

# Wright Explodes the Box

by Jonathan Friedman

This article is part of a work in progress on the theory and practice of architecture called *A History of Imaginations*. The central idea is that human undertakings on the scale of architecture require broad collective efforts which can only be supported through mutually shared enthusiasm and vision and which can legitimize the context of human affairs. Such collective visions I call "Imaginations." To me they seem simple, special, and powerful enough to unify a variety of artistic, social, technical, and philosophical manifestations at significant moments in history.

This section of *A History of Imaginations* studies a primary "Imagination" at the time that immediately precedes our own. It considers how Frank Lloyd Wright's architecture eloquently expressed an "Imagination of Explosion" in broad practical and poetic terms and, in so doing, helped prepare the way for a subsequent vision of change and transformation that is the heart of the "Imagination of the Plastic," which I believe remains the major preoccupation of art today.

## WRIGHT EXPLODES THE BOX

"Today the young man I have in mind hears much, too much about new and old. Sporadic critics of the 'new' take their little cameras about—(snapshot emulation by the half-baked architect)—and wail, or hail the dawn. If by chance the novice builds a building the cackling, if not the crowing, outdoes the egg. Propagandists, pro and con, classify old as new and new as old. Historians tabulate their own oblique inferences as fact. The 'ites' of transients 'ists' and 'isms' proclaim the modern as new. And yet architecture was never old and will ever be new."<sup>1</sup>

<sup>1</sup>Frank Lloyd Wright from *To The Young Man in Architecture*

## THE HEART IS HOLLOW

The failure of Post-Modernism is that it does not recognize that the heart of things is hollow. At the center of meaning remains mystery. Profound insight understands there is no need to fill up everything, especially the new, the unknown, and the unsolved with pieces from and references to a comforting past. Perhaps there are classic (calm) and baroque (agitated) tendencies in every age, but it is good for us to recall that the Parthenon, Pantheon, Hagia Sophia, San Carlo alla Quattro Fontana are each unique. These architectural achievements survive like Old Master paintings because they are each good. Their example in surviving have become "classic," in the sense of "best in class," rather than in the sense of permitting imitation. Each classic work solves the needs of its time, expressing the vision of its time through the materials and techniques of its time.

Too often we seem to forget this simple truth today. How sad that a fancy magazine presenting itself as a digest of architecture regularly displays expensive encrustations of useless junk, hideous perversions of what our profession can truly achieve. It is as if a music critic judged an orchestral performance only on the basis of the salaries of the musicians. Is it over-reacting to say AT&T revealed its own

redundancy and thus allowed the eventual breakup of its magrcently integrated communication system when it permitted Philip Johnson to insist on such a foolish and foppish hat for its corporate headquarters? With environmental pollution, ecological fragility, unequal distribution of human wealth, the proliferation of information in an electronic age, energy conservation, and so many other desperate human problems demanding to be resolved, how sad it is that human invention and human resources are wasted on something so irrelevant as that pointless ungainly broken pediment. We need only compare Burnham's Reliance Building of 1889, Wright's Larkin Building of 1904, the Venin Brothers' Pravda Tower of 1923, Horta's Maison du Peuple of 1897, and even Hugh Stubbins' recent Citicorp Tower to get a sense of the tragedy of the opportunity Philip Johnson so foolishly squandered.

Post-Modernism claims to celebrate surprise, wit, image, and an ironic mix of reality/illusion, order/chaos, and expectation/discovery. But in allowing an image to stand for the thing itself, it has many constructions which are often thin, flat, flimsy, and unnecessary. The search for new richness has often resulted in crotchety superficiality.

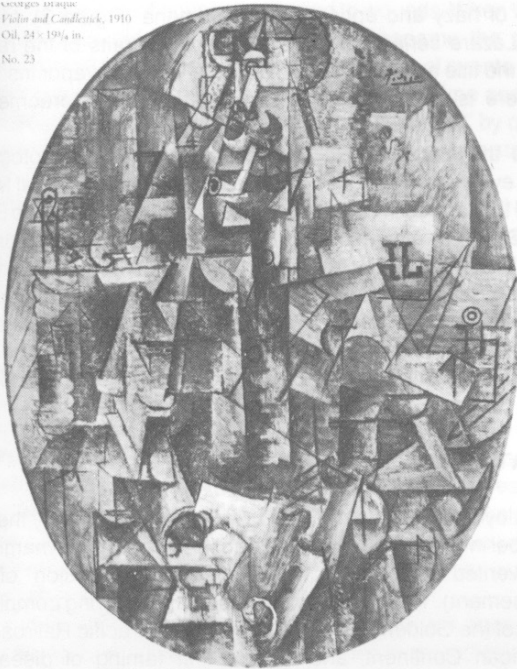
It might be instructive to recall that the first "modern" houses had inglenooks, richly articulated interiors, and complex patterns in tile, window glass, carpetings, and furniture. The colors varied from rich earth tones to fully saturated pure hues, to muted pastels with trick of light creating a rich variety of both open and sheltered spaces. But in addition, these noble works of architecture possessed a formal logic and spatial order that grew from a direct attempt to solve real problems with technical innovation, structural honesty and daring, and poetic simplicity, and a real sensitivity to the needs of man, material, and earth. To be able to distinguish what is relevant, clear, and wonderful in today's architecture from inane pastiche and the mere tired reworkings of hackneyed cliches, we may do well to rediscover Frank Lloyd Wright's early Prairie Houses and the impulses they created them.

The Prairie House *parti* is simply stated: a slab on grade supported by free standing planes slipping around flowing space with corners de-emphasized, mass dispersed to the periphery, and dynamic asymmetry cultivated as often as symmetry. Low shallow sloping roofs with deep eaves surround a chimney which acts as spike and anchor to the earth, in which center is a broad and glowing heart. The spatial strategy is to permit the elements of container to yield to the internal force of volumetric and planning order (Figures 1 and 1a). Thus the rooms keep their integrity while the overall configuration is aleatory, discovered, loose, expansive.

From a massive center the home extends in overlapping forms to engage the horizon. The soul of this central mass is a hollow tube of air and flame that gives heat and breath to the dwelling, an architectural inspiration and respiration for the inhabitants.

But it would be wrong to conclude that we had found a Frank Lloyd Wright "style" that could be duplicated as needed. This is what imitators tried to do, and clearly life has left their works. There is no short cut. We can only understand Wright's great achievement

Georges Braque  
*Violin and Candelstick*, 1910  
 Oil, 24 x 19 1/4 in.  
 No. 23



*Man Smoking a Pipe*, Picasso, 1911

architectural spirit through a true investigation of history: by following the thread of imagination which gives thought wings and creates form from ideas—rather than through the (Post-Modern) abuse of history that is simply content to reduce the reified intention of physical reality, so painfully learned through experiment and reflection, to a copybook of sterilized shapes. The physical and intellectual world of Wright's time molded him as surely as ours molds us today. By understanding the formative influences on him, we may be able to identify the challenges of our own unique moment.

## LAVOISIER

The man who discovered oxygen was also the first to discover human metabolism as a kind of combustion, a fire of gases taking place in the heart-lung engine. This great scientist, Antoine Lavoisier (1743-94) applied these insights to a study of breathing in rooms and can thusly be considered the father of the fields of ventilation, "mechanical systems," and air conditioning. At a more basic level, Lavoisier designed an experiment which created and analysed water by igniting a mixture of hydrogen and oxygen gas. For this work Lavoisier is considered the father of modern chemistry. The publication of his *Traite Elementaire de Chimie* in 1789 has come to signify the beginning of the "scientific revolution." Lavoisier also played an important role in planning and reporting on some of the most exciting

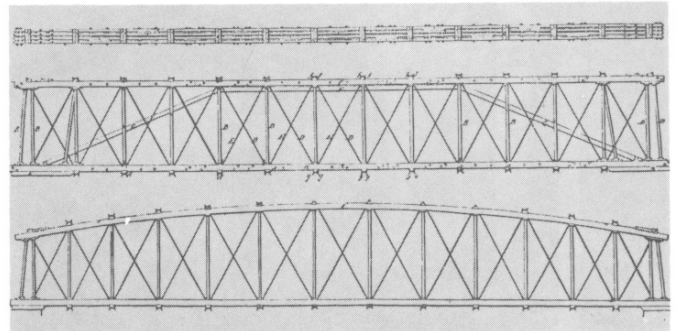
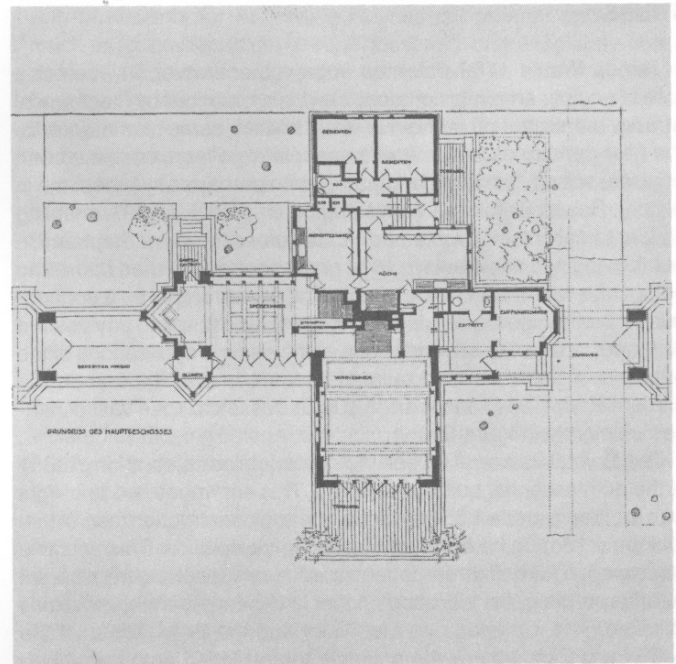


Fig. 2 Truss Agust Canfield, 1833



*Wards Willits House*, Highland Park, Ill., 1901

scientific experiments of his time—the early flights of the hot air balloon. All of these activities share a fascination with fire, combustion, and the behavior of gases. I submit that these concerns form one of the major themes of human thought during the 19th Century.

Controlled, contained, or accelerated fire—these Promethean preoccupations soon went beyond the bounds of any previous experience with energy. The early "modern" explosions that most affected human perception took place near Paris on June 4, 1783, when the Montgolfier brothers captured a bag of hot air (at first they thought smoke was the levitating agent) and sent it aloft for 10 minutes. Three weeks later animals became the first creatures without natural wings to leave the earth. By November 21, 1783, men had achieved free flight across Paris and by December 1, 1783, Jacques Charles made a flight of 2 hours covering 27 miles in a hydrogen balloon. After Charles let off his passenger, he continued alone, ascending to an altitude of over 2 miles. During the same time as world political revolution, humanity had also literally exploded itself free, creating a floating platform that could hover above the common plane and enable all men to see beyond the old horizons dictated by gravity. As the contemporary Declaration of Independence expressed it: men had the right to "dissolve the bonds . . . which have connected them."

## TRUSS

James Watt's 1769 patented improvements over Newcomen's steam engine, an explosion controlled in a chamber by mechanical arrangements, set off a chain of events which came to characterize the next century as the time when people were more obsessed with physical speed, distance, and power than perhaps any other time in history. Robert Fulton put Watt's engine on a boat in 1807, enabling sailors to carry their own tamed winds across the seas. Stephenson put the engines on wheels in 1814 and a new kind of road came into being, one which was made of rails and ties arranged as a continuous web of support extended through any landscape to any desired distance. In fact, the railroad is one of the earliest applications of the principle of the truss, and railroads soon came to depend on the modern Pratt (1844) and Warren (1848) trusses to span vast distances efficiently. (Figure 2)

The Crystal Palace of Queen Victoria's Jubilee celebration of 1851 is the quintessential building of its era. This enormous house of light was arbitrarily made 1,851 feet long. It was a construction marvel that took only 18 months from conception to completion. This primitive glass web, a kind of three-dimensional truss supporting transparent weatherproofing, set a precedent that later international expositions followed. The Galleries des Machines and the Eiffel Tower of the 1889 Paris Exposition were a simple three-hinged arch and a balanced set of catenaries, respectively, built at grand scale through judicious application and understanding of the structural principles of the truss. The development of the modern steel frame building, from the cast iron facades used by Bogardus in New York City by the 1840's, to the fully-realized orthogonal space frames of the Reliance Building (1895) and Carson Pirie Scott Store (1899-1904) in Chicago, to the luminous Penn Station (1903-1910) of McKim Mead and White, to the early skyscraper towers like the Woolworth Building (1911) (the elevator as a vertical railroad), even to the open space-frame of mile long extruded beams proposed for orbiting space stations can be understood as a long essay in the possibilities of the habitable truss.

A truss, we may observe, is a beam or column which has exploded. Like popcorn, the mass of the old structural member is redistributed to extend further in space. The new configuration can be thought of as an openwork column or beam whose strength has been tremendously increased through dispersion of mass to critical extreme fibers, according to the logic of structural geometry. Frank Lloyd Wright's genius lay in his ability to transform these technical engineering achievements into a new order for that peculiarly human realm—space as unity of concept and experience.

The gossamer glass shed of The Crystal Palace suggests another important development of the era, a visual corollary to the technical innovation of the truss. Painters of the 19th Century discovered that light in vision could be so powerful as to break up form. J.M.W. Turner carried this perhaps the furthest in his *Rain, Steam, and Great Railways* (1844) which merely suggests a portrait of a railroad engine through precise

depiction of hazy and ephemeral phenomena (Figure 3). Monet's *Gare St. Lazare* series (1876-78) are less portraits of the railroad station in the title as they are studies of the light and vapor inside the shed. There is hardly any information about the stereometry of objects.

Just as the newly developing science and art of photography recorded every point of light on the picture plane with equal fidelity, so too did the Impressionists and the Post-Impressionists like Seurat and van Gogh permit *facture*—the actual brushstroke structure of a canvas—to dominate the original subject matter. When Wright found a way to open up his architecture, he discovered like his contemporary Cezanne, that as old mass (the house) disintegrated, the free-to-move individual elements (Froebel blocks at residential scale) took on expressive qualities from their unique geometry, suspended, revealed. (Figure 4)

## FOUNDATIONS

Frank Lloyd Wright's birthday is usually given as 1867, the year Alfred Nobel invented dynamite, Siemens perfected the dynamo, and Monier invented reinforced concrete (a kind of "explosion" of steel frozen in cement). This year saw the Suez Canal nearing completion, the laying of the Golden Spike joining the Union Pacific Railroad and the American Continent, and Lister's first taming of disease in



Fig. 3 Gare Saint-Lazare, Monet, 1877

surgery by the use of antiseptic applied to wounds. When Wright was 9, the 40 year old age of the telegraph became the age of the telephone, and forever after the communication of events—even the subtlest nuances of emotion—would transcend time and distance. When Wright was 12, Edison created “Cartesian fire” by capturing a slow electrical explosion in a vacuum bulb bringing the stars to earth at night.

As the population of Europe exploded in the cities and as agriculture failed, immigrants dispersed like dandelion seeds across the globe. Many of Wright’s Welsh forbearers settled near Spring Green, Wisconsin. Wright, like so many Americans, knew rootlessness as a recent memory. The “amber waves of grain” of the Great American Plains may well have felt like a continuation of a vast sea voyage—pioneers to merely anchor their Conestoga wagon prairie schooners to gather the vegetal bounty of the nearby soil.

Nomadic Indians, still beyond federal jurisdiction during Wright’s childhood, continued a tradition of living lightly on the land as they moved with their horses and tepees (true mobile homes) across a boundless land. Wright annually re-enacted these treks after 1938, when he built Taliesin West and moved from his native wet Wisconsin farmland in the summer to the warm Arizona desert in winter, and then back every year.

Is it any wonder then that the architect Wright came to a new understanding of building’s relationship to the earth? He dispensed

with basements for his Prairie Houses out of inner conviction as much as for any technical need. A house with only a radiantly-heated slab on grade could ride gently on the land, in harmony with the horizon. The anchor for such a “vessel” could be a single vertical—the chimney—as a central spike which could tether the wander-home like a mast for a hot air balloon or dirigible. (Figure 5)

Wright eliminated what Gaston Bachelard calls “the dark entity . . . the irrationality of the cellar. . .”<sup>12</sup> when he insisted on building his Prairie houses on slabs on grade. By freeing the home from the grave and coffin usually found below it, Wright was able to create a form that was the legitimate inheritor of the pioneering spirit of his ancestors—a spirit rejecting the illusion of permanence that does not necessarily reject a sense of security. Beneath the typical European concept of property there could be for Wright a sense of the limitless freedom and unity of the earth that could not easily be violated by digging holes and making scars. In a sense, the horizontal Prairie House also respects the Native American reluctance to “wound the earth.”

Wright’s expressed strategy for Taliesin, the Shining Brow to be built around a hill in Spring Green, was “of the hill,” not “on the hill,”<sup>13</sup> and might appear at first to contradict the intention of the basement-less Prairie Houses. Rather, both are manifestations of a more profound vision of the meaning of *Site*. We can say for Wright that the grade line was “free” in much the same way that facade and plan

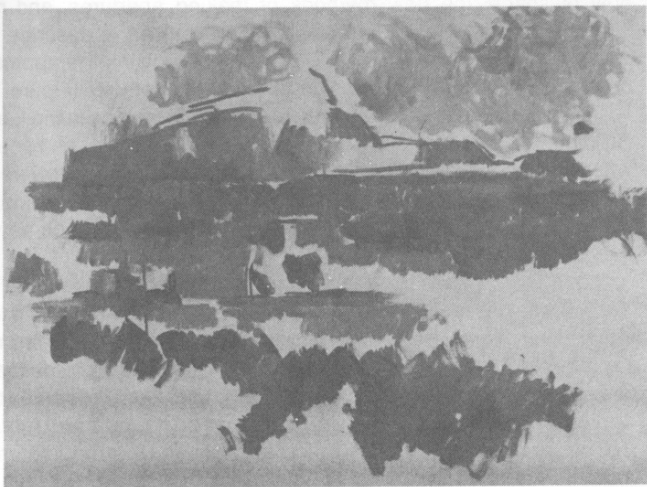


Fig. 4 *Mont Sainte-Victoire seen from Les Lauves, Cézanne, 1904*

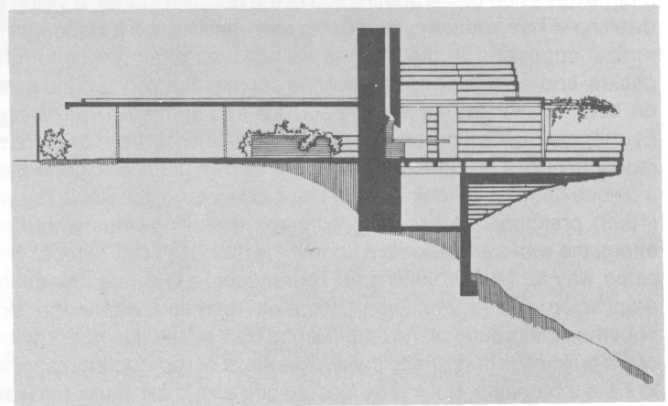


Fig. 5 *Sturges Residence, Los Angeles, Ca., 1939*

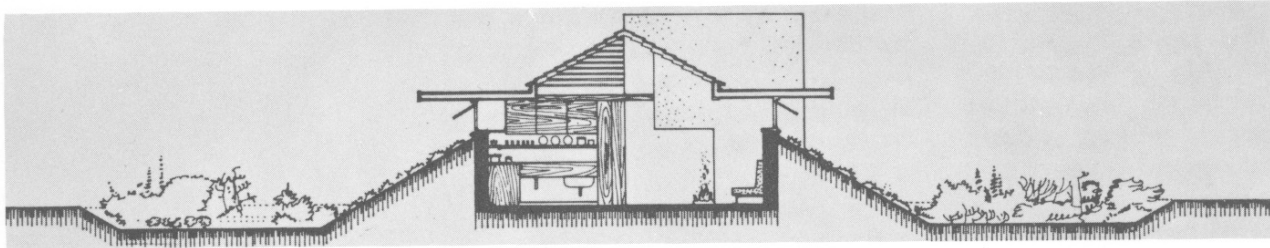


Fig. 6 Cooperative Homesteads, Michigan, 1942

were "free" for Le Corbusier. Wright felt comfortable in experimenting with the many different possibilities of the intersection of grade line and building because he understood the home as a self-contained entity—extending into the landscape and embracing it, to be sure, but always whole, complete in itself, an *organic unity*—as he liked to call it.

If we regard the Great Plains as a terrestrial wave of null-amplitude, and the Spring Green hills as waves of higher amplitude and frequency, and the Bear Run, Pennsylvania site of Fallingwater, as a wave of extreme vertical slope, then the position of the center of the home in regard to its bearing material becomes more consistent. Also we can understand the later Usonian beam house experiments as not really a violation of the grade line—the original place of repose of the soil—but rather an environment tempering device for the old Prairie house, still gently placed on the surface. Thus, a house on a Prairie becomes a home of the horizon, not on a dark and artificial hole. (Figure 6).

Such sensitivity and respect to how a building meets the earth was to find its ultimate justification in the design, construction, and survival of the Imperial Hotel (1922) at Tokyo, Japan. When the great Japanese earthquake of 1922 leveled much of the city, Wright's design stood virtually intact. Wright explained that the bearing conditions of the spongy soil required him to design a pad of piles on which a building would "float," flexibly riding the tremors of the quake. He used the image of a waiter balancing a tray on his fingertips, an image he had seen on his trans-Pacific crossing. When we keep in mind that the waiter himself is riding the ocean waves with the ship, the sense of foundation as a dynamic condition Wright the architect-engineer envisioned must have been very strong indeed.

Thus, the notion of home as a horizontal entity is not just a question of long bricks, casement windows, and low roofs with broad eaves (though all these were consciously manipulated to achieve maximum expression of the dominance of the horizon); rather, a vision of dwelling in layers with respect to the earth itself. Such a stand was in radical opposition to the heaped up Victorian affair whose turrets, gables, and vertical windows seen to oppress the very ground it sits on. Very much in the same way Paul Klee's diagrams in *The Thinking Eye*<sup>4</sup> show how a line can generate parallel lines from the forces radiating from it, Wright's attitude to the slab on grade also generated a unique concept of roof. The cantilevered eaves of the Robie House (1909) prefigure the cantilevered slabs of Fallingwater, where, in effect, the roof can become a floor of the dwelling itself. In much the same way as Le Corbusier's La Tourette, at Fallingwater the entire proposition of the traditional home is reversed where the sky becomes the ground plane of reference from which the organization of the building is hung. Fallingwater seems of its rock footing, clinging to it like a barnacle. But it is as much a bird as it is a mollusk (as is so many of Wright's later homes including Wingspread (1937), the C.R. Wall House, Michigan (1941), the Carr House, Chicago (1950), the Sturges House, California (1939), and even the \$5,500 Herbert Jacobs House, Wisconsin (1937). The drama of living seems to resonate

between the two extremes of repose and flight.

Orville and Wilbur, the other Wrights, gave the world powered-flight in 1903. Only six years later, Frank Lloyd Wright built the Robie House with roofs more like airfoils, like lifting bodies, like wings. Often the feeling of the roof of a Wright home is that it is hovering, posed for flight. The strength of the roof form serves curiously to levitate the entire structure, making the space of dwelling itself light in a fundamentally new sense. It is as if the foundation itself soars, carrying the inhabitants into light, freedom, and hope.

### THE HEART(H) IS HOLLOW

Wright was not content to merely open the bounds of the vertical dimension. He is well known for his call to apply the Taoist teachings of Lao Tze to architectural design. The Japanese ambassador to America sent Wright a copy of Okakura Kakuzo's *The Book of Tea* which included this passage:

The reality of a room is to be found in the space enclosed by the roof and walls, not in the roof and walls themselves.<sup>5</sup>

Ever the egoist, Wright describes how deflated he was to discover that his thoughts which he had prized for their originality were in fact over 2,500 years old. It was not until he had reasoned,

After all, who built it? Who put that thought into buildings? Lao Tze nor anyone had consciously *built* it . . . Well then, everything is all right, we can still go along with head up.<sup>6</sup>

that Wright could accept his own contribution as valuable.

Wright pursued a complete destruction of the old meaning of dwelling as containment which had gone before him. He calls this new vision "The Destruction of the Box,"<sup>7</sup> but given the resulting free flow of space, the new methods of making apertures, and new strategies for extending plan elements we choose to describe this vision as an "Explosion of the Box." Wright explains the approach best in his account of the design of the Unity Temple. (Figure 7)

"I think I first *consciously* began to try to beat the box in the Larkin Building—1904. I found a natural opening to the liberation I sought when (after a great struggle) I finally pushed the staircase towers out from the corners of the main building, made them into free-standing, individual features. Then the thing began to come through as you may see.

"I had *felt* this need for features quite early in my architectural life. You will see this feeling growing up, becoming more apparent a little later in Unity Temple: there perhaps is where you will find the first real expression of the idea that the space within the building is the reality of that building. Unity Temple is where I thought I had it, this idea that the reality of a building no longer consisted in the walls and roof. So that sense of freedom began which has come into the architecture of today for you and which we call organic architecture.

# The Visual Observations of Frank Lloyd Wright's Unity Temple

You may see, there in Unity Temple, how I dealt with this great architectural problem at that time. You will find the sense of the great room coming through—space not walled in now but more or less free to appear. In Unity Temple you will find the walls actually disappearing; you will find the interior space opening to the outside and see the outside coming in. You will see assembled about this interior space, screening it, various free, related features instead of enclosed walls. See, you now can make features of many types for enclosure and group the features about interior space with no sense of *boxing* it. But most important, after all, is the sense of shelter extended, expanded overhead, and which gives the indispensable sense of protection while leading the human vision beyond the walls. That primitive sense of shelter is a quality architecture should always have. If in a building you feel not only protection from above, but liberation of interior to outside space (which you do feel in Unity Temple and other building I have built) then you have one important secret of letting the interior space come through.<sup>8</sup>

Wright did not leave his new open and flowing spaces sterile and empty. Instead, he animated them with soul and spirit. What had been typically dead spaces were now ennobled. For instance, the office secretarial pool, normally a noisy, crowded and buried back room, was given lofty dimensions and placed at the center of both the Larkin and Johnson's Wax Buildings. At Johnson's Wax, as at the Unity Temple and the Guggenheim Museum in New York, the entire

central ceiling soffit was made into an integral structural skylight. In a sense, the space of the building turned upward and opened like a flower to collect the warmth of the sun.

In Wright's houses, the narrow Victorian coal chimney opening below a mantelpiece was enlarged to become a true log-burning fireplace and thus the hearth itself became hollow. The hearth was a visible expression of Lavoisier's insights that a home, like the human body, could have a healthy metabolism—an oxygen burning in its heart and lungs to keep the body warm and the spirit alive. Together, glowing chamber and flowing space could create a true sense of shelter that radiated from a living center all the way to a boundless horizon.

The strategies to articulate this extension of space were numerous. Perhaps the Isabel Roberts house in Oak Park (1908) is the first residence to clearly present the full spatial proposition of a double height cube living room through which smaller living wings may slide at both upper and lower levels, thereby establishing a dynamic play of *axis mundi*, spatial sheer, and a resulting tension between center and edge. In general, the plans are dense toward the center and erode into a rough oval toward the edges, a compositional form to be found also in the nearly contemporary Analytic Cubist paintings. Even the Robie House exhibits the central cubical volume through which the servant and the served wings slide (See Figures 1 & 1a).

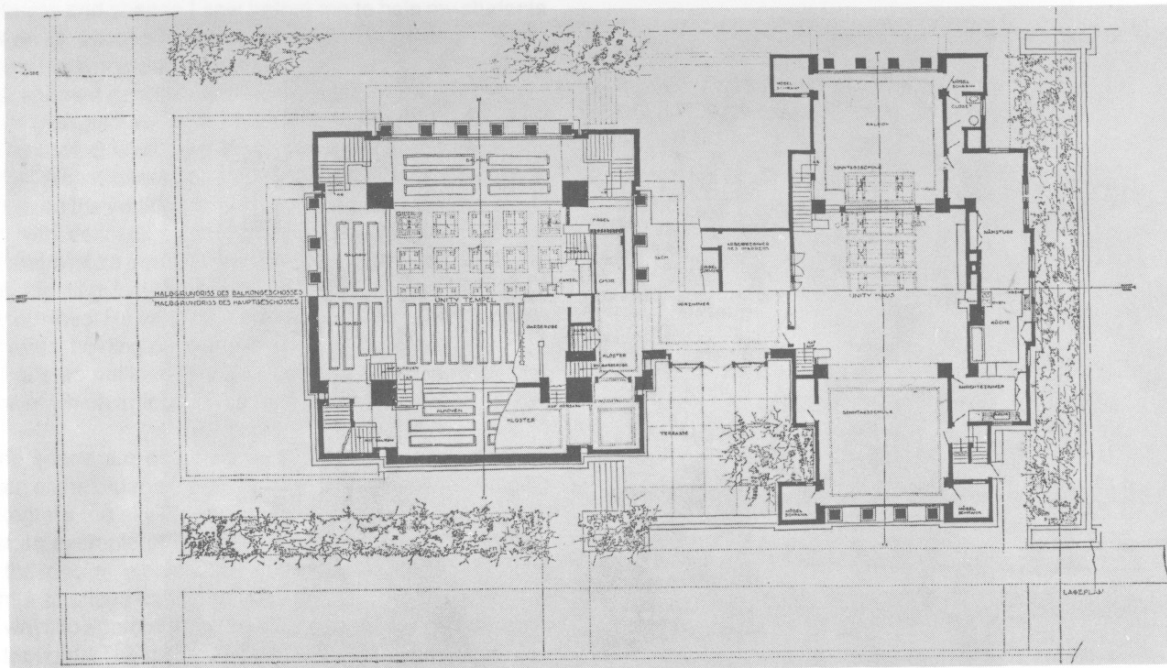


Fig.7 Unity Temple, Oak Park, Ill. 1906

When the program and budget were rich enough, Wright employed many planning devices to physically dissociate distinct elements of the composition. Porticos, trellises, porte-cocheres, terraces, low walls, repeating sets of urns on pedestals were all essentially open work exterior habitable "trusses" that inexpensively extended the space of the house into the surrounding landscape or unified elements that were in danger of being too dispersed, such as garages and playhouses (Figure 8).

These plans and forms were to have far reaching influences, and were the elements most obvious to the readers of the historic *Wasmuth*<sup>9</sup> (1911) and *Wendigen*<sup>10</sup> (1925) editions of Wright's work. It takes no imagination to find the debt to these Wrightian designs in Mies van der Rohe's Brick House projects (1923), Reitveld's Schroeder House (1924) and his much later sculpture pavilion at the Kroller Muller Museum (1954), Van Doesburg's Project for a Villa (1923), Le Corbusier and Jeanneret's plan for the League of Nations (1927), and perhaps even in Corbu's late Zurich Pavilion (1965). Of course, these works also exemplify new directions, particularly in their desire to modulate and transform the explosive force of this newly liberated conception of space that Wright had unleashed. But such desires more properly belong to a new enthusiasm for the capacity to mold and remold, a kind of vision that belongs to the world of relativity, cinema, nuclear alchemy, genetic engineering, and Cubism. These trends share a certain sense of unity from the view-

point of an "Imagination of the Plastic," the 20th Century state of mind in which we still find ourselves. Wright envisioned and led us to this promised land, but he cannot properly said to have entered it himself.

Today's challenges in entirely new areas including computers, human longevity, global ecology, and political pluralism demand that we architects search for the source of genius Wright found.

1. Frank Lloyd Wright, *Writings and Buildings*, ed. Kauffman and Raeburn (New York: The New American Library; Meridian Books, 1960), p. 233.
2. Gaston Bachelard, *The Poetics of Space* (Boston: Beacon Press, 1964), p. 18.
3. Wright, *Writings and Buildings*, p. 173.
4. Paul Klee, *The Thinking Eye*, Documents of Modern Art, Vol. 15 (New York: George Wittenborn, 1964), p. 27
5. Okakura Kakuzo, *The Book of Tea* (1906; reprint ed. Fox Duffield, New York: Dover, 1964), p. 24.
6. Wright, *The Natural House* (New York: Bramhall House, 1954), p. 221.
7. Wright, *Writings and Building*, p. 284.
8. Wright, *Ibid.*, p. 284.
9. Wright, *The Early Work* (1911; a reissue and trans. of *Ausgefuehrte Bauten*, "Wasmuth" Edition, Berlin; New York: Bramhall House, 1965).
10. Wright, *The Work of Frank Lloyd Wright* (1925; "Wendigen" Edition, Wijdeveld, Amsterdam; New York: Bramhall House, 1965).

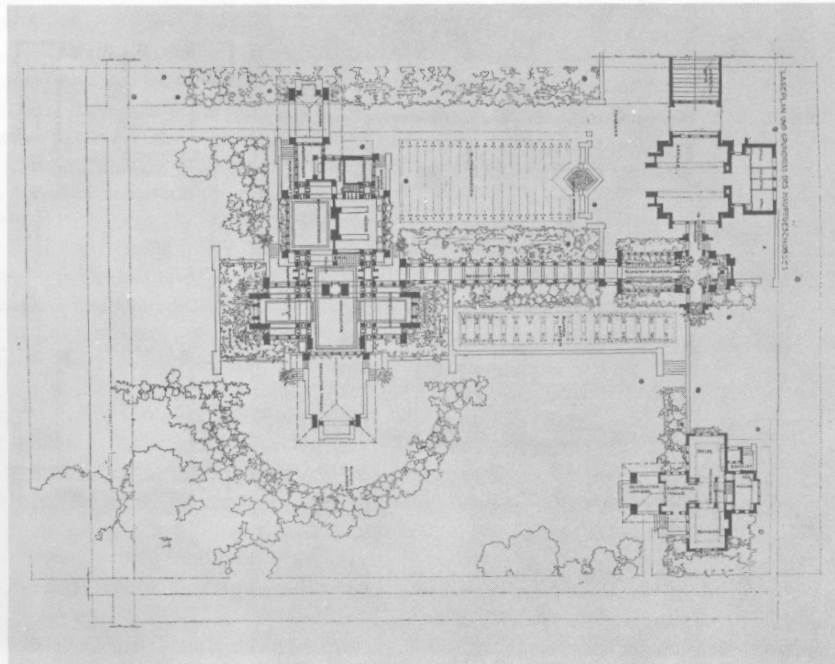


Fig. 8 D. D. Martin House, Buffalo, N.Y., 1904