

Building Blocks on the Grassland: On the Concept of Nature and the Causes of Wright's Organic Architecture Thought

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Abstract: Wright was the most internationally influential American architect of the 20th century. Although his emphasis on the properties and technology of modern industrial materials made him a landmark figure in modernist architectural design, his exploration of dynamic spaces in architecture and reflection on the relationship between humans and nature fundamentally led him to deviate from modernism and move towards postmodernism. This article aims to explore the origin of Wright's core natural view of organic architecture and the process of its design practice development and evolution. Tracing back the deep-rooted influence of Wright's childhood toy Froebel building blocks and farm life experiences, this paper analyzes the differences in the application of natural elements between Wright and his teacher Louis Sullivan, as well as his gradual breaking of the modernist "square box" under the influence of Eastern aesthetic thought.

Keywords: Wright; Froebel Building Block; Wisconsin Farm; Lao Tzu's Natural Philosophy.

1. The Formation of the Concept of Nature

1.1. Froebel Building Blocks

Friedrich William August Froebel is widely recognized as one of the most important educators in 19th century Europe, who founded the first preschool education institution - Kindergarten. Froebel's theory of early childhood education focuses on cultivating children's hands-on abilities and collective consciousness. Froebel Gifts are teaching toys designed by Froebel based on his early architectural learning experience. There are a total of six sets, with the third set consisting of eight small cubes being the most representative. Froebel Gifts is a geometric building toy that simulates the arrangement of objects in nature. It can construct various shapes through different forms of combination and arrangement, combining children's ideas with practice, and inspiring children to explore the arrangement rules and formal structure of objects.

In his autobiography, Wright recalls that when he was twelve years old (1879), his mother bought him Froebel Gifts during a trip to the Philadelphia Exposition. Wright read out natural laws from the construction patterns of Froebel Gifts and derived his own architectural principles from them. In 1908, when discussing the relationship between architecture and nature, Wright mentioned that "there is nothing richer, more enlightening, and more aesthetically meaningful for architects than understanding the laws of nature, considering the inner vision. [1]" Wright's architectural vocabulary combines the meanings and vocabulary of biological terms used by Sullivan, namely: nature, organic, crystalline, etc. The geometric patterns in Wright's subsequent structural modernist architectural style also reflect the shadow of "building blocks" due to this experience.

1.2. Wisconsin Farm

The formation of Wright's view of nature was not only

influenced by the Froebel building blocks, but also by his farm life experience. Due to the breakdown of Wright's parents' relationship, he was sent by his mother to foster care on the farm of his uncle James Lloyd Jones, who lived in Wisconsin, when he was eleven years old. That period was mentioned more than once in Wright's autobiography, in which Wright passionately describes the time he spent living with his uncle on the farm: "When driving cows on the dense mountains of the forest, he was barefoot and bareheaded, a greedy, curious, and adventurous mischievous child. Walk from the tranquil forest to the distant mountain top, or gaze at the warm yellow green sunlight on the grassland. In autumn, these mountains sparkle with dazzling colors, and when they sleep under the winter snow cover, they appear even more beautiful. Their shapes resemble giant primitive monsters lying calmly below [2]." Faced with forests, grasslands, and land, Wright felt the vitality hidden in nature. This deep emotional connection with nature cultivated his closeness to nature and his concept of harmonious coexistence with nature promoted the formation of his organic architectural ideas, which had a profound impact on his later architectural design style.

The natural scenery facilitated Wright's understanding of architectural laws, prompting him to seek laws from nature in his architectural design attitude. His intimate childhood contact with nature instilled in him a deep reverence for nature. When facing objects, he could subconsciously feel the balance of the natural forces within them, which is an inherent principle that objects hide under the cloak of nature and are not subject to human will. Therefore, Wright's view of nature emphasizes an attitude that is close to the Eastern philosophy of governing by inaction and letting nature take its course, which is reflected in reducing intervention in things and maintaining the original harmonious coexistence of things, highlighting the integrity and connection between buildings and the surrounding environment, and avoiding a sense of disconnection between buildings and the surrounding environment. This is also the embryonic form of Wright's

organic architectural thought. Later, under Sullivan's guidance, Wright further learned how to apply elements from nature to architecture.

2. The Transformation of Using Nature in American Modern Architectures

2.1. Sullivan's Nature Concept - Using Nature as Decoration

In addition to the Froebel blocks and his childhood experience on a farm, Wright's understanding of translating natural laws into architecture was also taught by his teacher Sullivan. Sullivan is an indispensable figure in the history of American architecture. He lived during the period of inheriting the Art Nouveau movement and inspiring modernist design, and was able to actively engage in the exploration of new architectural styles amidst the prevailing trend of eclecticism, becoming a representative figure of the Chicago School. Sullivan's attitude towards decoration is dialectical. He once expressed dissatisfaction with excessive luxury and waste of decoration in "Decoration in Architecture". He believed that some overly cumbersome and expensive decorations were not in line with practical needs and increased the cost of the building. This excessive pursuit of decoration was an uneconomical and impractical waste. He opposed adding cumbersome and artificial decorations for the sake of showing off, and advocated that decoration should be a reflection of the internal characteristics of the building rather than a simple external addition. Sullivan does not hesitate to use his sharp sword to simply imitate and apply historical architectural styles. He detests the mechanical replication of historical decorative elements and believes that the decoration in architecture bears the responsibility of truthfully reflecting current life and culture.

In the dialectical relationship with decoration, Sullivan's aesthetics trace back to nature. He applies the wisdom learned from nature to architecture, combining architecture with decoration originating from nature, and pursuing the authenticity and simplicity brought by elegant and simple natural elements. However, his extraction of natural elements and principles only stays in the decorative part of architecture. Owen Jones's book "The Rules of Decoration" takes an open perspective on the world of decoration and strongly portrays the decorative system of the Eastern world, which has aroused Sullivan's attention to architectural decoration; Meanwhile, Sullivan applied the plant forms described in Asha Gray's book Botany to his own decorative patterns [3]. In addition, the Art Nouveau movement, characterized by its vivid and undulating curves, which pursued a sensory and aesthetic style throughout Europe and the United States from the late 19th century to the early 20th century, also had an impact on Sullivan. Sullivan was published in 1924 *A System of Ornament According with a Philosophy of Man's Powers*, In the book, he focuses on the physiological, psychological, and spiritual needs of humans, emphasizing that architectural decoration should serve various human abilities and needs. While possessing practical functions, it should also enhance the beauty of the building through artistic design. He opposes the addition of hollow decorations solely for the sake of surface magnificence. The book also continues his previous concept of organic unity within buildings, viewing the decoration of buildings as emphasizing structural elements rather than just embellishments.

The Auditorium Building Building, completed by Louis Sullivan and engineer Dankma Adler between 1886-1889. It is not difficult to see that the dense plant decorations resembling the Art Nouveau movement style on the windowpane suggest Sullivan's architectural transformation towards natural laws. Secondly, the Chicago Grand Theatre (Figure 1) By using simple granite on three floors below the building and sandstone on four or more floors, in addition to emphasizing the vertical sense of the building in terms of architectural form, it also adds a sense of nature to the architectural style. Although Sullivan applied the laws of nature to architecture more at the level of architectural decoration, his idea of drawing inspiration from nature deeply influenced Wright.

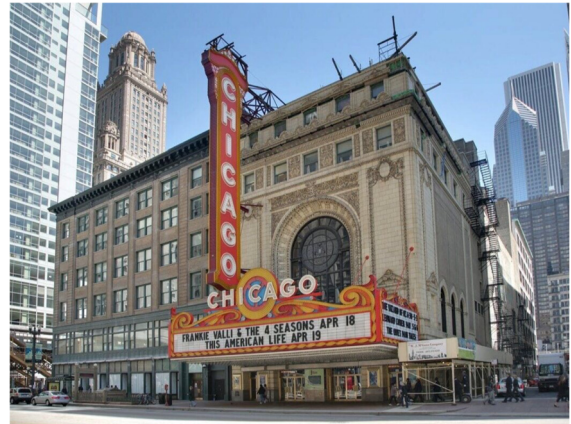


Figure 1. Chicago Grand Theatre

2.2. Wright's Nature Concept--Taking Nature as Foundation

Wright further developed Sullivan's concept of extracting elements from nature and applying them to architectural decoration, and elaborated on it in his own way, skillfully applying the principles of nature to form a more mature and systematic organic architectural concept. Wright continued the development of decoration in architecture by standing on Sullivan's shoulders, but his exploration of nature did not stop at architectural decoration, imitating the formal features of nature, but rather pursued the essential characteristics of natural activity. Wright once said that if we stop exploring nature, we only gain imitation. However, if we delve deeper into nature and understand its active laws, we will touch upon the essence that flows beneath form. Trees can be buildings, and buildings can also be trees[4]. This is the principle of Wright's natural law of architecture's transformation. The form of Wright's architectural design transcends the simple inheritance of geometric forms and rises to an instinctive perception of natural laws. Therefore, Wright's architecture gains a rhythm similar to music, infecting every viewer immersed in it.

Wright took nature as his teacher, drew inspiration from it, and translated it into architectural design to form an organic architectural concept, which is reflected in three aspects: firstly, the relationship between architecture and the environment. Architecture and the surrounding natural environment present a harmonious state, and through the use of building materials from the surrounding area, the architecture has local regional characteristics and integrates with the surrounding environment; 2, Regarding the relationship between various elements in architecture, Wright believes that regardless of the architectural style, one should not only focus on the specific parts of the building, but also

on the overall structure. Building details such as walls, ceilings, and floors should become integral parts of each other, allowing building elements to flow together, just like plants emerging from the soil, freely becoming themselves without any rules and living according to their own nature. Therefore, the overall structure becomes a tree of nature, but also a product of human spirit; 3, The functional zoning within the building and the flow lines based on subjective human feelings, Wright's architectural style emphasizes the extension of the interior space and the mutual flow between small spaces divided by functions, making different spaces both undertake different functions and unify as a whole, forming a flowing and continuous space. Therefore, we can conclude that the origin of organic architectural ideas is natural.

Wright's architectural style is constantly evolving, and after a long period of practical accumulation and work experience, he has developed natural architectural concepts into controversial and obscure organic architectural ideas. In order to explain the concept of organic architecture to people, Wright clarified his concept of "organic architecture" in his 1953 paper titled "Language of Organic Architecture". For this purpose, he listed nine entries that need to be defined. The first three entries are: natural, organic, and form follows function[5]. Therefore, "nature" is the core of organic architectural thought, and organic architectural thought is the architectural translation of "nature". The concept of "organic" in organic architecture originates from biology, in which "organic" is extracted from organisms[6]. Wright believed that "organic" architecture, like living organisms, has inherent life characteristics and unique principles of life itself. It is interconnected with the surrounding natural environment and has a communicative nature. Wright's concept of organic architecture is similar to the buildings he builds, except that the interior of the building is space, while the concept of organic architecture is filled with words such as nature, harmony, and so on.

3. The Trilogy of Breaking the Box of Modernism

3.1. Larkin Building

The development of anything is never smooth sailing, and Wright's exploration of organic architecture is no exception. The organic architectural style, which emerged in the context of the era dominated by modernist architectural style, caused Wright to be lost for a period of time. His wavering thoughts influenced his mind, and for a moment, he did not know whether his avant-garde style was a pioneering architectural design or an alternative alienation.

Later, Wright mentioned in his book *An American Architecture* that, on a chance day, he came across *The Book of Tea* written by Okakura Tenxin, which introduced the words of Laozi, the founder of Chinese Taoism, "The reality of the building does not insist in the four walls and the roof but in the space within to be live in." That is, "The reality of a building does not lie in the four walls and the roof, but in the living space inside[7]." "This is what Laozi thought: "Chisel the doors and windows as a room, treat them as nothing, and use them as a room[8]." The concept emphasized that "the convenience that something brings to people is precisely the function of the" vacant "part of something.". Wright's insight into space seems to extend along the veins of ancient wisdom, and his profound understanding of spatial perception seems to resonate with Laozi. In an era filled with post Renaissance and eclectic styles, Wright may feel like a prophet, and his contact with Laozi's ideas became a key turning point in his understanding of the true essence of space. He drew inspiration from Taoist philosophy and shaped his own thinking to understand and define the essence of space. Laozi's thoughts are like a ray of light, To dispel the gloom and illuminate the path forward for Wright in his confusion. If the transition from closed walls to walls with doors and windows open is an evolution of modernist architecture, then in modernist architecture, freeing architectural support from the corners, breaking down closed walls, allowing space to come in or go out, allowing architecture to communicate both internally and externally, and pursuing beauty and rationality is the desire of organic architectural thought (Figure 2).

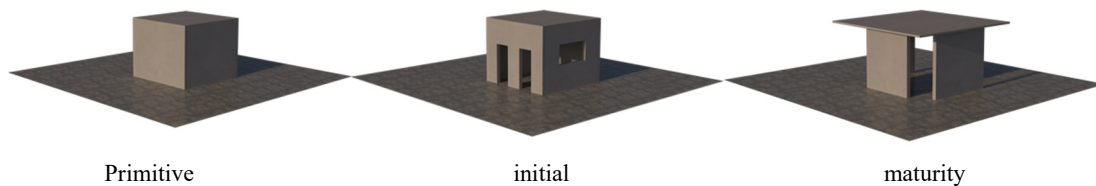


Figure 2. Break closed walls to allow space in and out

Wright's first conscious attempt to strike the box of modernism and put his ideas into practice was at the Larkin Building in 1906. After a great intellectual struggle, he pushed out the staircase towers in the building from the corners of the main building, giving them free and independent characteristics, and using this as a starting point, he opened the prelude to the liberation of modernism from organicism. In the Larkin Building, Wright sought a technological means to deal with the intangible entities of the internal space, which Laozi referred to as "nothingness", rather than the visible and tangible structure itself. By adopting an open office layout, he broke the traditional closed office pattern and cleverly utilized natural light, making the entire office space more transparent and bright. In addition, he also pays special attention to the

vertical design of the building, creating a serious, grand, and commemorative space with towering towers and a rooflit atrium. He uses bricks, glass, and metal elements in architecture, which not only enhances the connection with the external environment but also reflects the technological level of modern industrialization. Every building designed by Wright takes into account its specific environment, and the Larkin Building is no exception. Although it is located in an industrial area, Wright still strives to make it harmonious with the surrounding environment. The Larkin Building is a great practice for Wright's concept of organic architecture. It not only embodies the concept of harmonious coexistence with nature, but also demonstrates the significance of architecture at the social and cultural levels.

3.2. Unity Temple

In 1905, a lightning strike triggered a fire that destroyed the Unity Church wooden church in Oak Park. The next day, renowned architect Frank Lloyd Wright, who lived in Oak Park, took the initiative to propose the design of a new church, known today as the Unity Temple. In the Unity Temple, we can see that Wright's attitude of breaking the box is stronger than in the Larkin Building. The Unity Temple is not only Wright's earliest traditional religious architectural work, but also his most important architectural work in the early 20th century.

The bronze lettering above the entrance of the United Church announces the purpose of the building: "To worship God and serve humanity." People pass through a low foyer and enter the chapel, bathed in honey colored light under the flower window art glass. This compact and low "compression" entrance is followed by the "release" of the open space in the lobby, which is one of Wright's commonly used spatial techniques to increase the dramatic exploration of the space by visitors. Although the main ceiling is high, the space is very intimate. Unlike traditional worship spaces, believers do not face in the same direction. The square chapel of the United Church has three floors with a total of 400 seats and allows for more democratic spaces where everyone can see others. In addition, the textured and earthy plastered walls have a glowing luster, which contrasts sharply with the simple concrete appearance. The tall glass skylights inside the building also fill the space with warm light, allowing people to immerse themselves in the warm sunshine even indoors.

The design of the Union Church adopts the geometric shape of a cube, which is a revolutionary design decision in the field of religious architecture. The building does not have a pointed roof that extends towards the sky or a clearly marked entrance to welcome visitors. On the contrary, Wright's focus is on how space itself and its functions are expressed. Due to the building being located on the street corner, Wright did not install street windows in the design to prevent any noise from interfering with the worship. The building achieves harmony between humans and nature by receiving natural light through high windows on the upper walls and a series of square colored glass skylights that penetrate the ceiling. The design of the United Church broke the tradition of religious architecture in the United States and Europe, using a large amount of reinforced concrete, which was very innovative at the time. The use of concrete not only provided structural stability, but also gave the building a strong and eternal appearance. The gray tone of concrete material is coordinated with elements such as grass stacks and soil in nature, reflecting the intimate relationship between architecture and nature, and also symbolizing the harmony between humans and nature. This color selection not only reveals Wright's careful selection of materials, but also cleverly embodies Wright's organic architectural concept.

3.3. Fallingwater

The Fallingwater designed by Wright is one of his representative works (Figure 3), It is also one of the most famous buildings of the 20th century. This Falling water was built from 1936 to 1939 and is located in Pennsylvania. It is a culmination of Wright's organic architectural philosophy, which is expressed more maturely in Falling water. Wright cleverly combines architecture with terrain through design, and from a distance, there is no sense of conflict between the building and the surrounding environment. The entire

building is as natural as a tree growing out of the ground. We can clearly see that Wright has elevated his previous concept of unifying the overall and partial interior of the building to a higher level, and creatively incorporated the waterfall into the architectural design to make it a part of the Falling water. We can clearly see that Wright has elevated his previous concept of unifying the overall and partial interior of the building to a higher level, and creatively incorporated the waterfall into the architectural design to make it a part of the Fallingwater.

The Falling water has three floors, each of which is like a huge reinforced concrete tray supporting the walls and columns. One side of the building is connected to the rocks, while the other side is suspended in the air with a bold cantilever structure. The cantilever structure not only provides people with opportunities to get close to, enjoy, and appreciate nature in terms of function, but also resembles Wright's imitation and translation of nature and the formal construction of Froebel Gifts in form. Unlike the static modernist architectural "box", the cantilevered structure tears apart the overly rational framework of modernism with its dynamic tension, breaking free from the constraints of concrete and steel bars, and pursuing the stability and imbalance of the dynamic "activity" moment of life. From the appearance, the Falling water architecture is like the Froebel Gifts that Wright encountered when he was a child, composed of geometric combinations. This imaginative building retains the architectural style and shape of the blocks while also possessing Wright's unique architectural language of being close to nature. Unlike modernist "box houses" that are filled with suppressed and restrained emotions, Wright used a building block like technique in the design of Fallingwater to form a cantilever structure through building openings or block extensions, breaking through the traditional concept of modernist architecture that simply enclosed buildings into hexahedra. He connected and freely divided the internal spaces of the building to form a flowing continuous space.

The organic combination of Fallingwater and their surrounding environment creates a sense of "following the natural way", which is precisely the organic architectural philosophy contained in Fallingwater, In his 1964 book *The Natural House*, Wright talked about philosophy in organic architecture, From a deeper philosophical perspective, organic architecture is something more Eastern than the West. Wright believed that his works were closer to the East, and his architectural ideals shared with Laozi, the founder of the Chinese Taoist school. Wright admitted that American society does not have the same profound understanding of Taoist thought as the East. Easterners have different architectural thinking from Americans, and the spiritual connotation of organic architectural thinking shares more similarities with Eastern culture than the West. Easterners are able to follow their instincts to build houses without any impurities, which is reflected in the Chinese people's obedience and respect for nature[9]. The organic architectural concept in flowing villas shares similarities with the Chinese Taoist philosophy of 'heaven and earth coexist with me, and all things are one with me. In Laozi's philosophy, 'Man follows the earth, the earth follows the heavens, the heavens follow the Tao, and the Tao follows nature.[10]' Both Laozi and Wright hope to follow the laws of nature and coexist harmoniously with nature, as humans follow the earth, earth follows the heavens, and heaven follows the Tao.

The design of a flowing villa is not to showcase

architecture, but to use design as a bridge for communication between humans and nature, bridging the gap between humans and nature. While making people feel familiar, it is also thought-provoking. It provides reasonable solutions for the relationship between humans and nature, conveying the concept that humans can meet their own needs through appropriate changes without damaging nature. The game between humans and nature is never an absolute winner or loser. The intense competition between both sides will inevitably lead to the loss of their own interests. Only by shaking hands and promoting harmonious development can we meet the development needs of both sides [11]. To this day, the design of flowing villas still has important reference value in dealing with the relationship between humans and nature.

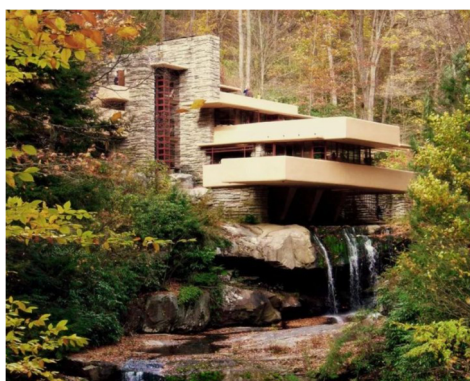


Figure 3. Fallingwater

4. Conclusion

The geometric three-dimensional shape of the Froebel Gifts sparked Wright's interest in geometric architecture, and it is precisely because of this that Wright's modernist architectural style is filled with the sense of block building. The experience of living on a farm with his uncle in his childhood unconsciously cultivated Wright's attitude of being close to and respecting nature, which led to the formation of Wright's concept of nature. As an adult, he worked in architecture with Louis Sullivan, who brought Wright the idea of drawing inspiration from nature and applying it to architectural design. Based on his understanding of nature,

Wright further developed Sullivan's organic concept and natural style, forming an organic architectural concept rooted in nature and centered on nature.

Wright challenged modernist enclosed architectural design with his pioneering work in the fields of Larkin Building, Union Church, and Flowing Villa. With his unique and block like architectural style, he broke the box like blockade of modernist architecture on nature, narrowed the distance between humans, architecture, and nature, blurred the sense of boundaries that originally existed between them, and aroused people's attention to environmental issues. In an era where humans and nature are in opposition and urgently need to protect the environment, he provided us with a reasonable solution to the contradiction between architecture and the natural environment. He spread the organic architectural concept centered on conforming to nature and protecting ecology, guided designers to pay attention to the survival issues between humans and nature, and constructed for us. More emotional Architecture with more humanistic emotions provides rich experience and inspiration.

Acknowledgments

This paper is a result of the 2023 Education and Teaching Reform Project of North China University of Technology, Project Number: 108051360023XN264-23.

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