

The Spatial Use of Color in Early Modernism

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The word *Modernism* evokes the image of white, cubic, abstract buildings, pure architecture without the "bazaar of historic styles." The image of an unadulterated, abstract architecture of Early Modernism had been maintained not only by critics like Siegfried Giedion, but also had been implicated into the imagination of the observer, caused by the black-and-white print techniques of those times. Although one can find in some of the publications of the early 20s and 30s' colored supplements with afterwards color tinted black-and-white prints, the printmedia reflect an anti-polychrome, white architecture of this time. The expression of architecture had been looked at and determined through form and so it is not surprising that color from the point of view of the critics degenerated to a "colorizing supplement."² One of the major misunderstandings of Early Modernism has been the denial of color as an important means of space-designing. Thus being so much more astonishing, since the most important representatives of Early Modernism such as The Bauhaus, with Walter Gropius, Alfred Arndt and Hinnerk Scheper, the Dutch group de Stijl, with the architects Theo van Doesburg, Thomas Gerrit Rietveld and J.J.P. Oud, the French architect Le Corbusier and the German architect Bruno Taut, reached one consensus concerning the use of color.

They all used color as an inherent means of space-designing, even though under divergent point of views.

At the beginning of the twenties, under the pressure of the reconstruction of Europe after the disastrous consequences of World War One, a new expression of architecture crystallized based on fundamentals, which had become manifest at the beginning of the century. The promotion of the mass house building, triggered off by the devastation of the war and the inhuman housing conditions particularly in the big cities, encouraged the idea of a new space-concept of Modernism. The Staatliche Bauhaus in Weimar, later in Dessau and Berlin became the pioneer of a new architecture language, that followed first and foremost functional and social point of views. Especially the supremacy of a strong functional aspect of spacedesigning, taught at the Bauhaus in Dessau, was based on the special building task in Germany. Here coping with the mass house building was considered first priority, thus not allowing formal-esthetic gadgets, which can be observed at the group de Stijl and the French architects, such as Le Corbusier. As we can see in the following, this functional aspect of space-designing became a major aspect of the color-space relation at the Bauhaus.

However, as far as a new understanding of space is concerned, very similar attempts can be observed internationally in the field of the individual house building. For many architects the preoccupation with the form and the search for a new expression of space became the focus of their interest and it is not surprising that the building became in some cases detached from its functional tasks and according to van Doesburg turned into a "constructional, closed plastic."³ As a result, color starts playing a more specific role, similar

to three-dimensional art: either employed to modify or correct the space or to support or camouflage the real space relations. The rejection of color as a decorative element leads to a change of color towards an inherent component of the space. Alfred Roth, a former collaborator of Le Corbusier, calls this movement "From wall-painting to space-painting" defining the new role of color as follows:

The question is (...) to give color opportunities for development corresponding to its own natural character and determined by the architectural scope, to elucidate the architectural ideas and to complete and enhance the general impression?

The break with the tradition shows both color and form in a new light and color becomes, equivalent to form, an adequate means of space-designing during Early Modernism. The following analysis will demonstrate the relationship between color and space in the early work of the important representatives of Early Modernism such as Bruno Taut, Le Corbusier, de Stijl and the Bauhaus.

BRUNO TAUT

Taut can be considered to be the pioneer of polychrome architecture of the early twenties. As a result of his intensive relation to painting, he experimented very early with polychrome architecture. Talking about himself he said: "The painter in myself subordinates the architect according to my talents, for the painting of pictures can never be an end in itself." This combination of painter and architect becomes clearly apparent at the Gardencity Falkenberg near Berlin, which had been planned and erected by Bruno Taut in 1913. Probably for the first time ever in history the Gardencity Falkenberg became the first housing development being executed with a strongly differentiated polychromy of the exterior. Here at the "Tuschkastensiedlung" (paint box settlement) — as it was called by the locals — he realized a clearly defined color concept, as an integrative part of the housing development. He developed a colored arrangement following an architectural concept with a social dimension. Color became not only a symbolic but also an emotional signification through which the housing development should be experienced and identified as a unit. The color concept counteracts the monotony of the uniform row-houses. Every housing unit is differentiated by color, creating through repetition of colored sequences a vivid rhythm. Thus giving an individual character to each living-unit, Taut ties the feeling of identification with the living environment of each inhabitant. At the same time he tightens the entire housing development visually together, introducing recurred elements of the same color, to reinforce the collective identity of the settlement.

The socio-reformatory aspect of Taut's color designing becomes once again visible at the apartment houses. Similar to an illusion, an

oversized gate, applied to the architecture, turns out to be at a closer look a generic entrance. With a certain irony Taut raises the simple working-class apartment house to a richly decorated, chateau of illusion to elevate the self-esteem of the inhabitants. Another apartment house shows a red and white shade-illusion, which fuses together to a whole with the black building. Painting and architecture become a symbiosis. Although the simple and traditional construction, Taut succeeds through this expressive polychromy in dissolving the limits between architecture and modern painting. However different to Le Corbusier and de Stijl the polychromy can not be considered to be related to the space, but to the plane, attempting to design the plane three-dimensionally. Where as the use of pattern as a means of designing could be understood as a reminiscence of the lost tradition of the "Farbe am Bau."

Besides urban articulation and functional aspects the choice of colors was determined by the position of the building towards the sun. "Color is light,"⁵ Taut said, making plain the relationship of colored parts of the building and their charging of energy through the sun light. It is well known that Taut equipped his first apartment, a small renovated country-house in Berlin Dahlewitz, in accordance with his ideas of a "kosmische Farbenliebe."⁶ In this house he used a primary color-palette, red, yellow, blue and combinations of black and white, using the black accents to unify the multicolor impression. His own apartment remains Taut's only design work, that applies principles of color formation in the sense of the Dutch group de Stijl to create a plastic abstraction.

The colors he uses for the interior of his house built 1926-27 in Berlin-Dahlewitz follow precisely arranged relations. Accordingly the bright red applied to the ceiling of the living-room, positioned in shade during daylight, is carefully balanced against the green of the surrounding grass in the garden. Ultra-marine in the adjoining room contrasts with the chrome-yellow of its facing wall. Bright colors were never exposed to the direct sunlight, but were applied in the shaded areas or side-light. Accordingly the direct sunlight hits most of the time blue or a deep, dark red.⁶

"Color is the joy of life," Bruno Taut said 1919 in a proclamation, "since color can be given even with small means, we have to insist upon the use of color especially in times of need."⁷ As opposed to Le Corbusier, Taut never used color from a formal aesthetically point of view. He consciously maintained this difference with Le Corbusier calling him a "most talented salon aesthete." Instead he introduced color from a social point of view, counteracting the monotony of housing developments

created through typology. At the same time he refers to a traditional, simple and gay use of color, relating to the traditional and local building craftsmanship.

LE CORBUSIER

Le Corbusier's movement towards a polychrome architecture occurs through painting at the beginning of the twenties. Together with his friend and artist Amedée Ozenfant, Le Corbusier the painter developed a purist language of forms and colors during the early twenties. Shortly later he translated this language into architecture. to be seen the first time at the double-family house La Roche/Jeanneret in Paris-Auteuil, which turned into a build sculpture. Before 1923 Le Corbusier considered himself to be more a painter than an architect and accordingly all his publications before 1923 are focused on painting.

Only in 1931, when just by chance the wallpaper producing firm *Salubra*⁸ offered him to design a new wallpaper selection, Le Corbusier worked simultaneously theoretically on color as a means of space-designing writing his *Polychromie architecturale*⁹, which he never published himself. Le Corbusier opposed the ambivalence of color with its space-creating and space-destroying qualities by designing a new regulated polychromy, called *polychromie réglée*. This polychromy consisted of colors, that have, according to the

essay "Purisme"¹⁰ of le Corbusier and Amedée Ozenfant. constructional *qualities* and can be called *architectonical* colors. They belong to one strictly restricted, hierarchically ordered family — the *grande gamme*, consisting of yellow-ochre, red, brown, white, black, ultra-marine and their mixed colors.

Thus, he said of himself, he became an architect "through the eye of a needle of painting." This development from the painter to an architect finally ended in the *Polychromie architecturale*, which was based on the experiences of painting. Accordingly he employed consciously the physical and psychological effects of color, that he had been tested previously in painting. His purist paintings show the typical layering of space. Color with its spatial and associative qualities mediates between fore — and background, while dissolving the relation of the objects types to its plane of reference. Here in painting we can observe for the first time the *continuos space*, which Le Corbusier than realized 1924 at the Villa La Roche/Jeanneret as a three-dimensional, purist nature morte. On the back of his own wedding invitation Le Corbusier registers in 1938 the three points of the "Polychromie architecturale," describing these during a lecture about "Les relations entre architecture et peinture"¹¹ as follows:

les vertus

1. camouflage
2. créer tonifiant et atmosphère
3. créer espace

the goals

1. camouflage
2. create tension and ambiance
3. create space

In this connection it becomes obvious that Le Corbusier tends between the two poles of dissolution of space through "camouflage" and creation of space. This dialectical relationship caused by color creates apulsating space full of tension and ambiance, which became typical for the purist phase of Le Corbusier during the early twenties.

About 1922 / 23 he begins the design of the house La Roche Jeanneret, in Paris at the Square du Docteur Balnche, which can be considered a key-work in many regards. The Villa La Roche / Jeanneret demonstrates not only for the first time his five points of architecture, but also the "first attempts of a polychromie architecturale."¹² An incorporated architectural promenade passes through the passable sculpture, while the "specific reactions of the colors among each other"¹³ as well as their position to the light modify and articulate the space. A *camouflage architecturale* is created by the means of color, emphasizing certain volumes or, as opposed to it, dissolving the volumes.

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"¹⁴ the monochromy of the exterior *continuos* into the heart of the villa, a huge, cubic entry hall, that defines the center of the architectural promenade. Influenced by the 1923 de Stijl exhibition at the Galerie L'Effort Moderne in Paris, Corbusier places wall slabs literally crosswards one upon another, comparable to a house of cards, similar to the counter-constructions of Theo van Doesburg. These walls are then plastered and painted white, creating a spatial effect of abstraction and dematerialization. On the backside he coats walls with a light blue, visible at the edges, which dissolves the volume of the walls. Circulation in both portions of the house occurs behind the two parallel walls of the entry-hall. Openings in these walls allow vistas to the spaces behind the walls. Colors applied to the innerside of the wall are "creating layered composition together with the architectural cut outs of its opposite site."¹⁵ The aspect of articulating volumes through color becomes once again visible at the gallery of the house. On the one hand, color classifies the object, where as on the other hand color itself is determined according to the position of the wall in relation to the light. A light blue is applied to the curved side wall, located in the halfshade, where as the front wall is painted in a yellow-ochre, so that daylight cast upon the wall makes the wall shine with the color. The color brown, applied to the ramp, stabilizes the volume in the space.

Corbusier employs color as a space-modifying and classifying element, that is opposed to form. The *camouflage* architectural, created through color, corrects the real space-relations. As we have seen previously in painting the visual bonding of the different layers creates the continuous space, while the different layers of the space are positioned in the space through color. Later, at the construction of the housing-settlement Fruges at Pessac, Le Corbusier describes the relationship of color and space as follows:

Color creates the space. Let us consider the color to be the creator of space."

Color becomes equivalent to form as a mean of design, serving to modify and balance the space, while simultaneously articulating volumes to reinforce the design idea.

DE STIJL

The Dutch group de Stijl, with its formative figure and founder Theo van Doesburg, can be considered a kind of repository for radical artists and architects between 1917 and 1931. They all have in common a formal rationalism, based on extensive programmatic pretension. A radical reduction of color and form to abstract basic elements resulted from the idea of an "universal harmony" and the goal that art should follow only its own "objective" rules. The exclusive use of the primary colors red, blue and yellow as well as the non-colors white, black and gray was supposed according to Piet Mondrian "to liberate the color from anything individual and from individual emotions and to express only the silent sensation of the universal."¹⁶

In 1918 Van Doesburg tries to formulate an answer to the relation of form and color, confronting architecture as a "constructional, closed plastic" with modern painting as an "open plastic":

Architecture joins together and unites, painting dissolves and disunites. And precisely because the two fulfill different functions by their very nature, they can be linked harmoniously. This harmonious linkage does not arise through their characteristic similarity, but through their characteristic difference."

Complimentary use of form and color can be found in his buildings and projects, consistently avoiding a functional and tectonic bonding of color. This complimentary use of form and color is first shown during the 1923 exhibition of the de Stijl group at the Gallery L'Effort Moderne in Paris. It is the same exhibition, which influenced according to Arthur Riegg Le Corbusier's color-theory and spatial use of color. Both slides show colored 3-D Axons of counter-constructions, designed in 1923 by Theo van Doesburg and the architect Cornelius van Eesteren for the de Stijl exhibition at the Gallery "Effort Moderne" in Paris. Red, blue, yellow and gray hovering panels, define the space. White, vertical and black horizontal panels, which are the only corner-defining elements in the construction, join the hovering panels together to define a volume. Simultaneously all other colors meet at corner and edges in such a way as to destroy the notion of a volume and to unfold the volume. By juxtaposing a color-system to the volume, which was meant to be a "closed sculpture," this volume explodes visually into an "open sculpture." Color and form become an equally balanced system, however distinguished through their character of composition.

Also here, the fundamental difference between Le Corbusier and van Doesburg becomes obvious. Le Corbusier uses color as *l'apporteuse de l'espace* — the creator of space —, to define and sculpture the space and to give it its final dimension. Color emphasizes the sculptural notion of space, not destroying the sculpture as a whole. Color and space as a correlation define a space-continuum. Van Doesburg, however covers the actual spacerelations, creating through colored panels a "floating relationship" and dissolves the contrast between color-formation and space-formation. Since color

and space are, according to van Doesburg's definition, complementary elements, they begin to perform a spatial correlation as opponents. The building, defined in a traditional sense as a closed plastic, becomes an open plastic.

Limiting the sculptural elements to panel and bar, Rietveld simultaneously limits his color-palette to primary-colors, such as red, yellow, blue, together with the non-colors white, black and gray. However he spatially does not dissolve the surfaces in such a radical way, comparable to van Doesburg's counter-constructions. The exterior of the Schroeder house remains an abstract, however, visually, coherent sculpture, whose cut out are differentiated by means of color. Form and color begin only to create a spatial tension in the interior of the Schroeder house, where colored surfaces and panels create a "floating relationship" dissolving the contrast between color-formation and space-formation. Similar to Bruno Taut's house in Dahlewitz, Rietveld emphasizes the tectonic qualities of space limiting the spatial elements to dot, line and plane. Colors are applied to the surfaces as color-accents, precisely balanced to proportion and spatial form. Walls, furniture and structural elements become by means of color an integrated part of the space. The Schroeder house became the built manifesto of the de Stijl movement, turned into a built, abstract color-sculpture, being beyond conventional space-definition and traditional space-perception.

THE BAUHAUS

At the Bauhaus, which had been founded by the architect Walter Gropius 1919 shortly after World War One, we can't establish a homogeneous attitude towards color as a means of space designing. Rather one could speak of a melting pot of the already existing movements of the polychrome architecture. Actually, at least three phases of wall painting at the Bauhaus can be seen to emerge, where as first signs of space - painting which became typical of the last phase under Hinnerk Schepercan already be observed in Weimar. At the beginning Oskar Schlemmer and Johannes Itten directed the wallpainting shop, than from 1922 until 1925 the painter Wassily Kandinsky. Under his art directorship the design of artistic wallpaintings were applied directly to architecture. Only when Hinnerk Scheper in 1925 became the art director of the wallpainting shop in Dessau, the wallpainting developed towards a pure functional, polychrome designing of the space without any decorative elements, which was related only to the architecture and its tectonic.

However, caused by the influence of van Doesburg, who taught at the Bauhaus at the beginning of the twenties, one can observe some student work of Farkas Molnar, Peter Keler and Herbert Bayer, which orient themselves by the polychrome space designing of de Stijl, without however creating their programmatic color-space relation. The projects remain at the level of the geometrical space relation and continue with their selection of primary colors the polychromy of de Stijl, without making it to their typical balance of the floating relationship of color and form.

Simultaneously a new school of space painting developed at the early Bauhaus, which had barely been taken note of, since the evidence for its realization was missing. This school emerges in a close cooperation with and under the influence of Walter Gropius at actually executed projects of his "Baubiuro" in Thuringia. The Bauhaus student Alfred Arndt, who became later the acting art director of the wallpainting shop in Dessau, designed among other things the color schemes of the house Auerbach and the house am Horn, which both belonged to the few realized projects of the early Bauhaus. His color schemes were developed from functional, space articulating, geometric-constructive and above all from architectonic point of views, which anticipated the color designing of Hinnerk Scheper in Dessau.

Eventually I will present you the house Auerbach in Jena as an example of the polychrome space designing of the early Bauhaus in Weimar, which has been restored just recently. In 1924 Walter

Gropius constructed in cooperation with the architect Adolf Meyer a single family house, build for the physicist Dr. Felix Auerbach and his wife Anna in the west quarters of Jena.¹⁸ During the restoration work the new owners found color traces, which indisputably proofed the realization of the color schemes designed by Arndt in 1924. This being even of a greater importance, since this had been the first evidence of a realization of the color designing of the early Bauhaus, which had been related to the spatial proportions and architecture. Simultaneously the realized color designing also proofed, that Gropius did not belong to the color adversaries of those times, but allowed a vibrant polychromy as long as the interior spaces were concerned.

The original color schemes of Arndt designed in 1924 show two important aspects of color designing. On the one hand Arndt supports and underlines the architecture of Gropius by making clear the existing geometry of the space through color. Indications of geometry such as window openings, door frames or lintels become the cause of a color change on planes such as walls and ceilings. (ex: music room). With that, color planes of equal color are joined together in a way to create imaginary color spaces, which divide the room into individual zones. Those correspond to the function of the space itself, as we can see for instance at the music room and its hint of a sitting area. Unlike van Doesburg and his *maison particulière*, Arndt employs color not to "cover up the real space proportions" or to "burst the space". He uses color obviously as a tool of space organization, to subdivide and classify the space. By joining together color to a three dimensional space, similar to an imaginary cage, he underlines the real proportions of the architecture. Simultaneously color creates a visual link to the adjacent space, creating a continuous space. Certainly, the break with the traditional color designing becomes obvious, but Arndt did not succeed in emancipating color, according to what we have seen previously in the architecture of the group de Stijl. He followed strictly functional, space articulating, geometric-constructive and above all architectonic aspects of color designing at the house Auerbach, without the universal pretension of the polychromy of neoplasticism and purism. With the realization of the color schemes of Arndt the break of the wall painting, which generated purely from artistic point of views, took place towards the architectonic space-painting, which pointed the way to the architecture of the Bauhaus.

NOTES

¹ ex.: Badovici, Jean (ed.), *L' Architecture Vivante 1921-1925* (Paris: Albert Morancè, 1921-1925).

² quote from: Rainer Wick, "De Stijl, Bauhaus, Taut. Zur Rolle des

farbigen Bauens." *Kunstforum International* 1 (1983): 60-74.

³ Arthur, Riegg, "Farbkonzepte und Farbskalen in der Moderne", *Daidalos* 51 (1994): 66.

⁴ Alfred Roth, "Von der Wandmalerei zur Raummalerei," *Werk* 2 (1949): 52-58.

⁵ Bruno Taut, *Ein Wohnhaus* (Leipzig: 1926), p. 90. "Die Farbe wird dann über alle dekorativen Elemente hinaus zu einer Eigenschaft des Lichts selbst; *dein Farbe ist Licht.*"

⁶ Bettina Zoller-Stock, Bruno Taut. *Die Innenraumwürfe des Berliner Architekten* (Stuttgart: DVA 1993): p. 62. Zoller-Stock also gives a detailed description of the polychromy of the house Dahlewitz and the exposure of the walls in accordance to the sunlight. (p.65)

⁷ op.cit. Zoller-Stock.

⁸ Le Corbusier. *Polychromie architecturale*. Paris (1931 ?) Fondation Le Corbusier B1-B18, translated by Klaus Ruprecht in: Riegg, Arthur (ed.), *Le Corbusier - Polychromie architecturale* (Basel, Boston, Berlin: Birkhauser, 1997). p. 137.

⁹ *Le Corbusier - Polychromie architecturale*, op.cit.

¹⁰ A. Ozenfant, Ch.-Éd. Jeanneret, "Purisme," *L'Esprit Nouveau* 4 (1921).

¹¹ Arthur, Riegg (ed.), *Le Corbusier - Polychromie architecturale* (Basel, Boston, Berlin: Birkhauser, 1997), pp. 38-39, Notes for the lecture "Les relations entre architecture et peinture", from January 12, 1938 in Zurich before the Zurich section of the SIA, notes are taken on the back of his own wedding announcement of 1930.

¹² W. Boesiger, Stonorov (ed.), *Le Corbusier - oeuvre complete, 1910-1929* (Zurich: Artemis, 1964), p. 60. "A l'intérieur, les premiers essais de polychromie, basés sur les réactions spécifiques de couleurs, permettent le camouflage 'architecturale.'"

¹³ *Le Corbusier - oeuvre complete, 1910-1929* op.cit., p. 60.

¹⁴ *Le Corbusier - Polychromie architecturale*, op.cit., p. 22.

¹⁵ *Le Corbusier - oeuvre complete, 1910-1929* op.cit., p. 86: "La couleur pouvait nous apporter l'espace. Considérer la couleur, comme l'apporteuse de l'espace."

¹⁶ Piet Mondrian, "Die neue Gestaltung in der Malerei," *Jaffé*, p. 48.

¹⁷ Arthur, Riegg, "Farbkonzepte und Farbskalen in der Moderne," *Daidalos* 51 (1994): 67, Riegg defines in his article the idea of complementarity of form and color in the work of de Stijl.

¹⁸ Barbara Happe, "Haus Auerbach in Jena," *DBZ* 10 (1997), p. 103-105.

Translations from German/French to English: Barbara Klinkhammer.