

Prefabricated rolls of oil paint: Le Corbusier's 1931 colour keyboards

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ABSTRACT

The creation of two colour collections by the Swiss born painter, architect and theorist Le Corbusier (1887-1965) stands out as a considerable achievement of his exceptionally remarkable career. Produced for the wallpaper factory *Salubra S.A.* in Basel in 1931 and 1959,¹ the colour collections were specially designated by Le Corbusier as *colour keyboards* —*claviers de couleurs*— in reference to the systematic arrangement of keys on a musical instrument such as a piano. Le Corbusier's 1931 colour collection can be specified, first of all, as having a strong relation to Nature; and secondly, for colour introducing a new kind of fluidity between the inside and the outside. Thereby, colour was used as a space-providing element. These observations are essential to the concept and schemes of the colour keyboards.

1. LE CORBUSIER'S FIRST COLOUR COLLECTION

Le Corbusier was granted the contract from *Salubra* in 1930 on the basis of his established reputation as a successful painter and architect.² Innovative in its concept of colour, the wallpaper product represented by the colour collection was itself also quite a novelty. Produced as a prefabricated roll of oil paint, the applied wallpaper was both washable as well as colour-fast with a guaranteed durability of at least five years. The same oil paint was also available in a traditional liquid form for use on door and window frames, and other lesser surface areas.

In fulfilling the commission, Le Corbusier invented a sophisticated *colour selection machine* for the company's customers. Conceived as an instrument or kind of book which could be folded and unfolded up to four times, the invention provided the user with the possibility of comparing larger colour strips with smaller colour samples as well with large colour sheets. Le Corbusier specified the colours of the different keyboards. Each colour keyboard followed a strict ordering system to enhance associative colour combinations. That is, within each keyboard, two rows of up to fourteen small colour samples were arranged horizontally in between three larger colour strips. The colour ranges of the small samples and larger strips were set up in correlation to compose the keyboard as a whole.

Possible colour combinations could be compared using a specially conceived sliding cardboard frame viewer. This system enabled the user to select up to three or up to five colours from the linear sequences in combination with a colour strip. The larger samples were intended to represent the greater surface area application, that is, the walls, and could be

¹ The relationship between the 1931 and 1959 colour collections conceived by Le Corbusier and their reverberations in comparison with Luis Barragán's colour combinations as proposed in the abstract will be presented in a future congress or meeting.

² As Arthur Rüegg (1997b: 50) wrote, local artists of Basel and also the internationally known Swiss artist and architect Max Bill were commissioned to create colour collections for *Salubra S.A.*

referred to as the *tenor*. The smaller ones could be referred to as the keys or *tones* and were intended to represent the areas of lesser surface application, that is, for door and window frames, and other woodwork, niches and small architectural elements. The range of three or five different colours could be said to be a *chord*. This analogous reference to principles and phenomena of the field of music had been observed in earlier colour theories. For example, Sir Isaac Newton added two further colours to his system of five to establish a seven-colour scale, in correspondence to the equally ordered number and progression of the octave of the musical scale. As well, Louis Bertrand Castel's *colour organ* was entirely constructed on the belief that the phenomena of colour and music were analogous.

Thereby, the 1931 collection included twelve different colour keyboards with a total of forty-three wallpaper products with monochrome tones³ and additional ones with geometric ornaments, such as dots and rhombic patterns.⁴

2. TWELVE KEYBOARDS

Looking closely at the twelve keyboards, Le Corbusier combined colours so that each colour keyboard already represented a specific colour mood, a chromatic atmosphere.⁵ That is, Le Corbusier's colour ranges were tipped decisively away from so-called scientific theory. Le Corbusier's colour selection was contrived for space-defining ends, transmuting experience and observation into abstraction or to an abstract and complex three-dimensional structure of chromatic plate and slab elements. Their use in architecture was never primarily determined by the notion of decor and ornamentation, at least beginning with his move to Paris in 1917.

Considering the three large colour strips for the walls, the first colour keyboard is called 1-*Espace/Space* in which very light colours —two light blues and a greenish light hue— are specified as the correlatives of atmospheric space.

In the second keyboard called 2-*Ciel/Sky* different green-blues are associated with a notion of space referring to water, especially to the sea. Considering the three colour strips in

³ Le Corbusier's colours are often broken tones, especially those of the 1931 collection. In order to visualise their underlying hue, I used the colour notations of Le Corbusier's palette as provided in the edition by Arthur Rüegg (1997a). In 2001, the respective NCS colour notations were provided by the NCS Scandinavian Colour Institute at the request of Michel Cler of the Atelier Cler. Using these measurements, I conceived of a scheme to position Le Corbusier's colours in the NCS's double cone spatial diagram. This procedure was especially helpful for my analysis in order to know the basic hue underlying the light broken tones. A comparison of the 1997 edition with the original colour collections of 1931 and 1959, however, still has to be made; there are slight differences between the original Le Corbusier colours and the reproduced colours in the edition by Arthur Rüegg (1997a).

⁴ The wallpapers with patterns were not reproduced in the edition by Arthur Rüegg (1997a).

⁵ Le Corbusier believes in the suggestive power of words, in the forceful language of naming, going so far as to say that "once one has clearly named the colour, one can speak of a certain red with the same exactness as one would of the *A* of a tuning-fork." (Ozenfant and Jeanneret 1924, English translation by the author). Here, Le Corbusier's definition of harmony would also fit colour: "*L'harmonie. Que ce mot semble vague! Pourtant le phénomène est simple: mettre en rapports précis des quantités exactes.*" (*Harmony. How vague this word seems to be! However the phenomenon is simple: it is to precisely put exact quantities into relations*) (Le Corbusier 1928 [1989: 3], English translation by the author). Usually colour naming tries to relate colour categories to the non-linguistically specified structure of our visual experience. Looking at the first *Salubra* Collection, however, the *Salubra* colour notations are represented only in numbers and are not categorized linguistically. This is, I decided to give each of the forty-three colours a name in order to grasp linguistically what is presented visually, an endeavour I did together with France Cler, colour consultant of the Atelier Cler.

relation to the fourteen colour sequences, one observes that Le Corbusier combines light blues and green-blues with earthy colours, greys, a creamy colour, and a rose and red.

The third and fourth keyboards 3-*Velour/Velvet I* and 4-*Velour/Velvet II* suggest soft beige and grey tones of materials such as raw silk, ivory, and ashes. In *Velvet I*, these colours are combined with earthy colours, reds and blues. The overall impression of this keyboard is quite different from the *Velvet II*, which takes up the rose and red, a triad of blues, but also assembles three different gradations of yellowish green, bluish green and orange. Here vivid colour combinations are integrated.

In contrast, the colours of 5-*Mur/Masonry I* and 6-*Mur/Masonry II* encompass a monochromatic earthy triad for the large surfaces, with red ochre and burnt sienna suggesting light mineral surfaces. In the *Masonry I*, the small colour samples are greens, greys, light blues, red, and a cream colour. In *Masonry II*, blues dominate, followed by greys, two light greens, red and brown.

As well, 7-*Sable/Sand I* and 8-*Sable/Sand II* also correspond to the mineral world echoing the French expression *bâti à chaux et à sable*, which means built in a solid way. The greens, greys and blue of the first *Sable I* keyboard provide a *refreshing* atmosphere. In contrast, featuring greys, blues and a whole range of reds and orange, the second *Sable II* keyboard expresses the peak of a hot day or a hot atmosphere at its zenith.

9-*Paysage/Scenery* enfolds a graduated scale of yellow-greens, which can be associated with European spring, the re-birth of Nature after winter. The spring greens in *Scenery* are primarily combined with earthy colours, reds and a grey.

The last three keyboards are called respectively 10, 11, and 12-*Bigarré/Checkered I, II, and III*. These are a kind of variations of the earlier keyboards, but entail stronger palettes. They correspond respectively to keyboard 3, *Velvet*; keyboards 5 and 6, *Masonry*; and keyboard 9, *Scenery*. Featuring grey, blue, and dark brown, one observes that keyboard 10 is associated with dense and dark materiality, and also with the manmade. For the colour sequences, earthy colours, greys and red are predominant. Keyboard 11 refers to the colours of intense minerals, such as red ochre and burnt sienna, colours, which one would only expect to encounter outdoors. As well, these ones are combined with earthy colours, greys and red. And the last keyboard, 12, relates to the vegetal suggesting the blue, ivory and, forest green of a typical western European summer landscape. For the small colour samples a variation of earthy colours, strong reds, greens, but also grey, light blues and orange are selected.

The overall impression of the 1931 colour collection is the strong presence of natural pigments:⁶ red ochre, yellow ochre, burnt umbra, burnt sienna, all colours found in Nature, and red and blue, which are the very characteristic colours of Le Corbusier's early palette. The association of colours with natural elements is certainly a non-Newtonian or pre-Newtonian way of viewing colours. Castel, for instance, also defines his primary colours in relation to Nature: he wrote about celestial or sky blue, about the red of the fire and the natural or earthy yellow (Kemp 1990: 288).

This aspect is very apparent since Le Corbusier's colour collection of 1931 is derived by treating colour as a nuance of Nature and by subtly combining colours. That is, the effects include tone-in-tone combinations or a whole range of smoothly differing colours. For example, a sequence of three different blues corresponds to increasing the white or black of the same hue, as is the case in the keyboards. As well, an unusual rose tint, in fact, is a lightened-up burnt sienna, as conceived for a room of the Villa La Roche in Paris.

⁶ This is certainly a pre-condition for the "Le Corbusier-Colours" produced by the Swiss company *kt.COLOR*.

3. A STRONG RELATION TO NATURE

The influence of Nature is, in fact, continuously present throughout the development of his artistic and architectural career. In his early art education in La Chaux-de-Fonds, Nature was the point-of-departure of his art studies. For example, the form and colours of ornamental details are clearly derived from immediate observation of Nature in the 18-years old's first executed architectural commission of 1906, the Villa Fallet in La Chaux-de-Fonds, Switzerland, where he was born and grew up. A pine tree pattern applied on all surfaces of the facades has been transformed through a process of abstraction into a symmetrically and geometrically stylised repetitive motif. Concerning colour, earthy colours found in the woods, especially the yellow ochre and sienna of leaves in autumn, are combined with some spots of light blue, which enhance and refresh the overall chromatic appearance. It is interesting to observe that some years later, in 1913, this colour combination can also be found in Berlin on the facades of a housing estate built by Bruno Taut, another painter who decided to become an architect.

The importance of the subjective exploration of colour experience in the development of his life-long career was certainly demonstrated in Le Corbusier's early paintings but also in his engagement as a co-founder of *Purism*, the Parisian art movement from 1918 to 1925. As well, in the 1920s Le Corbusier's search for a relation between colour and the human body is specifically developed in his sketches. He was searching for the principles inherent in Nature. For example, blue represents the aerial and fluid, red the mineral. This colour combination blue-red is a key colour combination in his work. In Goethe's theory the combination of blue and red represented a disharmonic chord, in the sketches and paintings of Le Corbusier this colour combination is often neutralized by the achromatics: grey, black or white. These interrelations between his paintings, sculptures and architectural works are complex and will be developed in a further study. However, it is evident that Le Corbusier's colours and colour combinations are far from being theoretical, Le Corbusier's colour palettes are determined by his attachment to natural phenomena but also by the range of natural colour pigments that were available at the time.

The colour ranges of the 1931 *Salubra* keyboards can be seen as a kind of colour leitmotiv of Le Corbusier's colour practice in architecture. However, white as described in Modernist *white architecture* is completely absent in Le Corbusier's first *Salubra* colour collection. As well, there is neither black nor bright yellow nor violet. As written by Alfred Roth (1927: 36-37), Le Corbusier already applied some of his 1931 colours in his architecture at *Weissenhofsiedlung* in Stuttgart in 1927: umbra, dark grey, red ochre, light grey, rose, and a light blue.⁷ As well, the use of mineral tones in the interior space is important to understand Le Corbusier's playful inversion of inside-outside. As Arthur Rüegg (1997b: 36) points out, for the first time in architecture light was invading the interior, which was now created as an open, flowing space through the free ground plan. For the first time, big glass surfaces enable light, sun and air to enter the interior. Concerning colour, strong colours which represent the mineral were also proposed for use inside by Le Corbusier.

Looking to Le Corbusier's sketches for his mother's house, red represents the sun and the earth, and is invading the interior space. Blue represents the moon but also the distant mountains, the lake and the sky, and is spreading over the interior of the outer walls. This fluidity of meaning and colour, and the chromatic interpenetration of inside and outside are

⁷ As with Alfred Roth, a Swiss architect who collaborated with Le Corbusier at Weissenhof, the symbolic meaning of colours, their psychological effect on the human being was important to him, but also "colour" as a very means of expression, as a space-providing element to enhance architectural form and volume.

extremely important in Le Corbusier's approach. Thereby, the house becomes a kind of chromatic micro-cosmos of Nature.

Summing up, Le Corbusier's 1931 colour collection can be specified first of all as having a strong relation to Nature; and, secondly, as introducing a new kind of chromatic fluidity between in- and outside, using colour as a space-defining element.

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