regions such as Qinghai. The distribution of lotus depicted in literature is even more comprehensive. For instance, the Jiangnan region mentioned in the Han Dynasty folk song "Jiangnan" (South of the Yangtze) refers to the area south of the Yangtze River and between the Five Lakes during the Qin and Han periods, as identified by scholars (Huang and Yu 2013).

Additionally, in the absence of significant changes in climatic and geographical

conditions, the current geographical distribution of lotus in China can reflect its historical distribution to some extent. Given China's vast territory and extensive water bodies, lotus is presently found from Tongjiang County in Heilongjiang Province near the Sino-Russian border in the north (47.8° N) to Yacheng Town in Hainan Island, Guangdong Province in the south (18.14° N), and from the easternmost Crescent Pool in Hulin, Heilongjiang Province (133° 23'6"E) to the northern slopes of the Tianshan Mountains in Xinjiang in the west (86° E). The vertical distribution of lotus reaches up to 2,100 meters near Kunming, while its cultivated distribution can extend up to 3,680 metres (Wuhan Botanical Garden 1987: 12).

The extensive horizontal and vertical distribution of lotus across these regions facilitates its widespread integration into people's daily lives, thereby creating the potential for its pervasive presence in artistic creations.

3. Historical compilation and morphological evolution of traditional lotus image types

Throughout history, lotus imagery has been abundant and diverse. For clarity, this article categorizes lotus imagery into two types: lotus imagery in paintings and lotus imagery in non-painting contexts. For the sake of discussion, we shall refer to the former as 'painted lotus' and the latter as 'decorative lotus'. This distinction is made not only to organize and classify the various styles of lotus imagery but also to highlight the differences in the appearance and form between decorative lotus imagery and purely artistic lotus imagery. This classification considers the different time periods and expressive forms associated with decorative lotus imagery compared to those of purely artistic lotus imagery.

3.1. Evolution of painted lotus images

The academic community generally acknowledges that Emperor Yuan of Liang's painting "Furong Zhanding Tu" is the earliest documented artwork featuring the lotus as a subject. Unfortunately, this painting has been lost, and its appearance remains unknown. Some scholars, however, have argued that "Furong Zhanding Tu" is a misnomer derived from "Furong Hu Jiaoding Tu," a title altered due to transcription and printing errors. In this context, Furong Hu refers to a place name, and 'jiaoding' denotes a sacrificial ritual. Therefore, "Furong Hu Jiaoding Tu" actually depicts a sacrificial ceremony by the lakeside (Hu 2020). Based on this, this section will not discuss the lost artwork but will instead explore the evolution of lotus imagery through existing representative paintings.

The current collection of lotus-themed paintings is relatively small, with earlier examples from the Five Dynasties period and the majority from the Qing Dynasty. These works predominantly feature a naturalistic style, facilitating the recognition and analysis of changes in lotus imagery (Table 1 for representative paintings from different periods and types). Regarding lotus colour, pink is the most frequently depicted in paintings, followed by white, with occasional instances of pale yellow.



Figure 1. Shen Shijie, Lotus
(Chinese Qing Dynasty).

The combinations of these colours include solely pink lotus, solely white lotus, a combination of pink and white lotus, and a three-colour combination. The first three combinations are more common, indicating that pink and white lotus varieties were more prevalent in people's daily lives. The three-colour combination is extremely rare, observed only in Shen Shijie's Qing Dynasty painting "Lotus Flower" (Figure 1). This artwork features two pink double lotus flowers, one double lotus flower combining pale yellow and white, and several single lotus flowers in pink, white, and pale yellow. The pale-yellow lotus is particularly rare, as this example is the only instance found during the review.

Regarding the number of lotus petals depicted, it ranges from as few as three to five petals to as many as dozens (some images show wilted lotus flowers, which would have had more petals in their prime). Most lotus flowers in paintings have between three and twenty petals, with a few examples having over fifty petals. The petals generally have a narrow, rounded shape with pointed tips. Based on these

characteristics, the depicted lotus flowers can be identified as primarily single-petal red lotus, double-petal red lotus, multi-petal white lotus, and thousand-petal lotus. Additionally, twin-lotus flowers, which belong to the thousand-petal category, appear in paintings from the Southern Song and Qing Dynasties. Twin-lotus flowers are extremely rare and precious since they lack genetic traits and cannot be cultivated artificially. Thus, their appearance in paintings is purely incidental.

Furthermore, it is noteworthy that white water lilies are depicted in two significant paintings: "Lotus Pond with Waterfowl" by Gu Deqian of the Five Dynasties (Figure 2) and "Lotus Pond with Waterfowl" by Wang Yuan of the Yuan Dynasty (Figure 3). In these paintings, the water lilies are shown lower than the lotus flowers, close to the water surface, with smaller flowers, white colour, and pointed petals, showcasing the typical characteristics of water lilies. In fact, water lilies are rarely found in either painting manuals or artworks. For instance, none of the 67 lotus flower paintings recorded in "Xuanhe Huapu" feature water lilies (Zhang 2017). Compared to lotus flowers, water lilies received much less attention from painters.

Based on the above analysis, we can preliminarily summarize the following points:

Increasing variety: While red single-petal lotuses predominate in paintings, there is a clear trend toward depicting a wider variety of lotus types over time.

Emergence of Double-Petal Lotuses: By the end of the Five Dynasties period, paintings featuring double-petal and compound-petal lotuses had emerged, indicating a growing interest in diverse lotus forms.

Table 1. Typical lotus flower paintings from different periods in China

Nr	Dynasty – Author	Name	Now in hiding	Lotus Features	
				coloration	petal
1	Five Dynasties – Xu Xi	picture of a water caltrop	National Palace Museum, Taipei	pink (colour)	Approx. 3–9 petals
2	Five Dynasties – Zhou Wenzhu	Lady Fishing in Lotus Pavilion	National Palace Museum, Taipei	pink (colour)	Approx. 4–14 petals
3	Five Dynasties – Gu Deqian	Lotus Pond Waterfowl Scroll II	Tokyo National Museum	pink (colour)	About 15 petals
4	Five Dynasties Song – Huang Quan	picture of the lotus flower	Metropolitan Museum of Art	fig. reactionary	>50 petals
5	Northern Song Dynasty – Zhao Ling Rang	Lotus Pavilion Cooling	private collection	powdered (with make-up)	About 5 or 6 petals
6	Southern Song Dynasty – Unknown	picture of the lotus flower	Shanghai Museum	pink (colour)	16 petals
7	Southern Song Dynasty – Wu Bing	as a lotus flower breaking the surface (idiom); a lovely picture of a young lady's face (old)	Palace Museum, in the Forbidden City, Beijing	pink (colour)	14 petals
8	Southern Song Dynasty – Wu Bing	Bryan Pond Mewtwo	Wosetsuzai Collection	stare coldly	≥ 70 petals
9	Southern Song Dynasty – Feng Dayou	The Lotus Winds of Taiyi Liquid (Suzhou, Jiangsu)	National Palace Museum, Taipei	white, pink	Approx. 10–16 petals
10	Southern Song Dynasty – Unknown	picture of a hundred flowers	Palace Museum, in the Forbidden City, Beijing	pink (colour)	Juxtaposed Lotus, about 35 petals
11	Yuan-Wang Yuan (biography)	Lotus Pond Waterfowl Pair of Axes I	Tokyo Central Spring Auction 2022	pink	Six petals
12	Yuan-Wang Yuan	The Lotus Wagtail	Tokyo National Museum	powdered (with make-up)	Four petals

Nr	Dynasty – Author	Name	Now in hiding	Lotus Features	
				coloration	petal
14	Ming – Zhou Zhi Crown	Lianzhu Bunjiu (c. 3400 BC), Buddhist monk and nun nunmyery scroll	Nanjing Museum	powdered (with make-up)	9–12
15	Ming-anonymous	picture of the lotus flower	Philadelphia Museum of Art	white, pink	About 25 petals
16	Chen Hongshou	picture of the lotus flower	National Palace Museum, Taipei	pink (colour)	Approx. 14 petals
17	Ming Shen Zhou	picture of a lotus flower in a bottle	Tianjin Museum	pink (colour)	Approx. 15 petals
18	Ming Dynasty – Tang Yin	the infinite number of axes	National Palace Museum, Taipei		>30 petals
19	Ming – anonymous	Two Egrets in a Lotus Pond	Freer Gallery	white, pink	Pink ten petals or so; white > 70 petals
20	Qing Dynasty – Wang Tubing	picture of the lotus flower	National Palace Museum, Taipei	white, pink	White 32 red 17–21
21	Qing Dynasty – Sun Shichang	picture of the lotus flower	National Palace Museum, Taipei	White, Pink	Approx. 15 petals
22	Qing Dynasty – Shen Shijie	picture of the lotus flower	National Palace Museum, Taipei	Yellow, White, Pink	Parallel Lotus, >50 petals
23	Wu Yingzhen	picture of the lotus flower	Palace Museum, in the Forbidden City, Beijing	pink	Approx. 8–13 petals
24	Qing Dynasty – Shen Quan	picture of mandarin ducks in a lotus pond	Anhui Museum	pink	Approx. 40 petals
25	Qing Dynasty – Xu Liangbiao	Banana and Beauty, a picture of a beautiful woman	National Palace Museum, Taipei	White, Pink	Approx. 18 petals

Marginalization of Water Lilies: Despite appearing in some paintings, water lilies occupy a significantly marginalized position compared to lotuses. They are almost never the central focus and rarely even serve as supporting elements.

These observations suggest a nuanced understanding of the evolution and representation of lotus flowers in traditional Chinese art, highlighting the increasing complexity and diversity of lotus varieties depicted over time, as well as the stark contrast in the artistic treatment of lotus flowers and water lilies.

The evolution of painted lotus images thus reflects both artistic trends and cultural values, showcasing the lotus's significance in Chinese art and society. The preference for depicting various lotus types, including rare varieties like the thousand-petal and parallel lotus, highlights the flower's aesthetic and symbolic importance. Conversely, the marginal presence of water lilies underscores their lesser cultural and artistic value in comparison to the lotus.

Moreover, this analysis reveals the interplay between botanical diversity and artistic representation. The variety of lotus types depicted in paintings aligns with the historical cultivation and appreciation of different lotus species. The emergence of double-petal and compound-petal lotuses in art corresponds with botanical developments and the cultivation of new varieties. The detailed depiction of lotus flowers, including their petal shapes and colours, reflects both the painters' keen observation skills and the cultural significance attributed to these flowers.

In summary, the evolution of painted lotus images in Chinese art is a testament to the flower's enduring appeal and multifaceted symbolism. From early references in lost works to the diverse representations in surviving paintings, the lotus has been a central motif in Chinese artistic expression. Its portrayal in various forms and colours not only illustrates the artistic techniques and preferences of different eras but also underscores the cultural and botanical richness associated with this iconic flower.



Figure 2. Gu Deqian, “Lotus Pond with Waterfowl,” Axis II (the five dynasties, China).
(a) Panoramic view of the scroll; (b) partial view of the scroll.

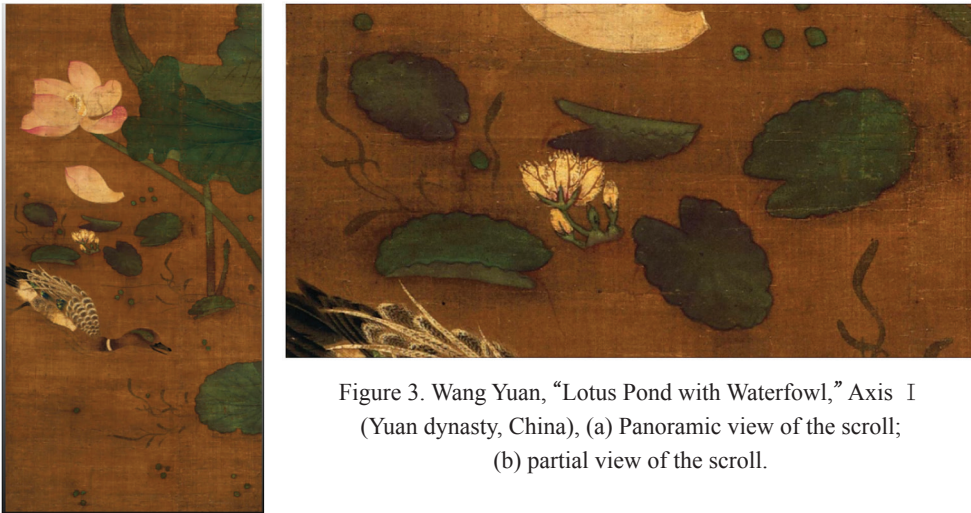


Figure 3. Wang Yuan, “Lotus Pond with Waterfowl,” Axis I (Yuan dynasty, China), (a) Panoramic view of the scroll; (b) partial view of the scroll.




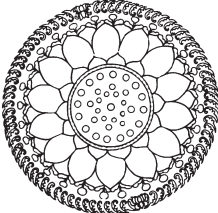
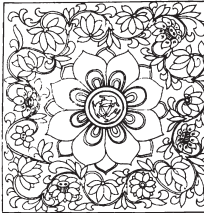




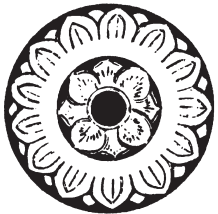
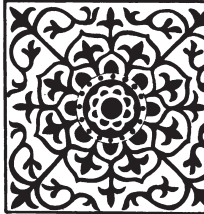
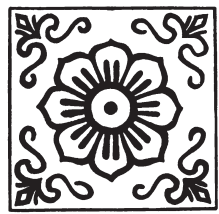
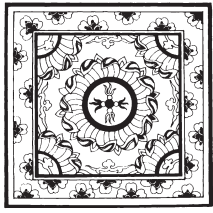
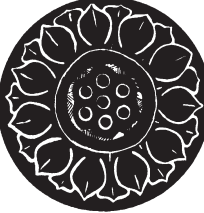

3.2. Evolution of decorative lotus images

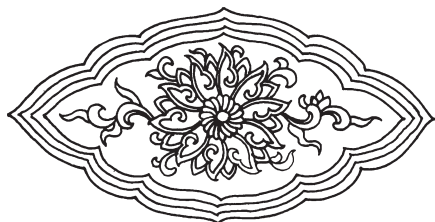
The history of flower and bird painting can be traced back to prehistoric pottery, but it was not until after the North and South Dynasties that it gradually became an independent subject. It was only after the Tang Dynasty that flower and bird painting entered a stage of prosperous and mature development, marked by the emergence of many renowned artists. Consequently, independent flower and bird paintings from before the Tang Dynasty are rare, necessitating the inclusion of decorative lotus images to fully understand the evolution of lotus iconography.

Unlike painted lotus flowers, decorative lotus images are considerably more complex. Firstly, the complexity is reflected in the variety of media that feature decorative lotus motifs, including architecture, sculpture, murals, bronzeware, ceramics, and textiles, among others. To adapt to these diverse media, the composition of lotus patterns also varies significantly. Secondly, the historical span is extensive, reaching back to prehistoric times and extending through to the Ming and Qing dynasties. Influenced by the cultural, social, political, and economic contexts of different periods, the forms of lotus images have undergone numerous transformations.

To illustrate the evolution of decorative lotus images, representative patterns are selected and organized based on their morphological characteristics (Table 2). Lotus patterns can be broadly categorized into frontal and lateral views. Frontal patterns are generally viewed from above or below: those viewed from below are often found in the decoration of ceilings or roof elements, such as caissons and purlins, while those viewed from above are commonly found on the covers, interiors, or undersides of objects, such as the insides of porcelain bowls, the tops of lids, and the backs of bronze mirrors. Lateral patterns, typically viewed from a horizontal perspective, are often used in the decoration of walls and the bodies of vessels. However, in practice, these distinctions are not always clear-cut. For instance, in architectural decoration and textiles, both frontal and lateral patterns are commonly seen.

Table 2. Typical decorative lotus images from different periods in China

Characterization	Presentation		
Lotus pattern in the obverse form			
	1. Warring States Pottery Bean Cover Decoration	2. Qin Tile Dang	3. Han Dynasty Woodcarving
			
	4. Northern Wei architectural decoration	5. Sui Dynasty stone carvings	6. Tang Dynasty stone carvings
			
	7. Tang Dynasty Murals	8. Tang Dynasty Sculptures	9. Liao Dynasty Porcelain
			
	10. Five Dynasties Brick Carving	11. Song Dynasty Picture Brick	12. Song Dynasty Picture Brick
			
	13. Song Dynasty Algae Well	14. Yuan Dynasty Lacquerware	15. Ming Dynasty Lacquerware



16. Qing Dynasty Three-colour Vase



17. Qing Dynasty Brocade



1. Han Dynasty Picture Brick



2. Southern Dynasty Picture Brick



3. Northern Wei Stone Carving



4. Sui Dynasty stone carvings



5. Tang Dynasty murals



6. Tang Dynasty murals

Lotus pattern in side form



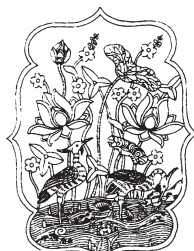
7. Stone Carvings of the Five Dynasties



8. Song Dynasty Coloured Paintings



9. Yuan Dynasty Celadon Decoration



10. Ming Dynasty Architectural Decoration



11. Ming Dynasty Porcelain Decoration



12. Qing Dynasty Woodcarving

In terms of lotus shapes, frontal lotus patterns tend to be more abstract. Some patterns are even difficult to recognize as lotus flowers without additional details or characteristic hints, such as the lotus pattern on a Qin dynasty tile, which is hard to identify precisely as a lotus without further context. Similarly, lotus patterns from Tang dynasty sculptures and Song dynasty painted bricks, when combined and transformed with other motifs, also become harder to recognize. Generally, identifying such patterns involves methods from iconographic historiography, such as comparing texts and patterns or cross-referencing related images to confirm the motifs (Zhang 2013).

Under these premises, the characteristics of frontal lotus images are quite distinct: the overall composition usually features a perfectly round flower centre with radiating petals, typically in 2–3 layers. The petals are generally round and broad with pointed tips. There are two main types of petals: paired petals (as seen in Warring States period pottery covers, Tang dynasty murals, Five Dynasties brick carvings, and Song dynasty painted bricks) and whole petals (as seen in Northern Wei architectural decorations and Sui-Tang stone carvings). These two types of petals constitute the main categories of traditional lotus decorative patterns. Additionally, it is apparent that the patterns become increasingly complex over time, with more petals and richer layers.

In comparison, side-view lotus patterns are more realistic and easier to recognize, with more straightforward and distinct features. From the simple side-view lotus images on Han dynasty painted bricks to the complex side-view lotus with bent branches after the Northern and Southern Dynasties, there is a clear evolution from simplicity to complexity. The number of petals also increases, from 7 or 8 in the early periods to over 40 in later periods, with petals overlapping in 5 or 6 layers, clearly exhibiting the traits of double-petaled lotus flowers. In terms of petal shape, side-view lotus petals can be broadly categorized into two types: one with broad, slightly upturned tips, as seen in Northern Wei stone carvings and Tang dynasty murals; and the other with narrow, straight tips, as seen in Song dynasty paintings and Tang dynasty murals. These two petal shapes alternated after the Sui dynasty, becoming the two main forms of side-view lotus patterns. The narrow, straight-tipped petals often depict lotuses with a high number of petals, suggesting that details were simplified during the depiction process.

By examining the development of these patterns, several key conclusions can be drawn:

Development from Simple to Complex: Decorative lotus patterns evolved from simple to complex designs. This evolution can be primarily judged by the number of petals and the intricacy of the composition. Initially, lotus patterns were straightforward, with fewer petals and less detailed compositions. Over time, the patterns became more elaborate, incorporating more petals and complex designs.

Two Main Evolutionary Paths: Lotus modelling evolved along two primary paths: a tendency towards abstraction and a tendency towards realism. Realistic images, in particular, provide a better chance for identification and research. Abstraction is evident in the simplification and stylization of the lotus forms, often making them

harder to recognize without additional context. In contrast, realistic depictions maintained a closer resemblance to actual lotus flowers, making them easier to identify and study.

Influence of Cultural Context: The variations in decorative lotus images reflect the broader cultural, social, and political contexts of their times. For example, the more abstract and stylized lotus patterns often appeared during periods of significant cultural and artistic innovation, while the realistic patterns might correspond with eras that valued naturalism and detailed representation.

Significance of Realistic Depictions: The realistic depiction of lotus flowers in decorative patterns is particularly significant for historical and botanical research. These images can provide insights into the types of lotus varieties that were known and valued in different periods. By analysing the number of petals and layers, researchers can identify specific lotus species and understand their cultural significance.

Artistic and Technological Advances: The increasing complexity of lotus patterns over time also reflects advancements in artistic techniques and technologies. As artisans developed more sophisticated tools and methods, they were able to create more detailed and intricate designs. This progression is visible in the transition from simple, flat patterns to more elaborate, multi-layered compositions.

This comprehensive analysis of decorative lotus images reveals the rich and varied history of lotus iconography. The evolution of these images reflects broader cultural, social, and artistic trends across different historical periods, highlighting the lotus's enduring significance in Chinese art and decoration. The detailed examination of these patterns not only enhances our understanding of artistic practices but also provides valuable insights into the cultural and historical contexts in which these images were created.

4. Natural motivations reflected in the evolution of traditional lotus images

Combining the above analysis of painted and decorative lotus images, we can initially summarize the following three characteristics:

Number of Lotus Petals: During the North and South Dynasties, compound lotus flowers began to appear. Prior to this period, whether in three-dimensional decorative lotus designs or flat decorative lotus patterns, the number of petals typically ranged from four to eight, and rarely exceeded ten. From the Wei, Jin, and North and South Dynasties onward, both three-dimensional decorative ceramics and architectural flat decorations exhibited a substantial increase in the number of petals, suggesting a shift from single-petal lotus prototypes to compound-petal and multi-petal varieties.

Lotus Colour: The lotus flowers depicted in traditional images are predominantly pink, with occasional examples of white lotuses. Other colours are nearly absent, with only rare instances of yellow lotuses appearing in individual Qing Dynasty works.

Presence of Water Lilies: In nearly all paintings featuring lotus flowers, water lilies are rarely seen and, if present, appear only as marginal supporting elements.

There are no known paintings where water lilies serve as the main subject or narrative focus.

These characteristics of lotus images are credible for several reasons. Firstly, the process of categorizing paintings has excluded purely literary depictions of lotus images. Since the Tang and Song dynasties, bird and flower paintings have possessed a museum-like quality, making it reasonable to use these images to identify and summarize the characteristics of lotus flowers. Secondly, despite the abstraction, combination, and deformation in some decorative lotus patterns, the botanical features of lotus species in China are distinct. The unique cultural connotations of the lotus flower also allow for reasonable deductions about its imagery based on the context of its use. Additionally, under the scientific guidance of image historiography methods – such as analysing documented images and comparing similar images – it is possible to recognize and confirm decorative lotus patterns.

The evolutionary motives behind lotus images are influenced by a complex interplay of factors, including politics, economy, culture, and the personalities of individual creators. These factors collectively construct the intricate social environment in which lotus images are created. As the famous French literary historian Hippolyte Taine stated, “Whether under complex or simple circumstances, it is always the environment, that is, the customs and the spirit of the times, that determines the kind of artwork; the environment only accepts the varieties that agree with it and eliminates the rest; the environment uses heavy obstacles and constant attacks (Taine 1865: 98). Complex or simple, it is always the environment, that is, the customs and the spirit of the times, that determines the kind of artwork; the environment accepts only the varieties that agree with it and eliminates the rest; the environment prevents the development of the other varieties with heavy obstacles and constant attacks”. The environment, akin to an artificial greenhouse, nurtures the germination, growth, development, and transformation of suitable works. However, in this process, the subtle influence of natural forces is often overlooked. Thus, the motivation for the evolution of the lotus image may find some traces in the natural world, indicating that artistic creation is shaped by the combined forces of both artificial and natural environments.

Natural influences on the evolution of lotus images can be understood through several perspectives:

Botanical Characteristics: The natural evolution and diversity of lotus species likely influenced their depiction in art. As new varieties of lotus were discovered or cultivated, artists incorporated these changes into their work, reflecting a natural progression from simple to compound petals and the introduction of new colours.

Ecological Factors: The natural habitats of lotus flowers, such as ponds and wetlands, influenced their representation in art. The interaction of lotus flowers with their environment, including water, other plants, and wildlife, provided a rich source of inspiration for artists.

Symbolic and Cultural Significance: The lotus flower’s natural properties, such as its ability to bloom in muddy waters, contributed to its symbolic meaning of purity and resilience. This symbolism resonated deeply with cultural and philosophical themes, leading to its prominent place in art and decoration.

Aesthetic and Practical Considerations: The natural beauty and structural elegance of lotus flowers made them an ideal subject for artistic exploration. Their symmetrical form and vibrant colours provided a visually appealing motif that could be adapted to various artistic mediums and styles.

In conclusion, the evolution of traditional lotus images is a complex interplay of natural and artificial factors. While the social, political, and cultural environment played a significant role in shaping these images, the natural world also exerted a subtle yet profound influence. Understanding this dual influence provides a more comprehensive view of the lotus flower's enduring significance in Chinese art and culture. The study of lotus images, therefore, offers valuable insights into the broader dynamics of artistic creation, reflecting both human ingenuity and the timeless inspiration of the natural world.

4.1. Changes in lotus image styling from the history of the evolution of lotus flower styles

The history of lotus cultivation in China reveals significant changes in the styling and depiction of lotus flowers, which closely mirror the botanical evolution of the lotus itself. During the Han Dynasty, the predominant variety of lotus was the single-petal red lotus. This early form of the Chinese lotus is described as having large, thick leaves with a rough surface and pronounced veins. The buds were ovate and tapered, while the flowers were bright red, single-petaled, with narrow, elongated petals that had pointed tips (Figure 4). Traditional lotus paintings of this era, such as Wu Bing's "Hibiscus in Water" from the Southern Song Dynasty (Figure 5), typically depicted this single-petal red lotus variety.

Over time, both through careful selection and breeding and natural evolution, the variety of lotus flowers expanded. By the Wei and Jin dynasties, heavy-petaled lotus flowers began to appear. The historical evolution of lotus petals can be delineated through several stages:

From Single-Petal to Semi-Heavy Petal Type: Initially, the Chinese lotus was characterized by single petals. Gradually, the stamens began to undergo petalization, leading to the emergence of semi-heavy petal-type lotuses.

From Semi-Heavy Petal Type to Heavy Petal Type: As petalization continued, with more stamens transforming into petals, the lotus evolved into the heavy petal type, characterized by an increased number of petals.

Emergence of Heavy Platform Type: Further petalization affected not only the stamens but also the pistils. This process resulted in the formation of "flowers within flowers" (Wang and Zhang 2005: 122), where petalized carpels attached to the receptacle, creating a dense, multi-layered floral structure.

Appearance of Thousand Petal Type: When the stamens, pistils, and receptacle underwent complete petalization, the petals became densely packed, forming the thousand-petal type lotus. This form, marked by a proliferation of petals, represents the culmination of both natural evolution and meticulous cultivation efforts (Wuhan Botanical Garden 1987: 77).

These stages of evolution highlight a clear trend: the number of petals in lotus flowers has progressively increased over time. This trend is reflected in the artistic representation of lotus flowers, which also shows an increasing complexity in the depiction of petals. Before the Wei and Jin dynasties, even in abstract and stylized decorative lotus images, heavy-petal lotus forms were absent. The number of petals in these early images typically ranged from four to ten, aligning with the historical emergence of multi-petaled lotus varieties.

The correlation between the evolution of natural lotus varieties and their artistic representations suggests that changes in lotus imagery were influenced by the botanical developments of the flower itself. This intrinsic connection implies that as new lotus varieties were cultivated and became known, artists incorporated these botanical innovations into their work. Consequently, the artistic creation of lotus images evolved in tandem with the natural evolution of the lotus, reflecting a positive correlation between natural selection and artistic modelling.

However, while this positive correlation is evident, the degree of synchronization between the botanical evolution of the lotus and its artistic depiction warrants further investigation. Various factors, including cultural, social, and artistic trends, may have influenced the timing and manner in which new lotus varieties were adopted into artistic practices. Thus, understanding the nuances of this relationship requires a deeper exploration of both botanical history and art history.

In conclusion, the evolution of lotus image styling in traditional Chinese art is a complex interplay between natural and artificial factors. The natural evolution of lotus varieties provided new forms and structures for artistic exploration, while cultural and artistic trends shaped the manner how these forms were represented. This dynamic relationship underscores the importance of considering both natural and cultural contexts in the study of traditional lotus imagery. By examining the botanical developments alongside artistic practices, we can gain a more comprehensive understanding of the evolution of lotus images in Chinese art.



Figure 4. Ancient lotus.



Figure 5. Wu Bing, “Hibiscus in Water” (Southern Song Dynasty, China).



Figure 6. Chinese lotus and American yellow lotus.

4.2 Changes in the colour of lotus images as seen in the evolution of the species and flower colours of the lotus

In the botanical world, it is generally accepted that there are two species within the genus *Nelumbo*. One species bears pink or white flowers, known as the Chinese Lotus (*Nelumbo nucifera*), which is primarily distributed across Asia and northern Australia. The other species bears yellow flowers, known as the American Lotus (*Nelumbo lutea*), and is mainly found in the Americas (Wuhan Botanical Garden 1987: 10) (Figure 6). Despite their geographical separation, with the Chinese Lotus in the Eastern Hemisphere and the American Lotus in the Western Hemisphere, these two species are strikingly similar in overall morphology, with colour being the primary distinguishing feature. From a genetic standpoint, “the chromosome pairs, morphology, and size of the two species of Lotus are similar, and there is no reproductive isolation between them; their pollination and fruiting rates are generally as high as more than 80%, and the germination rate of the hybrids is also high, which is rare in other plants of the same genus. This indicates a very close kinship between the two species of Lotus” (Wuhan Botanical Garden 1987: 11).

Therefore, some scholars speculate that these two species of Lotus may have originated from the same species. However, due to climate change, continental drift, natural selection, and other factors, they became geographically separated and adapted to new environmental conditions, eventually evolving into different ecological subtypes. Although this hypothesis requires further verification, it also suggests that the species diversity within the genus *Nelumbo* is relatively limited, with common flower colours mainly being red and white for the Chinese Lotus and yellow for the American Lotus. Historical records in Chinese literature also corroborate the prevalence of these colours. Table 3 lists references to lotus colours in various literary works, predominantly mentioning red and white lotuses. The term

Table 3. Records of lotus colours in Chinese historical documents (partial)

age	colouration	source (Author, Title of the Work)
Eastern or later Han Dynasty, 25–220	red Lotus	Liu Zhen et al., Dong Guan Han Ji
Wei (220–265) and Jin (265–420) dynasties	red Lotus	Zuo Si, San Du Fu
Northern and Southern dynasties (420–589)	red Lotus	Anonymous, West Island Song
Northern and Southern dynasties (420–589)	red Lotus	Xiao Yi, The Lotus Fugue The Lotus
Tang Dynasty (618–907)	red Lotus	Wang Wei, Imminent Events in a Mountain Dwelling
Song Dynasty (960–1279)	red Lotus	Yan Shu, Huan Xi Sha: The West Wind is Fierce and Evening Cicadas by the Lake
Song Dynasty (960–1279)	red Lotus	Tao Bi, South Pond
Yuan dynasty (1279–1368)	red Lotus	Ding Henian, Red Lotus and White Lotus Root Poem
Ming dynasty (1368–1644)	red Lotus	Wang Chong, Two Poems of Idle Thoughts on the Blooming of Red Lotuses, No. 1
Ming dynasty (1368–1644)	Red Lotus (Pink)	He Gongdao, Red Lotus
Ming dynasty (1368–1644)	pink lotus flower	Chen Ruyuan, The Red Lotus Debt
Liang of the Southern dynasties (502–557)	White Lotus society	Ren Fang, Records of Strange Events
Tang Dynasty (618–907)	White Lotus society	Bai Juyi, On the Pond
Tang Dynasty (618–907)	White Lotus society	Bai Juyi, A Memoir of the Cottage on Mount Lushan
Tang Dynasty (618–907)	White Lotus society	Pi Ri Xiu, The White Lotus
Song Dynasty (960–1279)	White Lotus society	Yang Songyuan, Watching White Lotus under the Moon
Yuan dynasty (1279–1368)	White Lotus society	Sun Huasun, White Lotus in the Pond
Qing dynasty (1644–1911)	lit. twin white lotus flowers on one stalk	Zuo Xijia, Twin-headed Lotus, Conjoined White Lotus
Qing dynasty (1644–1911)	White Lotus society	Sheng Jin, White Lotus
Tang Dynasty (618–907)	Red Lotus, White Lotus	Wu Yuanheng, Gift to the Taoist
Song Dynasty (960–1279)	Red Lotus, White Lotus	Zhu Xi, Red and White Lotus
Song Dynasty (960–1279)	Red Lotus, White Lotus	Zhang Xiaoxiang, The Fisherman's Pride
Song Dynasty (960–1279)	Saussurea involucrata	Li Fang, Taiping Guangji
Tang Dynasty (618–907)	green Lotus	Li Chuo, Shang Shu Gu Shi
Qing dynasty (1644–1911)	yellow Lotus	Zhou Cheng, Study of Dongjing in the Song Dynasty

‘red Lotus’ generally refers to pink-hued flowers, such as in the Ming Dynasty’s He Gongdao’s ‘Red Lotus’, where the colour is described as “the colour of peach stamens resembling a thousand pieces of rosy clouds, and the petals reflecting the fiery red of pomegranate blossoms”. Similarly, in the Ming Dynasty, Chen Ruyuan’s “Red Lotus Debt,” the red Lotus is also pink. Additionally, there are some rare colours such as green, blue, and yellow, but these are mostly results of artificial cultivation techniques, such as “in the Yuanyou period, a few blue lotuses were found in the pond of a civilian’s home in Ji County, achieved through grafting techniques” (Peng and Kong 2002: 486).

Compared to the more common red and white lotus flowers, these rare colours are seldom seen in daily life. For instance, “Taiping Guangji” records a story of encountering and seeking a blue lotus without success:

“During the reign of Xuanping, Grand Tutor Lu Gong, while preparing for an examination, stayed in a villa in Anfeng County, Shouzhou. He once travelled to Paeonia Pei and saw a local man carrying firewood, holding a blue lotus flower. Lu Gong was surprised and asked about it. The man replied, ‘I found it in Paeonia.’ Later, Lu Gong was engaged in Zhejiang and shared this story with Li Deyu, the Grand Minister. Deyu ordered a search for the blue lotus in Paeonia, but it was not found. Despite extensive searches in Jiangzhu, it was never seen again. This indicates the blue lotus was indeed a rare phenomenon” (Li 1961: 3322).

From this perspective, although lotus flowers exhibit a variety of colours such as ‘red, white, crimson, purple, blue, and yellow’, the most common colours are ‘red and white’ (Su and Kong 2012: 40) (Author’s note: based on the context and other related materials, it is inferred that ‘chaduo’ might be an error for ‘zuiduo’, meaning ‘most’). In other words, while lotus flowers come in many colours, red and white are prevalent, making them the most likely to be incorporated into daily life and to attract the attention of literary and artistic creators. Therefore, through the sorting of lotus species, the analysis of the characteristics of Chinese lotus varieties, and further verification from literature, we know that lotus species are relatively few, and common flower colours are also limited. This means that the archetypal colours of lotus images are relatively few, and the selection and variation of lotus colours in paintings are based on natural lotus flowers as reference prototypes, without excessive artistic recreation. Consequently, the colours of lotus flowers in these images are relatively fixed and singular.

4.3 The disparity in the artistic representation of lotus and water lilies from the perspective of their geographical distribution and value

In the field of botany, the classification of lotus species has gradually become clearer through ongoing debates and developments. In 1736, Swedish botanist Carl Linnaeus classified the lotus within the family *Nymphaeaceae*. In 1888, German botanist Karl Caspary further classified it as a subfamily within *Nymphaeaceae*. By 1981, American botanist Arthur Cronquist separated the lotus from the family *Nymphaeaceae*, establishing it as a distinct family, *Nelumbonaceae*, within the order

Nymphaeales. In 1989, Swedish-Danish botanist Rolf Martin Theodor Dahlgren further reclassified *Nelumbonaceae*, placing it in a newly established order, *Nelumbonales*, within the subclass *Magnoliidae*, alongside the order *Nymphaeales*. By 1998, lotus and water lilies were completely separated, with *Nelumbonaceae* being classified under the order *Proteales* within the core angiosperms, while water lilies were placed outside the core. The complex classification history of lotus and water lilies illustrates the evolving understanding and increasing scientific rigor of botanists. It also indicates that the two plants share morphological similarities. Therefore, from an artistic perspective, at least in terms of formal beauty, lotus and water lilies possess a degree of homogeneity.

Archaeological findings also confirm that water lilies have a long history in China, dating back at least to the Neolithic period (Zhang 2006). This suggests that water lilies had the potential to enter the creative space of ancient people. Interestingly, despite the morphological similarities between lotus and water lilies, ancient artists collectively favoured the lotus over the water lily in their creations. The reasons for this preference can be explored from the perspective of their geographical distribution and economic value.

Firstly, the geographical distribution of lotus and water lilies determined their ‘accessibility’. In other words, their proximity to human activity spaces largely determined whether and to what extent they could enter and participate in human life. As mentioned earlier, lotus has a widespread distribution across China, covering various regions from east to west, north to south. In contrast, water lilies have a relatively limited distribution in China. According to research by Huang Guozhen, the father of Chinese water lilies, “In China, there are native distributions of hardy water lilies (*Nymphaea candida* and *Nymphaea tetragona*) and tropical day-blooming water lilies (*Nymphaea capensis*). However, *N. candida* is only found in northern Xinjiang, and *N. capensis* is only distributed in the southern tip of Hainan Province. Only *N. tetragona* has a relatively wide distribution, with wild populations in Heilongjiang, Hunan, Hubei, Zhejiang, Sichuan, and Yunnan, but only white-flowered variants have been recorded” (Huang 2009: 31). This shows that hardy and tropical water lilies, despite their large, colourful flowers, are found in extremely limited regions: Xinjiang, historically part of the Western Regions, is far away; Hainan, one of the four ancient places of exile, is remote and sparsely populated. Therefore, in terms of spatial accessibility, these two types of water lilies, despite their ornamental value, rarely entered the daily lives of people. The more widely distributed *N. tetragona*, although accessible, has relatively small, pale flowers that are not particularly striking.

Secondly, the difference in value between lotus and water lilies determined their ‘necessity’. The lotus is ‘treasured in every part’, with not only ornamental value but also significant edible, medicinal, and ecological benefits, making it highly valued in an agricultural society. The multifaceted value of the lotus was recognized early on. For example, archaeological studies have shown that lotus seeds were consumed as food 5,000 years ago. In terms of medicinal value, China’s earliest

existing pharmacological text, “Shennong Ben Cao Jing” records: “Lotus seeds and stems... strengthen the body, nurture the spirit, increase vitality, and cure various diseases. Long-term consumption promotes longevity and alleviates hunger” (Wu 2016: 61). Although water lilies also possess certain economic values, their limited accessibility and low attention meant their potential value was not fully realized. Therefore, in ancient society, the overall value of water lilies could not compare to that of the lotus.

From these two dimensions, compared to water lilies, lotus flowers were more easily integrated into people’s lives in various aspects, making them more likely to be favoured by creators and becoming the subject of artistic depiction and literary creation. Thus, despite the aesthetic similarities between the two plants, it is the lotus that prominently occupies a place in the artistic and cultural heritage of China, while the water lily remains a relatively obscure presence. This disparity underscores the significant influence of geographical and economic factors on the cultural prominence of botanical subjects in art and literature.

5. Conclusion

Undoubtedly, while the subjective factors of the creators significantly influence the artistic representation of the lotus, its natural archetype also plays a crucial role in shaping its image. In the above research, we observe that the selection of the lotus image in artistic depictions, as well as the evolution of its form and colour, is markedly correlated with the natural evolution of the lotus itself. Although the degree of this correlation’s synchronicity requires further exploration, the emergence of the lotus as a subject of artistic creation and the evolution of its form and colour are not merely the result of subjective artistic choices and social constructs of the human world. Instead, they are driven by a bidirectional tension between nature and humanity. Humans select natural objects as subjects of depiction based on factors such as accessibility, aesthetic appeal, and value. At the same time, for natural objects to be widely and enduringly integrated into human life and interactions, they must possess these attributes.

Therefore, in the realm of artistic creation, we can even boldly assert that it is not merely a matter of humans choosing natural objects; rather, it is natural objects that choose humans.

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