

# “RETOUR À L'ORDRE” AND THE CLASSICAL LANGUAGE OF FRENCH MODERN ARCHITECTURE AFTER THE FIRST WORLD WAR

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## The First World War and the “Retour à l'Ordre” (Return to Order)

Following the First World War the pessimistic atmosphere that enveloped Europe led to two contrasting reactions. The first, at the beginning of the 1920s, originating from an inability and refusal to cope with the chaos of the war, led to repressing its memory and seeking refuge in an organized and ordered world – a “return to order”. In contrast, the second reaction, which developed in the middle of the 1920s, focusing on the human mind and drives, brought about a sense of the irrational and the quest for something beyond and above reality – Surrealism. In this article I intend to focus on the first reaction, the “return to order,” which had an important influence on modern architecture.

The “return to order” created a peculiar partnership between the socialists and the extreme Right. Both sides had perceived the war as a period of disorder and subsequently aspired toward a new order - an organized and logical world with rational rules. Logic was considered to be an instrument of control, as well as a guide toward discovery. Without logic nothing is human, declared the Purists.<sup>1</sup>

This quest for order originated from the fact that the First World War had been more traumatic than any previous war, because of the unprecedented encounter with mass death. No previous wars, even when prolonged, had suffered such a high number of casualties, as the technology of modern warfare had not yet developed and battles were engaged in relatively limited areas. The Great War, however, was waged across several countries and encompassed soldiers from several continents, who used advanced and deadly weapons that had been developed as a result of the technological and industrial revolutions of the 20<sup>th</sup> century. As a result, 13 million people died in that war – more than twice the total number of casualties in all the major wars between 1790 and 1914.<sup>2</sup> Practically no individual, whether at the front or in the home, was left unaffected in some way by the war. Furthermore, in 1918, at the end of the war, another catastrophe befell Europe: the deadly Spanish influenza, which took the lives of millions of those who had survived the war.

Modern technologies of communication documented the killing and simultaneously communicated its images worldwide. Modern transportation made the battlefields accessible to reporters from all over the world. War correspondents published their daily reports in the newspapers, accompanied by photographs. Moving pictures became increasingly popular and war became the main subject, both in war films and in newsreels from the front, which brought the battlefield to the home front. By 1914, twenty million people a week were going to the cinema in Great Britain!<sup>3</sup>

The impact of the war continued even after it was over. Numerous artists and authors had taken part in the battles and experienced the atrocities first hand. Those who survived articulated their war experiences in art and literature. Photography and film recorded by soldiers, professionals as well as amateurs, eternalized the horrors of war on the battlefield and, consequently, in the 1920s and 30s, many war films were made. If during the war awareness of the atrocities had been minimized in order to prevent despair and misery on the home front, films made after the war began depicting its true horrors.<sup>4</sup> This phenomenon contributed to the desire by many to escape from reality rather than having to deal with the ghastly images.

The images from the war zone became familiar: inanimate landscape, deserted and perforated with bomb craters like the surface of the moon; remains of bombs, shells, tanks, destroyed buildings and bridges, left jagged pieces of metal and concrete everywhere. Heavy bombing destroyed not only human beings and their creations, but nature as well; in the battle zones there was no longer any vegetation, nor the sound of chirping birds.<sup>5</sup> A terrifying silence fell in the intervals between bombings, increasing the nightmarish atmosphere.

The First World War was also mostly fought in the trenches, where the soldiers crouched in the mud for months and years on end. Not only did a surrealistic, moon-like scenery surround them, but life in the trenches too was surreal: soldiers became accustomed to existing between life and death, as the dead bodies lay around them, attracting rats and disease. Many of the men who experienced this horrifying reality suffered from shell shock. The dead bodies, the stench of death, the gas masks, and the scarred landscape, were engraved in the collective memory.

The trauma was overwhelming for those who had hoped that progress, science, and common sense would prevail; but it was even more shocking for those who, filled with excitement and exultation, had wished for the war to start. Facing the consequences of war was like a slap in the face. Amazingly, in the eyes of many people, war was considered to be both an intoxicating and impassioned experience and a symbol of the clash between modernism and conservatism. For these people it was an expression of activism and a declaration that they were taking their fate into their own hands; for others it expressed tension and the adventure of living on the edge. As one German Expressionist described it, war was "uncertainty, hanging in the air... the sensation of being in an express train which roars through a small station".<sup>6</sup> For George Heym, one of the fathers of German Expressionism, war dissipated boredom, as he noted in his diary in 1907: "I can say for myself, if only there was war I would be healthy again. Now one day is as the next, no great joys and no great pain...".<sup>7</sup>

It should be noted that even with no direct connection to the war, modern technology at the turn of the 19<sup>th</sup> century and beginning of the 20<sup>th</sup> - mostly in transportation and communication

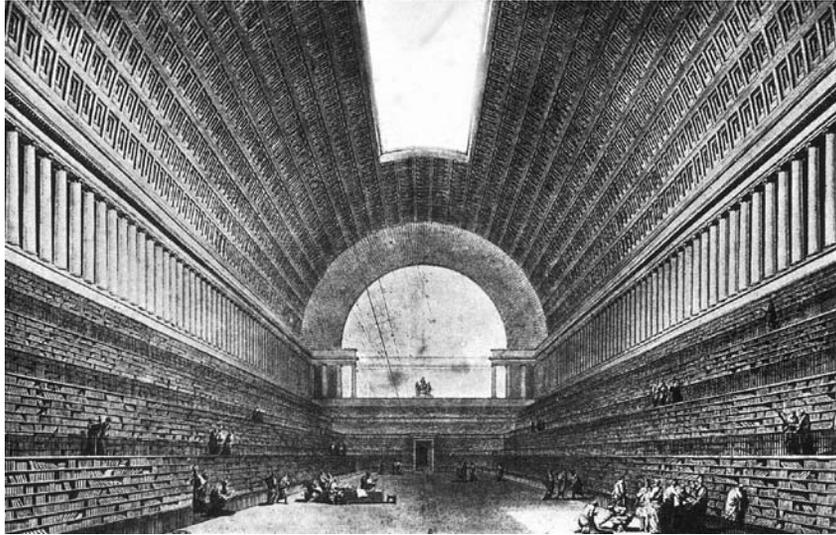


Fig. 1: Etienne-Louis Boullée, *Design for a Library*, 1780-90. (TAU slides archive).

– added to the anxiety and the feverish sense of urgency, as it completely altered the traditional concept of time. The transformation occurred both in pace and the quantity of changes: the fast-paced proliferation of innovations affected all areas of life. It caused anxiety, confusion, frustration, and even depression. In his book *Le Temps vécu* (1933), Egon Minkowski, a French psychologist, described several cases in which his patients’ emotional state had been influenced by the above changes.<sup>8</sup>

The outcome of the war forced people to understand that culture is ultimately fragile. Herman Löns, a German author, had claimed in 1910 that culture is a thin veneer beneath which primitive nature awaits a crack through which it can erupt.<sup>9</sup> Although before the war there had been some who yearned for such an outburst of primordial instinctive nature, after the war it was perceived as extremely dangerous. The desire to maintain this cultural veneer, thin as it may be, led people with progressive ideas to adopt a more conservative approach as well as to preach a return to order, as suggested by Jean Cocteau in his book, *Le Rappel à l'ordre* (1923).<sup>10</sup> However, the first to call for a return to order, and to make the connection between order and classicism, was the Futurist Gino Severini, who, as early as 1917, demanded a return from cubism to classicism, and in 1921 he published his ideas in his book *Du Cubism au Classicisme*.<sup>11</sup>

## Neoclassicism

After the First World War, several Purist movements appeared in art and architecture, searching for a rational artistic language, based on logic, rules, proportions and order - characteristics of the classical language. They adopted geometric forms, which they considered to be an expression of an ideal and rational conception of realism. Although a similar approach had developed prior to the war, toward its end and afterwards it was reinforced by the prevailing atmosphere of the return to order. The various Purist movements emerged almost simultaneously, such as De Stijl in Holland, Constructivism in Russia, Purisme in France and Bauhaus in Germany - all



Fig. 2: Claude Nicolas Ledoux, *Barriers de la Ville*, 1780. (TAU slides archive).



Fig. 3: Goethe's abstract sculptor, *The Altar of Good Fortune*, 1777. (Honour 1983, p. 129).

of them promoting idealistic concepts and aimed at achieving a systematic rational language and permanent rules by means of abstract forms.

The Purists were better able to express the above concepts in design and architecture than in any other form of art. They were thereby close to the 18<sup>th</sup> century neoclassical scholars, who had claimed that only in architecture, the most abstract of the visual arts, could this concept of rational, idealistic and abstract forms be best expressed.<sup>12</sup> Architecture enables the formation of abstract geometric structure, comprised of a combination of balls, cylinders, cubes, and pyramids, etc. This combination can be seen in various projects designed by Etienne-Louis Boullée and Claude Nicolas Ledoux, such as Boullée's *Design for a Library*, 1780-90 (Fig. 1), Ledoux's *Barriers de la Ville*, 1780 (Fig. 2), as well as Goethe's abstract sculptor, *The Altar of Good Fortune*, 1777 (Fig. 3).

Considering the similarity between the concepts of neoclassical and modern architecture, it is not surprising that the Bauhaus designers admired Abbé Carlo Lodoli, an Italian architect

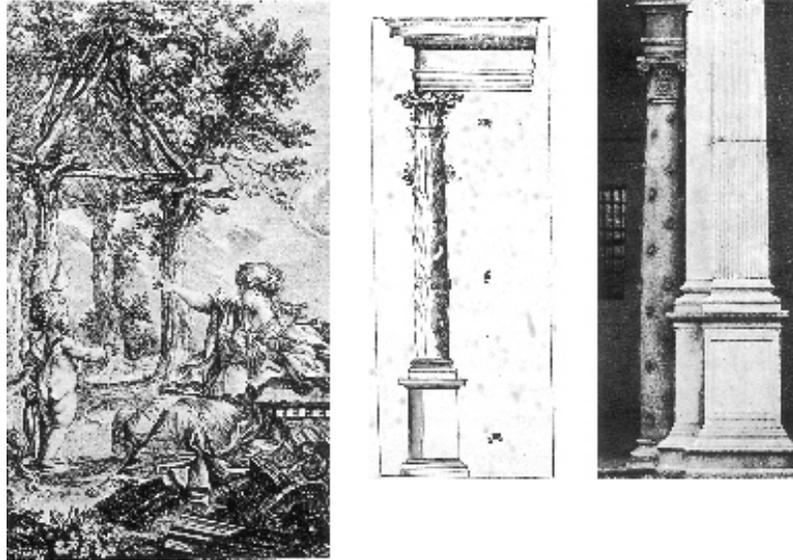


Fig. 4: Abbé Laugier, *Primitive Hut*, 1753. (<http://www.usc.edu/dept/architecture/slide/ghirardo>).

and intellectual, working between 1740-1750. Lodoli, who was a student of Giovanni Battista Vico and acquainted with Charles-Louis Montesquieu, was named “the Socrates of architecture”. Like Socrates, he never documented his work in writing but instructed his students orally, advising them to do away with meaningless parts - decorative and unnecessary details, and build according to function, implementing mathematical methods.

It should be noted, however, that the term “function” had then a different meaning than it has now. Function symbolized the type and the use of the building, rather than its functional needs. For example, in Boullée’s various projects for libraries – as “Library” was considered to be a “temple of books” – he designed them as a temple, without consideration for the readers – neither their access to the books nor facilities for reading. Ledoux’s ideal houses in La Saline Royal at Chaux were designed according to their owners’ function and role in the factory and not according to their day-to-day needs.<sup>13</sup>

Another thinker of the 18<sup>th</sup> century, Abbé Laugier, in *An Essay on Architecture* written in 1753, expressed similar ideas to those of Lodoli and emphasized the logic and the “constructive truth” of the “primitive hut”. The “primitive hut” (Fig. 4) is the first model of classical architecture: connected treetops created a triangular roof, which was later converted into a hut by turning the trees into wooden columns, supporting beams and pediment.<sup>14</sup> Laugier was in fact preceded by Vitruvius, who claimed that the Greek orders had developed from a prototype of a wooden temple originating from a primitive hut, when the trees became wooden columns and later the wooden construction was translated into stone.<sup>15</sup> This is the only logical explanation for the triglyphs, metopes, and other elements in Doric entablature, since these details are not a construction necessity, unless the building was originally made of timber and these elements had represented protruding beams and the spaces between them, which later became mere ornament in the stone temples.<sup>16</sup>

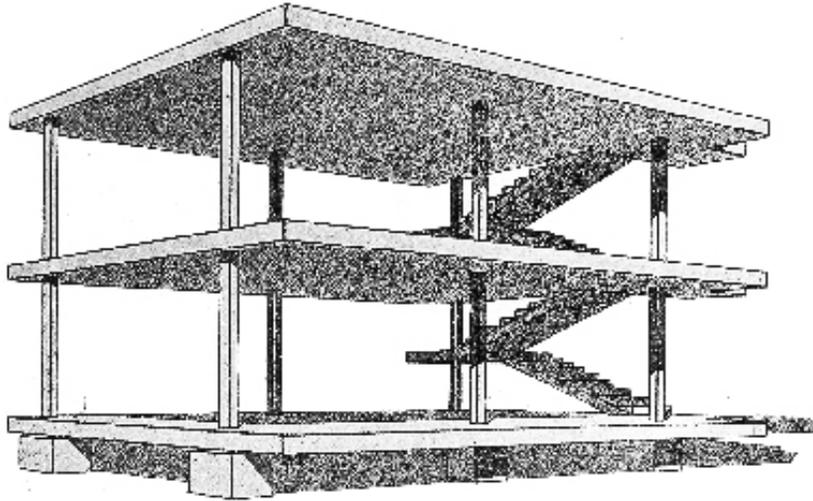


Fig. 5: Le Corbusier, *Dom-ino House*, 1914. (<http://images.google.com/>).

The search for the basic model of structure as a prototype to be developed in various forms is also current in modern architecture. For example, Le Corbusier's *Dom-ino House* (Fig. 5) 1914, a name which originated from the Latin word *domus* (house) together with the game of Dominoes - rectangular units that could be placed next to each other in many variations.<sup>17</sup> The *Dom-ino House* became a prototype of what Le Corbusier named Mass Production Houses, starting with the *Project of Citrohan House* in 1920.

I would like to stress that I differentiate between the first stage of neoclassicism, in the second half of the 18<sup>th</sup> century, and the second stage, which developed during the 19<sup>th</sup> century and was part of historicism and revivals of various styles. In the first stage architects designed according to the ideas of Johann Joachim Winckelmann on imitation versus copy. Contrary to "copy", which is an exact and mechanical reproduction of classical shapes, "imitation" represents the spirit of classicism; it is a process of idealization and purification by refining and reducing.<sup>18</sup> Despite the fact that Classical models (such as the Parthenon) were used, and that some buildings resemble Greek or Roman temples, or were inspired by Renaissance architects (such as Palladio and Michaelangelo) – most of the first generation of neoclassical architects preferred not to copy but to imitate the spirit of classicism, through the use of geometrical shapes and mathematical proportions between parts of the building. Ledoux, Boullée and others used mostly abstract geometrical forms, and if they chose to use Classical columns – they combined them freely in the building and preferred the clean and simple forms, like Tuscan Doric columns rather than the Corinthian order. This approach can be detected particularly in the various projects that were designed purely as "ideas" (Figs. 1-2). These were never carried out and therefore did not demand adjustment to the taste (or lack of such) of the clients, who preferred the fashionable Greek style (*goût grec*).

A similar approach can be seen among modern architects after the First World War. Aiming for a rational architecture, based on abstract forms and mathematic proportions between sections of the building, aspiring to build functional constructions with no decorative elements,

they revived the spirit of neoclassicism. In fact, we can term them neo-neoclassicists. By then, however, “function” was understood in the modern meaning of the term - a house that provides the essential comforts and needs; a house as a “machine for living in”, as defined by Le Corbusier.<sup>19</sup>

### **Purist Architecture and “L’Esprit Nouveau” (The New Spirit)**

The manifesto “Après le Cubisme” (After Cubism) was the first manifesto to express the desire for a return to order. It was written by Le Corbusier (Charles-Édouard Jeanneret) and Amédée Ozenfant, and appeared in the catalogue of the first Purist exhibition (Le Corbusier participated as a painter) in 1919.<sup>20</sup> The manifesto supported the connection between science and art and pointed out their mutual objectives: to express the universe via mathematical laws and equations. According to the Purists, both art and science aim to express natural laws through the search for constants.<sup>21</sup> This idea continued to develop in the journal *L’Esprit Nouveau* (published from 1920 to 1925). *L’Esprit Nouveau* was not limited to a particular movement, but rather dealt in progressive ideas as a whole, providing they supported its call for law and order. Any approach that might have led to chaos, such as the psychology of Freud, was castigated and mocked.<sup>22</sup> It is not surprising, therefore, that the publication closed down in 1925, parallel to the rise of Surrealism, which supported the irrational approach and worshipped Freud.

The slogan “new spirit” was already well-known and accepted by the French avant-garde; Guillaume Apollinaire had used the term in 1920, shortly before his death, and according to the founder of *L’Esprit Nouveau*, the poet Paul Dermée, Apollinaire was the inspiration behind the choice of the journal’s name.<sup>23</sup> An earlier source is accredited to Auguste Choisy, who, in his book *Histoire de l’Architecture* (1899), defined the signs of a new spirit in art as aiming for truth and independence and rejecting the conventional.<sup>24</sup>

Many of the articles published in *L’Esprit Nouveau* expressed the principles of the Purist theory and raised the flag of aesthetics for both machine and geometry. These two were believed to be the measurement of truth in art, because they expressed the technology of the modern era and, at the same time, the eternal rules of art and nature. Both the machine and geometry use minimal and logical forms, thus speaking the same language – that of abstract form and mathematical organization, which is, in fact, the classical language of the ideal nature. Therefore, it is no wonder that Le Corbusier frequently compared machines with Greek architecture.<sup>25</sup>

Even though the Purist painters dealt with objects and not in abstract shapes, they expressed an admiration for abstraction, and claimed that geometry was the core of the good shape, which is the result of a process of reduction and selection. The Purists claimed that they “...discovered the Law of Mechanical Selection, that the object tends toward a type that is determined by the evolution of forms between the ideal of maximum utility and the satisfaction of a necessities of economical manufacture, which conform inevitably to the laws of nature”.<sup>26</sup> However, as mentioned previously, the language of abstract forms and mathematical organization is better expressed in modern architecture and design, where forms should be abstracting, effective, useful, and economical. And indeed, Le Corbusier continued to develop these ideas in connection with his architecture.

An echo to the idea that an object's effectiveness and functionalism leads to an ideal aesthetic form can be found in Paul Valéry's book, *Eupalinos ou l'architecte*, written in 1920 at the request of the French Architecture Association. The book "reconstructs" Plato's writing, in which he developed Socrates' doctrines via discussions. In Valéry's conversation Phèdre (Phaedrus) and Socrates discuss the connection between the object and its function. Phèdre praises the aesthetics of functionalism: According to him, at times it seems that beauty is created from precision, and pleasure is born from the wondrous match between the object and the function it was meant to achieve. However, asks Phèdre, how are these forms that unite between object and function, created? Socrates answers: thousands of attempts by thousands of people merge slowly into a thrifty and safe form. And when this form is created, everybody copies it.<sup>27</sup> Valéry describes a process of reduction and simplification similar to the process of idealism in neoclassicism. Goethe, for example, claimed that in order to turn common nature into noble nature (which is the true meaning of ideal nature) it is essential for it to undergo a process of purification and abstraction.<sup>28</sup> It should be noted, however, that Valéry is not describing an intellectual process, but rather a practical one, through the use of an object. The neoclassicist and Purist concept of ideal form demanded a spiritual process – not only to create the ideal useful object but also to reach a universal truth.

Le Corbusier never formally studied architecture, but he was influenced by many of the great modern designers. Between 1910 and 1911 he visited Berlin, where he worked with Peter Behrens. Behrens was one of the greatest functionalist architects in Germany and the main modern industrial designer at the time. Le Corbusier also met Walter Gropius, Ludwig Mies Van Der Rohe and Hermann Muthesius, the head of the Deutscher Werkbund, and he was influenced by others as well, such as Josef Hoffmann of Vienna from the Wiener Werksätze group, and Auguste Perret whom he admired for his daring to use reinforced cement – one of Le Corbusier's most preferred materials.<sup>29</sup> Some claim that Le Corbusier's fondness for white cement wall was because this enabled him to achieve a similar effect to the white plaster walls that he had seen on his travels around the Mediterranean area. It is more likely, however, that he favoured the white wall because it stressed the geometric abstract and defined shapes.

Le Corbusier admired Loos (who opposed decoration), and through him he discovered the Chicago school of architecture; but above all he was interested in the American architect, Frank Lloyd Wright. Le Corbusier first heard of Wright and his work in 1913, at a lecture given by Petros Berlage, the Dutch architect who had been impressed by Wright's work while visiting the United States. Wright himself visited Europe during the years 1909 and 1911, and between 1910 and 1911, two volumes of his articles, including plans and pictures of his work, were published by Wasmuth, revealing his ideas to the Europeans.<sup>30</sup>

Wright developed a concept of functionalism with a geometrical characteristic - whether architecture or furniture. In the private homes he designed he emphasized the horizontal lines as well as what he called "organic" features. We can explain the term "organic" in two ways: A) as the ability of a building to grow and expand. Wright's building was not designed as one complete symmetrical and closed unit (like the classic concept), but (in theory) it could be expanded, by adding units according to need; and B) as the connection between the building

and the landscape, as if nature is an organic part of the building. This he accomplished by means of glass walls and big windows, and by using local building materials, or integrating nature (like a waterfall) into the building.

There is a certain amount of similarity between Wright's organic concept and that of De Stijl. In 1924 Theo van Doesburg, Kohr van Easteren, and Grit Rietveld published a manifesto in which they declared: “The new architecture in *anti-cubic*...it does not try to freeze the different functional space cells in one closed cube. Rather, *it throws the functional space cells centrifugally from the core of the cube*”.<sup>31</sup> This approach combines the open and closed spaces: it lets closed spaces protrude into the open, inserts open space into the building, and, because of the open construction looks as if it was floating in the air.

Seemingly, the organic concept is in contrast to the classicist, which creates closed patterns. And, indeed, van Doesburg claimed that because their innovative architecture broke through walls and combined interior and exterior, it completely differed from the classical.<sup>32</sup> It could even be argued that the organic concept is closer to both the Gothic and the Art Nouveau styles, which encourage upward growth and floatation. But while the Gothic and the Art Nouveau create curves and flowing shapes, the modern building maintains horizontal and perpendicular lines based on geometrical shapes, even if the construction grows upwardly (like skyscrapers), and therefore it is closer to the classical principles.

At the beginning of the 1920s few new buildings were being built in Paris even though both the desire and the ability to build existed, for the opportunities were scarce as a result of the difficult economic situation following the war, and the clients who had enough money and could afford new houses - the affluent society and art patrons - represented the old generation. They were not interested in modern architects, who aimed for a new clientele – the bourgeoisie, industrial workers, civil servants, etc.

In order to understand the process of development in architecture and design at that time, it is necessary to consider the reciprocal influence that was created from international connections. Two international journals published at the time in Paris were *L'Effort Moderne* (1924) and *Architecture Vivante* (1925). The international quality was evident mostly in the latter, which was concerned with Dutch, German and Russian architecture, and offered articles by Mies van der Rohe, Adolf Loos (both residing in Paris at that time) and others. The international ambiance in Paris was also due to the fact that many foreign architects were living there at the time, such as Mallet-Stevens from Belgium, an admirer of Charles Rennie Macintosh and one of the pioneers of modern architecture in the city.

The majority of the Purist groups (and other avant-garde groups) published articles in international journals, and many designers and architects visited other countries, thus influencing and being influenced. The international exhibitions had an important role too, since designers and artists from different movements and countries were brought together under one roof. This tradition started at the London exhibition in 1851, followed by the Paris exhibitions in 1855 and 1867 - exhibitions that emphasized the connection between art and technology.

International exhibitions throughout the 19<sup>th</sup> and 20<sup>th</sup> centuries continued to influence the development of art and design. For example, the international dissemination of Art Nouveau

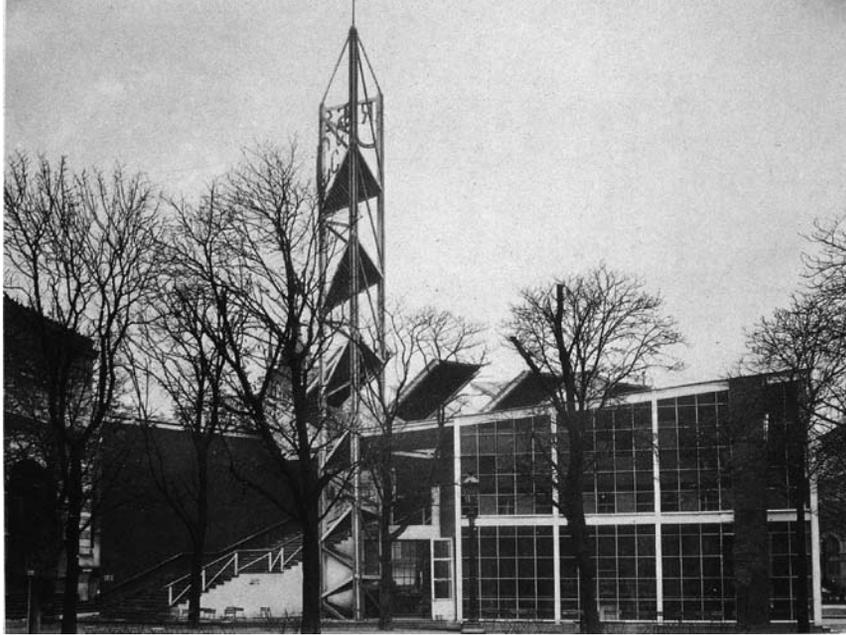


Fig. 6: Konstantin Melnikov, *The Russian Pavilion*, 1925. (Brunhammer1984, p. 23).

began at the 1900 Paris exhibition, although it was considered a failure by many because Art Nouveau did not cooperate with industry but, rather, opposed the machine and thus contradicted the fundamental idea and purpose of the exhibition. As a result, in 1901, the French initiated the Société des Artistes Décorateurs, whose goal was to encourage the awareness of modern industrial design.<sup>33</sup> In 1907, the members of the society began organizing an annual salon on industrial design and later planned other international exhibitions. The next exhibition was due to be held in Paris in 1915; was postponed to 1916; and, due to the Great War, did not finally take place until April of 1925, under the title “Exposition Internationale des Arts Décoratifs et Industriels Modernes”.<sup>34</sup>

The fact that the exhibition took ten years before being held raised the question of whether or not it had been spoiled by this, and to what extent the organizers had followed the innovations of modern design, because during that time styles and designs had changed considerably. Even though the Russian constructivists took an important part in the 1925 exhibition, representing the Russian avant-garde, such as the revolutionary designs of Alexander Roschenko’s *Workers Club*, the organizers did not present the true European avant-garde in design and architecture, for De Stijl, Deutscher Werkbund and Bauhaus were not invited. Most of the exhibits presented what was later to become known as Art Deco (an abbreviation of the name of the exhibition: Arts Décoratifs) - a mixture of many eclectic styles featuring colorfulness and exotic decoration, influenced by the costumes of the Ballets Russes.

In spite of the absence of De Stijl, Werkbund and Bauhaus, the Exhibition of 1925 played an important role, because it enabled Parisians to become familiar with the work of the most progressive designers. The innovations in some of the pavilions (both the buildings and the exhibits) strongly encouraged the development of modern French architecture of the mid- 1920s.

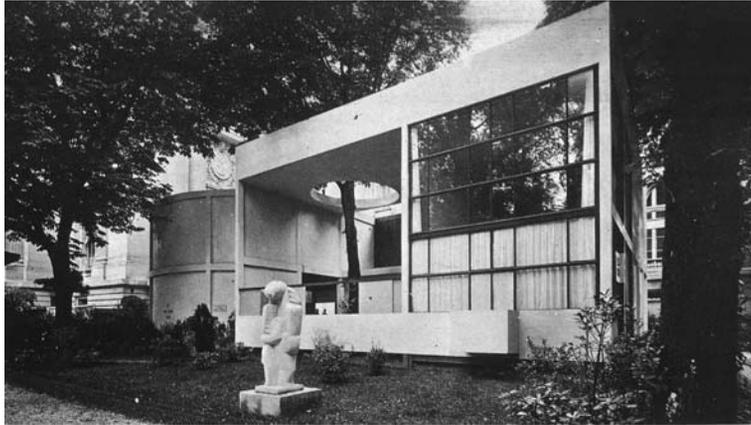


Fig. 7: Le Corbusier and Pierre Jeanneret, *The French Pavilion, L'Esprit Nouveau*, 1925 (Brunhammer 1984, p. 23).



Fig. 8: Le Corbusier and Pierre Jeanneret, *Villa La Roche*, Paris 1923. (<http://www.archi.fr>).

The greatest impression was made by the Russian pavilion, designed by Konstantin Melnikov, who won one of the many medals awarded to Russia. (Fig. 6) Melnikov designed a construction of wood and glass - a “transparent structure”, as described by the constructivist El Lissitzky. Due to the wooden frame and the glass walls it looked from the outside like a grid of horizontal and perpendicular lines. The internal structure was also a linear construction.

Another innovative pavilion was the Austrian pavilion, planned by Joseph Hoffmann; but its content was even more important - Friedrich Kiesler’s model of *La Cité dans l’Espace* (city in space), in which he demonstrated his “Architecture élémentarisée”. His model was a construction of wooden rails and planes, suspended in space as a spatial grid. Banham claims that this type of construction influenced Le Corbusier when he designed the *Villa Stein* (The Terrace House) in Garches a year later.<sup>35</sup>

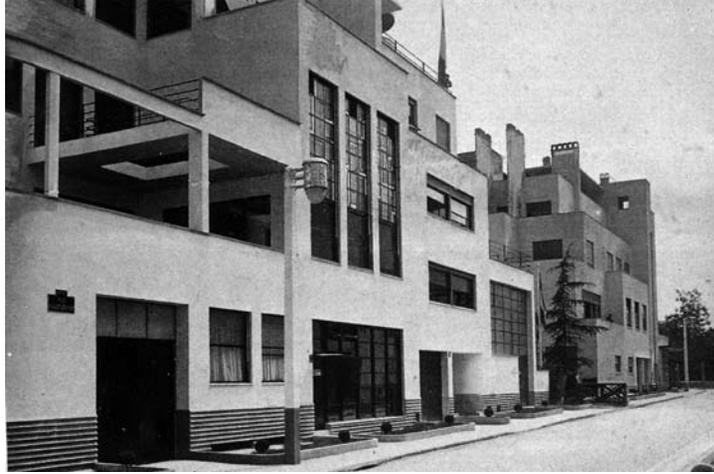


Fig. 9: Mallet-Stevens, *Martel brothers' and Reinfenderg Villas* 1925-1926 Auteil. (Brunhammer 1984, p. 24).

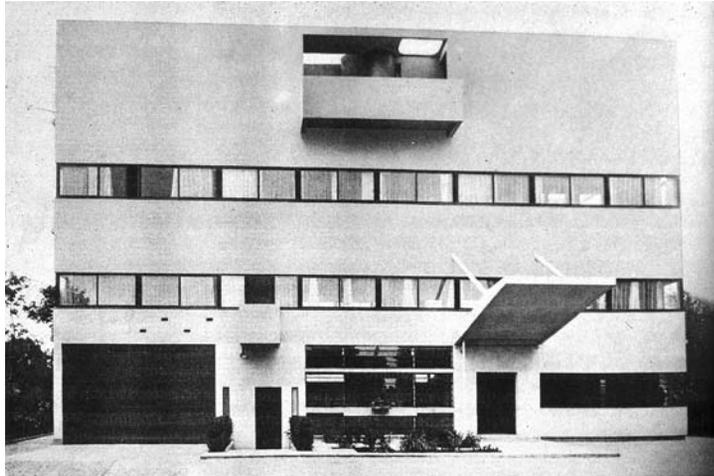


Fig. 10: Le Corbusier, *Villa Stein*, Garches 1927. (<http://www.culture.gouv.fr/Wave/savimage/merimee/milxx/>).

Another important building at the exhibition was the French pavilion, *L'Esprit Nouveau* (Fig. 7), a Purist building planned by the Jeanneret family, Le Corbusier and his cousin Pierre Jeanneret. Mallet-Stevens designed the entrance and the cement cubist trees and Jacques Lipschitz placed a sculpture in front of the pavilion.<sup>36</sup> The pavilion was built of cement walls and glass, partially transparent and partially open. In contrast to the Russian pavilion, which seemed devoid of walls, the French pavilion emphasized the white wall. It was a combination of geometric shapes made from various materials: transparent or opaque glass, white cement wall, and open space, which was further emphasized by a tree growing inside the pavilion and protruding through the opening in the ceiling.

Le Corbusier's next buildings were influenced by what was known as the "Studio-House":<sup>37</sup> Many of the clients of modern Parisian architecture were artists or gallery owners who desired to combine a gallery or a studio in the new houses they built, and needed rooms with large

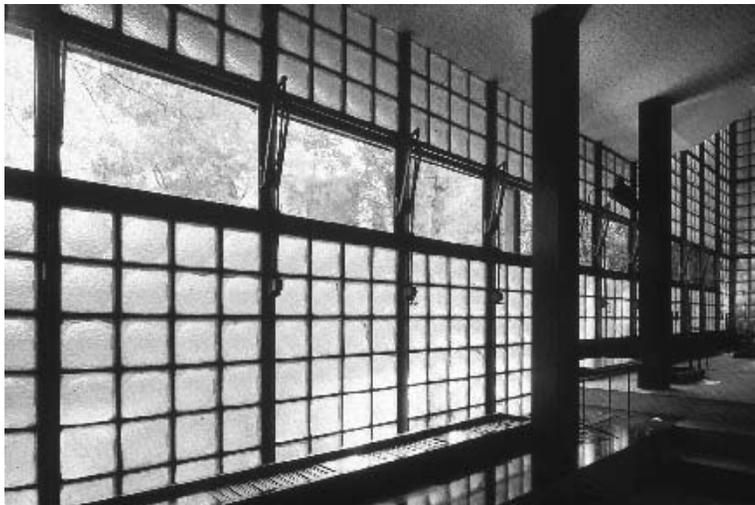


Figs. 11: Le Corbusier, *Villa Savoye*, 1929-1930, Poissy. (<http://www.tokyokenchiku.ac.jp/images/10gallery/>).

windows. As mentioned before, the economic situation after the war was problematic, especially on the art scene. The goal of the architects, therefore, was to achieve functionality with the relatively meager means available at the time. This approach suited the spirit of industrial design and thus a new kind of building was created, such as *Ozenfant House*, Paris 1922, and *Villa La Roche*, Paris 1923 (Fig. 8 - currently the Le Corbusier Foundation) designed by Le Corbusier and Pierre Jeanneret.

In contrast to the principle of Roman construction, where the wall supports the ceiling and together they create a box-like form, in Le Corbusier's buildings, in spite of the prominent presence of the white walls, these are not supporting walls, with the construction being supported instead by columns. Thus its construction principle is more similar to the Greek, where the columns support the beams. This principle originated from the *Dom-ino House* and the *Project for Citrohan House*, which constituted the foundation for "Five Starting Points for the New Architecture", formulated by Le Corbusier in 1926 (not according to the following order):

- The supporting column (instead of supporting walls) is the fundamental principle, from which originate the next four principles:
- Moving the walls according to need, and therefore a free division of rooms on each floor.
- Opening of the external walls to create large windows or openings, infusing air, light and the external space into the interior.
- Transforming the window into a significant and dominant element in the building. The ideal window is a large, high, continuous opening along the width of the wall, at times from wall to wall regardless of the corners – "la fenêtre en longueur". Its placement is determined by lighting considerations, ventilation and insulation and not by construction considerations.
- The roof must comply with geometrical Purist features and therefore be flat and emphasize the horizontal line. Skylights in the roof create extra windows, thus connecting the building not only to the surrounding, but also to the sky.



Figs. 12-13: Pierre Chareau, *Maison de Verre*, 1928-1931. (Brunhammer 1984, p. 24).

After the 1925 exhibition, modern houses successively appeared, such as: *Villa Cook*, Boulogne-sur-Seine, Paris 1926, by Le Corbusier and Pierre Jeanneret; *Studio House*, Paris 1926, by Andre Lurçat; *Martel brothers' Villa* and *Reinfenderg Villa* 1925-1926 Auteil, by Mallet-Stevens (Fig. 9); *Villa Stein*, 1927 Garches (Fig. 10) and *Villa Savoye*, 1929-1930 Poissy (Fig. 11), by Le Corbusier. All the above architects combined geometrical shapes comprising shaded glass walls or open spaces and lit white walls, emphasizing the vertical and horizontal lines via dark frames, iron rails and banisters – inspired by details found in modern industrial products as well as modern transportation (like ships and airplanes).

*Villa Savoye* (Fig. 11) was perhaps the closest to a Classical building of all of Le Corbusier's buildings. Not the interior, since it is a square building around an internal courtyard – a feature that characterizes, rather, a Roman house or a Florentine Renaissance palazzo. The exterior, however, is a free translation of a Greek temple in the modern age. It resembles an

entablature leaning on columns - similar to a Classical peristyle, but not of any Classical order, as they are relatively thin and short. The entablature is divided into two parts by a window continuing along its width, “la fenêtre en longueur”, which transforms it into a more buoyant structure, harmonious with the columns. The Classical characteristics of the house stem also from the fact that it is a closed and self-contained building that cannot be expanded or grow; any expansion would ruin its perfection. Even the addition of plants in too close proximity could ruin the perfection. This building presents an antithesis to the organic buildings of Frank Lloyd Wright.

Between 1928-1931 Pierre Chareau built in Paris the *Maison de Verre* (Glass House, Fig. 12), constructed completely of glass walls and glass slabs held in dark metal frames. Inverted photographs from inside the house prove that we must take into consideration not only the exterior view of modern houses, but also what is reflected from inside them: people who live in these houses and gaze outside through the metal frames of the windows and construction, see the world through horizontal and perpendicular lines as inseparable from their visual surroundings (Fig. 13).

The modern city landscape was thus transformed into series of constructions creating perpendicular and horizontal lines, framing white areas or open spaces. This new scenery was so dominant that Mondrian marveled at it and claimed that the modern city expressed the order and organization that human spirit infused into nature. Since art, in his opinion, strives to reach the Absolute through abstraction, it brings nature to perfection by reducing its elements to a straight line and flat plain, as does the architect. Therefore modern architecture, rather than nature, will communicate with Man more directly, and thus the modern city will create the new style, which will express the connection between art and mathematics.<sup>38</sup>

## Notes

1. Silver 1989: 378 (Cit: A. Ozenfant and C-E Jeanneret, “Le Purisme” *L'Esprit Nouveau* no. 4 [Jan. 1921]).
2. Mosse 1990: 3.
3. *Ibid.*: 147-148.
4. *Ibid.*: 186-187.
5. *Ibid.*: 4-5.
6. *Ibid.*: 55 (Cit: K.Edschmid, *Das Rasende Leben* [Leipzig, 1915] 24).
7. *Ibid.*: 58 (Cit: “Dichtungen und Schriften”, *Tagebücher, Träume, Briefe*, vol. 2 (ed.) K. L. Schneider, [Hamburg and München, 1960] 89).
8. Kern 1983: 2.
9. Mosse 1990: 110.
10. Banham 1960: 209. Banham notes that the slogan *Rappel à l'ordre* appeared already in 1919, even before the book was published. (He does not give more details).
11. *Ibid.*: 205. It should be noted that in 1909 Marinetti and the other Futurists wished for the war.
12. Honour 1983: 122.
13. For further reference on “function” see *ibid.*: 106; 135-139.
14. Blich 2003: 9-10.
15. Vitruvius 1960: (Book II, Chapter I, 3 and 4) 39.

16. Summerson 1985: 13-14.
17. Le Corbusier 1986: 230-231; Blich, 2003: 34
18. Honour 1983: 61.
19. Banham 1960: 243.
20. Le Corbusier settled in Paris in 1917, and met A. Ozenfant in 1918.
21. Banham 1960: 207.
22. *Ibid.*: 209.
23. *Ibid.*
24. *Ibid.*: 25.
25. *Ibid.*: 19.
26. *Ibid.*: 201-212.
27. Valéry 1924: 127-128
28. Honour 1983: 106.
29. Reinforced cement was the European solution to a firewall as it protected the iron fortifications from fire.
30. Banham 1960: 145-147. According to Banham, the attitude of Le Corbusier to Wright was ambivalent, although he (Le Corbusier) informed S. Gideon of his presence at a lecture given by Wright, in another instance he denied that he was familiar with Wright. See *ibid.*: 221.
31. Frampton 1986: 103 (emphasis in the text).
32. *Ibid.* (Cit: *De Stijl*, VI, 6/7 (1924) 78-83).
33. Brunhammer 1984: 7;12.
34. *Ibid.*
35. Banham 1960: 197-198.
36. Brunhammer 1984: 23.
37. Banham 1960: 217.
38. *De Stijl* 1977: no page number (Cit: *De Stijl*, no. 11, 1918).

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