

Poème de Murs— The Color Concept of the House La Roche

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"I ordered 'a frame for my collection'. Instead, you delivered a 'poem of walls'. Who of us two made the bigger mistake?" (1)

INTRODUCTION

Together with his friend and artist Amedée Ozenfant - seen here with Le Corbusier climbing the Eiffel Tower in 1923 - Le Corbusier developed a purist language of forms and colors in painting during the early twenties. All his publications before 1923 are focused on painting, which can be seen as a hint that he considered himself at that time more a painter than architect. Interestingly, except for the article "Le purisme" published together with Ozenfant in *L'Esprit Nouveau* of 1921, there is no hint of any discussion concerning color. Even his famous book *Towards a New Architecture*, published in 1923 contains no discussion of color, although an entire chapter is devoted to the treatment of building surfaces, light and geometric proportion. Le Corbusier's movement towards a polychrome architecture occurs through painting. Thus, he said of himself, he became an architect "through the eye of needle of painting". Except for some early but not yet fully developed attempts of polychrome architecture, he began his transfer of color from painting into architecture in the double-family house La Roche/Jeanneret in Paris-Auteuil, designed in 1923/24.

Traveling through Greece in 1911 on his voyage to the orient, Le Corbusier experienced and intensified the force of the pure volumes of the Acropolis. In his excited and emphatic manner he wrote in his travelogue: "I write with my eyes having seen the Acropolis, thus making me happy. Oh Light! Marbles! Monochromy!" The omission of both useless decoration and the *bazaar of the historical styles*, became the premise for his purist creativity. Based on this he developed his first white modern buildings. His manifesto of the law of whitewash - *La loi du lait de chaux* (2)- determined the early period of his architectural creativity and had a sense of honesty and absolute. After the publication of "Le Purisme" (3), which discussed the use of color in purist painting, we observe a new concern with color in his buildings. It is proven that he already applied a rich polychromy in 1922 to the interior spaces of Amedée Ozenfant's studio in Paris-Auteuil. Similar to the house La Roche / Jeanneret, the color palette is limited to English green, Sienna red,

umbra, ultra-marine, and rose (4). These colors are also to be found in his paintings of the same period. The final transition to *architectural polychromy* is seen when he finished the house La Roche / Jeanneret in 1925 in Paris-Auteuil. "Entièrement la maison serait un pot de crème", completely white the house would be a creme-pot, shows his new attitude towards polychrome architecture. This is the beginning of the new exploration of polychrome architecture, which he will use and develop during the rest of his life.

On the back of his own wedding invitation Le Corbusier registers in 1938 the three points of a *polychromie architecturale*, (5) describing these during a lecture about "Les relations entre architecture et peinture" (The relation between architecture and painting) as follows:

les vertus	the goals
1. Camouflage	1. Camouflage
2. Créer tonifiant et ambiance	2. Create colored space and ambiance
3. Créer espace	3. Create space

These goals are very similar to the color and form language of his early purist work, creating spatial camouflage through literal and phenomenal transparency by locating a color in the different layers of a painting and relating it to the different shapes of the objects. Later, the same strategy becomes visible in his built work. His purist paintings show the typical layering of space. Color with its spatial and associative qualities mediates between fore- middle- and background, while dissolving the relation of the *objets types* to its plane of reference. Here, these paintings reveal the first time the idea of a continuous space being transformed three-dimensionally at the house La Roche / Jeanneret in an inhabitable purist *nature morte*. Color becomes equivalent to form as means of design, serving to modify and balance the space, while simultaneously articulating volumes to reinforce the design idea. In this connection it becomes obvious that Le Corbusier hovers between the two poles of dissolution of space through camouflage and creation of space. This dialectical relationship caused by color creates a pulsating space full of tension and ambiance, which became typical for the purist phase of Le Corbusier during the early twenties.

THE COLORS

Corbusiers' selection of colors cannot be described as the result of an objective analysis. They are not comparable to already existing color palettes, which are based on scientific research such as the color palette of the same time developed by Wilhelm Oswald. Instead his selection follows only subjective criteria. The spatial impact of the specific color and its constructive quality becomes critical for both painting and architecture. All colors belong to one strictly restricted family called *la grande gamme* described by Ozenfant and Le Corbusier in their article "Le Purisme" as follows:

"One can determine a hierarchically ordered large series of colors (grande gamme) consisting of yellow-ochre, red, brown, white, black, ultra-marine and their mixed colors. This series is a strong, stable series forming one unit, since the colors are, concerning their individual characters, related. With that, these colors have constructive qualities. These colors have been used during all important epochs. These are the colors of those who want to paint volumes and therefore need stable colors." (6)

Le Corbusier created his early color palette of the twenties by using only natural color pigments, mixing those pigments with glue-water or oil, which reduced the number of colors he could mix, restricting his work to a very limited color family. This made him independent of preexisting color palettes and industrial color-production. Without any scientific research he developed a natural color-normalization and dispensed with scales and scores. Consequently we can speak of primeval colors, that have definable and constant effects on the human through centenary usage.

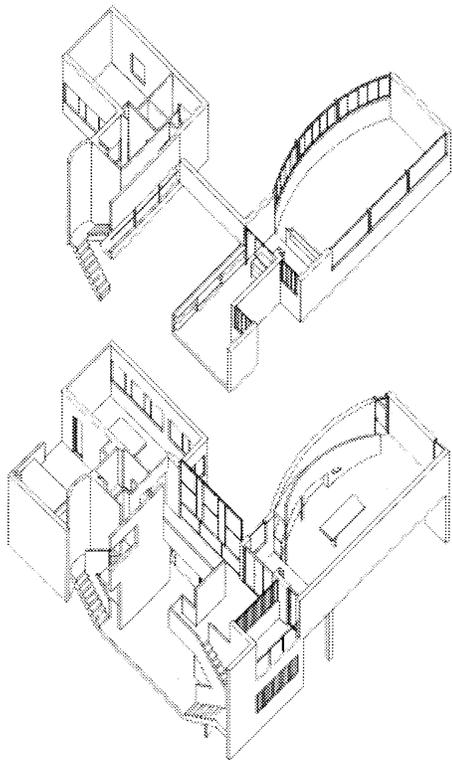


Fig.1. House La Roche

THE HOUSE LA ROCHE/JEANNERET

About 1922 / 23 he began the design of the house La Roche / Jeanneret, in Paris at the Square du Docteur Blanche in Paris Auteuil, a double family house designed for the banker and art collector Raoul La Roche and Le Corbusiers' Cousin Albert Jeanneret and wife Lotti Raaf. It can be considered a key-work in many regards. The house La Roche, which turns into the built manifesto of the *L'Esprit Nouveau*, demonstrates not only for the first time his five points of architecture, as well as the incorporated architectural promenade, but also the "first attempts of an architectural polychromy" (7). In this connection it should be said, that Le Corbusier had been confronted during the work on the Villa La Roche/Jeanneret with the work of the group de Stijl at the galerie L'Effort Moderne in Paris during fall 1923, where for the first time van Doesburg and van Eesteren presented their polychrome counter-constructions and maison particulière. Both projects pointed the way to neoplastic architecture and can be considered as a new and revolutionizing approach to color as an important means of space-design. Bruno Reichlin points out in his article "Le Corbusier versus de Stijl" (8), how Le Corbusier changes the spatial disposition of the white entry hall after the de Stijl exhibition. Walls and openings are no longer considered as necessary spatial boundaries in a traditional sense, but go through a process of transformation towards a new spatial transparency. Consequently the color scheme for the interior spaces had to be seen in a new context.

COLOR CONCEPTS OF THE HOUSE LA ROCHE

The object of the investigation is the color scheme of the house La Roche, which can be seen today by the visitor. It is the product of a series of transformations since the beginning of the construction of the house La Roche/Jeanneret in 1924. According to Jaques Sbriglio, today's color scheme, at least the one of the gallery is based on the renovation of 1928 (9). Since documentation of a color scheme of 1925 is missing, the original color scheme can no more be reconstructed. The bill for the paint work of March 12, 1925 (10) proves a color scheme based on a purist color palette. However, the spatial disposition of the colors is unknown. We know that Le Corbusier has been working on a three-dimensional translation of his *polychromie architecturale* into the built purist sculpture. We also know, that the polychromy of the house La Roche can not be considered to be the very first attempts of a new architectural polychromy, as he claims in his *Oeuvre Complete*. Both, the atelier Ozenfant and the villa Berques of 1922 had a vibrant polychromy of their interior spaces. Neither Siegfried Giedion, who visited the house before the renovation in 1928 and who published in the *Kunstblatt* in 1926 an article titled "Das neue Haus" (11), nor Stehen Eiler Rasmussen mention the color scheme. This is even more surprising, since the newly invented polychromy of the houses of the de Stijl group and other pioneers in polychrome architecture are discussed in the architectural press. This allows us to question whether the house La Roche faced, with the renovation of 1928, which was executed and supervised by Le Corbusier, a much more significant change regarding the polychromy of the interior.

Because of thermal problems, the house La Roche went under another renovation in 1936, where consequentially the walls of the gallery were covered with Isorel-sheets, which altered significantly the spatial impression (12). Originally Le Corbusier thought to change the color of the exterior walls to a light gray, but this was not executed. A note about changes of the color scheme in Corbusier's notebook of May 21, 1954 (13) proves that even almost 30 years after the construction Le Corbusier was still involved in the architectural polychromy of the house La Roche. This could be because the house La Roche represents for Corbusier the turning point towards an integration of color in architecture as an integral part of the space design.

COLOR AND SPATIAL DEFINITION

The house La Roche/Jeanerret could be best described by naming opposing pairs, which by playing off against each other determine the character of the house: unity versus camouflage, monochromy versus polychromy, volume versus plane, modern space versus traditional space, emptiness versus spatial density. The ambiguous relationship of these factors determines essentially the spatial perception. At that point the question rises, which role is assigned to color in the spatial play?

Exterior:

"The interior makes itself at home and bumps into the exterior, which then takes different forms" (14), a description of the contours of the house La Roche/Jeanerret by Le Corbusier in his book *Precisions* of 1929. Different than most of the other houses of the purist phase built by Le Corbusier, which are based on clearly defined cubes, the house La Roche/Jeanerret consists of multiple, but linked volumes. Their position and their formal language can be understood as a logical reaction to the found conditions of the site as well as a response of the interior spaces. The monochrome walls of the exterior are continued into the entry hall of the La Roche house, creating what Le Corbusier calls *l'unité* - a spatial unity of the different volumes. This evokes a three-dimensional impression of a monolithic volume, created on the one hand through a sharp-edged flow of the lines of horizontal and vertical planes and on the other hand through the monochrome use of the color white on all exterior surfaces. The exterior of the building seems to become the built manifesto of the "Loi du ripolin" (The Law of Whitewash), published in 1925 by Le Corbusier as a part of his book *L'art décoratif d'aujourd'hui*. It is not the color that becomes crucial, but is the monochrome use of the color white which becomes the focus of attention when it comes to the question of how to paint the exterior walls of the house la Roche/Jeanerret. In 1936 Le Corbusier takes even into consideration to paint the exterior walls in a light gray - probably because of practical reasons - but it is the monochromy of the walls which still remains important, since only the "monochromy allows an exact evaluation of volumes of an object" (15). The color white - in the figurative sense the *lait de chaux*

(whitewash) - enhances and causes the "masterly, correct and magnificent play of masses brought together in light." (16).

Interior:

Accordingly to his demand "The interior space of a house has to be white and to make the white perceptible it has to face a regulated polychromy" the monochromy of the exterior continues into the heart of the villa, a huge, cubic entry hall, that defines the center of the architectural promenade. All the walls, which are defining the entry hall, are painted white. Sharp edged cut outs relate the volume of the entry hall with the spatial volumes behind the lateral walls. Only on the backside of the lateral walls the polychromy becomes visible. This polychromy is diametrically opposed to the monochromy of the exterior and the entry hall.

Characteristic of the house La Roche are the different possibilities of multiple reading of the spaces and the form. Stehen Eiler Rasmussen precisely explains in his article of 1926 "Le Corbusier - Die kommende Baukunst?" (Le Corbusier - towards a new architecture?) that apparent contradiction of simultaneous perception of form and space using the example of a vase:

"The described drawing can be read as an image of a black vase: we can also read to faces, which are looking in opposed directions before a black background. But, it is not possible to see the vase and the two faces at the same time. (...) Simultaneousness of spatial and figural imagination is therefore not possible. Which does not necessarily mean, that one and the same building can not evoke subsequently very well not only figural but also spatial imagination. (...) Let us have a look at the entry hall of the house in Auteuil (House La Roche), built by Le Corbusier and Pierre Jeanneret. We will discover that they are thought neither spatial nor figural. We rather become most aware of lines and planes, which define spaces and volumes."
(17)

The subsequent perception of space and form or positive and negative volumes, creates a spatial tension, which becomes characteristic for the house La Roche. In addition an emphasis is placed on creating two-dimensional planes, rather than volumes. The dissolution of the corner consequently creates the notion of single planes, which "are only connected through their boundaries" (18), to be seen here at a wall or window openings. At the same time wall slabs and openings redefine a spatial volume through a continuous flow of lines, a phenomenon called by Rasmussen in his article "false relations". This oscillation between volume and plane and with that between space and form becomes especially visible at the lateral walls defining the entry hall. The white of the walls emphasizes the three-dimensional effect around the area of the main stairs leading to the second floor, where lateral wall, balcony and stairs create a three-dimensional ensemble. Simultaneously, where window, sill and wall come together, the same lateral wall is defined as a plane. Only the *lait de chaux* - the white wash - brings volume and plane, space and form together to a unity.



Fig.2. Gallery

After the ascetic and pure white of the entry hall, the polychromy of the interior of the gallery wing surprises. From the viewpoint of the observer standing at the entry level, colored railings or doorframes can only be perceived vaguely through cut outs of the lateral walls. Only on the backside of the lateral walls of the entry hall a vibrant polychromy of the interior becomes visible. The wall defining the anteroom to the gallery space on the second floor is painted in a light blue. A thin layer of paint is applied only to the space-facing plane of the wall, dissolving the notion of the wall being a volume and destroying it into its single planes. With this comes the paper-like impression described by Rasmussen: "The walls appear as if they were made out of paper. Their notion of being a volume has been taken away" (19) is intensified. The volume of the wall is not only understood as a plane, but the wall as a whole is dissolved in single planes.

This new kind of spatial definition consisting of horizontal and vertical planes and openings placed against each other, where the opening is no longer understood as part of the wall, but as an individual spatial element, can only be experienced through the means of what Le Corbusier calls the *poychromie réglée*. This becomes clear in the large gallery space: each plane is differentiated through color from the next plane and enters the spatial play as a fully colored unit according to Le Corbusiers' demand: "...il faut que les murs soient des entiers qui entre comme des unités dans l'équation." (20) (The walls must be considered as an integral whole, which enter as units in the play). This is a very opposing statement to van Doesburgs *maison particulière*, where the wall itself becomes subdivided by color. Through the means of color, the spatial volume is subdued in its single planes, however without destroying the volume of the space completely. The same can be seen at the balustrade of the ramp, where, the volume of the ramp is dissolved through different color applications on the vertical and horizontal planes.

"Polychromy (two colors, three colors, etc....) destroys the pure form of an object, alters its volume, opposes an exact evaluation of this volume and, by reciprocity, allows one to appreciate in one volume only what one wishes to show: house, interior, object, it is the same story." (21)

Based on his observation of the "specific virtues of color - Blue creates space. (...) Red fixes the presence of the wall." (22) Le Corbusier articulates and modulates the space. Accordingly, the light gray described as the color of indifference and calmness of the lateral walls and ceiling calms the eye. The red-brown of the ramp and the dark umbra of the chimney fixes those objects in the space. It is the color, which gives the space its final dimension. Between the poles of spatial dissolution and spatial definition color becomes the instrument of spatial perception, the *apporteuse d'espace*. (23) the creator of space, which articulates and modifies the space.

Another phenomenon of *camouflage architecturale* through the use of color can be seen in the gallery, where ramp, balcony and entry zone to the gallery come together. First of all the space defining elements such as walls, ceilings and balustrades are dissolved into planes and connected only by joint flow of the lines. Single objects in the space such as the ramp and the chimney are visually connected through color. Other planes and volumes are juxtaposed or overlapped (table, chimney and fireplace). Since objects may share contours or colors depending on your point of reference in the space, the precise position of the object in the space can not be determined. These "false relations" evoke a constant oscillation between background, middleground and foreground, thus creating a similar effect known from purist and cubist painting:

"The oscillation between surface definition and depth definition, between two-dimensional infrastructures and illusionist presentation creates a tension of oppositeness, which extends radially the length of esthetic time." (24)

With this the plane is used as an abstract figure, comparable to the *objets-types* of the purist paintings by Le Corbusier and Amedée Ozenfant. The gallery wing, the *raison d'être* of the house La Roche, becomes the built manifesto of *L'Esprit Nouveau*. Here, Le Corbusier translates for the first time a method developed initially in purist painting, where daily objects are presented without the use of perspective and relief, with their planes held together and defined only by a contour line, into the three-dimensional space of architecture. The role of color in the three-dimensional space, the *oeuvre plastique*, is similar to it's role in purist painting. Color determines the position of the object in the space / the position of the plane in the painting and allows together with the contour of the object / the plane multiple readings of the two-dimensional painting, irrespective of the three-dimensional space.

COLOR AND SPATIAL SEQUENCE

Continuous space and traditional space are diametrically facing each other, separated by the large volume of the entry hall. On one side we find a series of interrelated spatial volumes, where "numerous spaces (...) communicate directly (...) through knee-high walls and shelves serving as partition walls" (25). On the other side we find the *corps de logis*, the living unit, defined by traditionally closed spatial volumes. Both sides are connected through a bridge, which crosses one side of the entry hall. These integrated spaces become

an integral part of the architectural promenade, which as “a means of the realization of the principle of decelerated perception” (26) let the observer experience, the site with its constantly changing spatial relationships:

“Our walls are of a generous eloquence. The relations of their dimensions, their colors create our architectural space. I am no more in the *chambre rose* or in the *chambre bleue*. I promenade through an architectural site, which unfolds under my feet.” (27)

The *polychromie réglée* is developed as an inevitable consequence of a new spatial idea. It no more understands the space as a closed unit but as a continuum of space, which can be experienced through the architectural promenade.

Color mediates between the different spaces. The eye and the memory connect similar hues and adds walls of similar color to a new volume. The perceived spatial volume alters, dependant o the observer’s point of reference, as it is limited by walls or expanded by openings or cut outs into adjacent spaces. As a consequence, the perception of space constantly changes. As an example I would like to show you the back of the lateral wall defining the entry hall, which is painted light blue. The light blue applied to the wall, not only extends the spatial volume of the anteroom to the gallery visually, but also expands the spatial volume over the bridge to the door of the dining room, which is painted in the same hue. The rose color of the dining room again evokes the memory of the rose floor of the gallery. In just the same way the dark umbra and brown hues applied to walls and objects on the way up to the library on the third floor are used as a part of the spatial sequence along the architectural promenade. First, walls painted in a dark umbra define the stairwell and the anteroom of the gallery perpendicular to the movement of the visitor. The eye connects to the brown of the ascending ramp and back to the dark umbra of the chimney. A wall painted in dark umbra again then leads into the library. Color becomes the target of the single section of the path which than turns into the architectural promenade and creates, together with the form, the continuous space.

How in this connection can we understand the color of the dining room?

“If the four walls are painted the same tone, the form of the room remains intact, very affirmed if the tones “hold the wall” (reds for example) (...). If the ceiling is of the same tone as the wall, the impression is totally modified; from one categorical thing one moves to something very softened, calmed, entrancing; it is like being under a dome. I have closed up the space.” (28)

The color rose applied to ceiling and walls holds the volume of the space together, fixes the presence of the wall and gives the impression of intimacy and security. The closed spatial container becomes the final destination of the promenade after the exiting path through the continuous space of the gallery wing. Just as the idea of the traditional space literally faces the idea of the modern space on the

opposite side of the entry hall, the newly developed *polychromie réglée* faces the *chambre rose* as a reminiscence of a disappearing tradition.

COLOR AND SPATIAL GESTALT

Color dematerializes the wall. As a thin, last layer applied to only one plane of the wall, color subdues the volume of the wall and takes its volumetric appearance away. Both plaster and color cover the rough concrete and other construction materials to define smooth clearly defined surfaces. Color replaces the ornament. Adolf Loos already stated in 1913 in his article “Ornament and Crime”, which Le Corbusier certainly read and published in November 1920 in *L’Esprit Nouveau* (29): “A mesure que la culture se développe, l’ornement disparaît des objets usuels”. (The ornament of the daily objects will disappear with the degree of a developing culture.) Accordingly color becomes legitimized only after having clarified, that color is used in an antidecorative sense as a means of spatial articulation.

Next to space modifying and articulating qualities of color, another aspect of space design becomes important: the atmosphere of the space - the *chambre rose* with its calm atmosphere, security and intimacy, the white entry hall as an expression of clarity and emptiness “We like our walls to be white; and empty; or open and pure” (30). The selection of a specific color not only is determined according to the concept of form, but also with regard to the spatial atmosphere.

“Architecture is a function of the light; it is a three-dimensional phenomenon in the light; (...) No architectural sensation without light” (31). Light and guidance through light becomes in more than one way an important means of design. On the one hand it is the light opening, which, in the play of *plein et vide* occupies the corners in the plan or becomes the elongated window between two wall slabs. Thus, creating the dissolution of the corner and a plane-like appearance of the space defining elements. Together with a polychromy, which emphasizes the plane rather than the volume, the spatial volume itself is subdued, a spatial phenomenon which we have seen in the gallery of the house La Roche. On the other side, the light itself contributes to the perception of the *gestalt* of the space. Thus, the color scheme follows the brightness of the wall, which is defined by the position of the wall towards the light:

“Color, which tempers walls depending on whether they are in full light or half light, can direct the gaze over spaces complicated by layout and can significantly extend the impression of space: red only preserves its qualities in full light, while blue vibrates in shadow, etc.: the physics of color. The physiology of sensations: red, blue, yellow, etc.... determined sensations. Shadows, half-light, light: the same. Architectural composition can be based on these principles.” (32)

According to this statement from his book *L’art décoratif d’aujourd’hui* of 1925 Le Corbusier chooses a red brown for the

balustrade of the ramp, which is exposed to the south light, whereas the light blue of the lateral wall of the anteroom of the gallery lives in the half-light. Other colors of the warm color range such as the yellow ochre of the front wall in the gallery as well as the rose floor are positioned in the sunlight, which enters the large horizontal window under the ceiling.

After the renovation of 1928 the furniture becomes part of the color scheme. The photo published in *L'Architecture Vivante* in 1930 (33) shows those objects as built-in furniture. A non-movable, luxurious table with a large dark marble slab, which was probably designed by Charlotte Perriand (34), is attached to a V-shaped steel-column on a black tiled base. A gray painted closet with curved doors made from frosted glass has been placed permanently under the ramp. A linear light fixture painted in a light blue replaces the light bulbs across the gallery. Unlike the movable and still traditional furniture, which are seen in the photo published in *L'Architecture Vivante* of autumn 1926, the newly designed furniture becomes a part of the spatial concept. Through their color they become planes and volumes of the space, similar to the built spatial elements such as walls and ceilings, and together they determine the perceived spatial form.

Corbusier employs color as a space-modifying and classifying element, which is opposed to form. The *camouflage architecturale*, created through color, corrects the real space-relations. Color becomes equivalent to form as means of design, serving to modify and balance the space, while simultaneously articulating volumes to reinforce the design idea. Or in Le Corbusier's own words: "Color creates the space. Let us consider the color to be the creator of space." (35)

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