

## LE CORBUSIER'S COLOURS

*An illustrated talk given by Marilyn Sturgeon, Director of the NCS Colour Centre, on behalf of Sto UK as part of their sponsorship of the Le Corbusier Centenary Exhibition at Liverpool 02.10.08-18.01.08 and at the Barbican, London 19.02.09-24.05.09.*

### Introduction

*Image: Villa la Roche, Paris 1923-25. Painting later date.*

The Villa la Roche in Paris dates from 1923-25, while the painting illustrated here is probably from the 1940s or 50s. I've chosen this picture to illustrate that Le Corbusier was a painter and an architect, as well as a writer, and designer of furniture and silver.

Born Charles-Edouard Jeanneret, Le Corbusier (1887-1965) adopted his famous pseudonym (based on his mother's maiden name) after publishing his ideas on architecture in the review *L'Esprit Nouveau* in 1920.

He studied at the Art School in Chaux-les-Fonds near his home in Switzerland where he was encouraged to abandon the family business of clock decoration, partly due to his poor eyesight, and concentrate on architecture. (The exhibition shows some beautiful pieces of his silverwork for clocks).

In 1907 he worked in Paris at the office of Auguste Perret, the French pioneer of reinforced concrete. Then between 1910 and 1911 he worked in Berlin for the renowned architect Peter Behrens, and became fluent in German. He returned to Switzerland during the period of the First World War and taught at his old art school. In 1915 he travelled to the Balkans, to Turkey and Greece absorbing colour influences and developing some of his theories on architecture.

Le Corbusier's *Vers une Architecture* in 1923 did not mention colour at all. Instead it promoted the new age of machinery, of form, and the modern spirit.

The buildings he designed during the 1920s, when he also spent much of his time painting and writing, brought him to the forefront of modern architecture, but it wasn't until after World War II that his most famous and colourful buildings were constructed, such as the Unité d'Habitation in Marseilles, the Church of Notre Dame du Haut in Ronchamp and the Palace of Justice at Chandigarh.

I'll give some examples of the use of colour in Le Corbusier's architecture, and refer to some of his influences, but it is his theories on colour - and in particular the two colour collections he created for the Swiss wallpaper company Salubra that I'll focus on.

## 1920-1930 and the Purist palette

*Image: De Stijl composite with primary colours of Red, Yellow, Blue and Black.*

*Chair: Gerrit Rietveld 1916*

*Palette: Theo van Doesburg 1917 'The three graces'*

*Painting: Mondrian RYB Composition 1921*

The 1920's saw a period of intense interest in both colour and modern architecture that was initiated by the Dutch De Stijl group. The group included both painters and architects and was led by Theo van Doesburg.

The chair you recognise is by Gerrit Rietveld from 1916, the painting by van Doesburg from 1917 and the Mondrian painting from 1921. Each illustrates the Primary colours of the movement: Red, Yellow, Blue and Black.

The work of the group was shown in Paris at the 1923 exhibition 'L'Effort Moderne' and would undoubtedly have influenced Le Corbusier.

Theo van Doesburg's model 'Construction de la couleur' was shown at the exhibition in Paris and he proposed for the first time that architecture should be considered as abstract art, and that colour should be seen as part of the structure.

The Schroder house by Gerrit Rietveld from 1924 is the only built architecture example of the De Stijl movement and used colours to define space in a completely new way.

The De Stijl movement claimed a connection between art and life with colour as a fully integrated component in architecture, although their palette was limited.

*Image: Amédée Ozenfant: Guitar and bottles*

Meanwhile Le Corbusier the painter met the French Cubist Amédée Ozenfant (1886-1966) in 1917. They became colleagues as painters and collaborated on the journal 'L'Esprit nouveau' which was published from 1920 to 1925.

*Image: Fernand Léger still life 1920*

In 1924 Ozenfant opened a free studio in Paris with Fernand Léger and later founded l'Académie Ozenfant in the studio that Le Corbusier designed for him. Léger's ideas about the role of colour in life were also to influence Le Corbusier.

*Image: Le Corb still life 1920*

Le Corbusier and Ozenfant published a Purist colour theory based on the effects of colour on the human being and proposed that human reactions to colour were constant.

Colour was deemed secondary to form. This could be seen in the careful placing of colour to highlight architectural elements in Le Corbusier's work of the mid-1920s.

*Image: Traditional pigments*

The principal colours of their palette were red and yellow ochre, the earth tones, white, black and ultramarine. These were readily accessible pigments that were said to be constructive or architectural colours - colours to be used by people who wanted to paint volume.

*Image: Raphael fresco at the Villa Farnesina Rome from 1512*

Le Corbusier observed that all great painters limited themselves to this palette which he called the 'grande gamme' in order to create form and spatial depth. Here you see some of his notes on the palette used in this fresco by Raphael.

Le Corbusier suggested that colours created by using the traditional pigments could be specified for buildings simply by reference to the pigment.

His selection of colour was based entirely on their subjective effect and not on the logic of three dimensional colour systems such as that of Munsell or Ostwald - which would have been well known at the time.

By proposing colours based on natural pigments Le Corbusier avoided the abstract primary colours of De Stijl and instead evoked the moods and psychological effects of colour that were created by the great masters of painting.

*Image: Villa la Roche 1923-25*

While the exteriors of Le Corbusier's buildings at this time remained white and conformed to the architectural ideal of Purism, this drawing for the Villa La Roche shows both the influence of De Stijl architecture and the first example of Le Corb's applying colours to the interior of the building based on traditional pigments.

*Image: Quartier Moderne Fruges*

For the Quartier Moderne Fruges built in Bordeaux 1924-26 Le Corbusier used colours he described as 'light devouring' so that the exterior of the buildings would blend with their surroundings. This is one of the first examples of his use of colour on the exterior of buildings.

*Image: Weissenhofsiedlung house in Stuttgart Le Corb 1927*

By 1927 Le Corbusier was working on the Weissenhofsiedlung housing project in Stuttgart which drew together some of the leading European modern architects. Amongst them were Mies van der Rohe, Gropius, Behrens and Bruno Taut.

*Image: Green apartment houses by Bruno Taut*

Among the many examples of flat roofed, white, concrete framed buildings, Bruno Taut's work stood out. Each surface, including internal walls and ceilings, was painted in a different colour.

*Image: Blue apartment house by Bruno Taut*

In 1919 Bruno Taut (1880-1938) had published a 'Call for Colourful Building', co-signed by several leading contemporaries.

As city architect for Magdeburg and for the Berlin GEHAG Building Society during the 1920's, he built several thousand workers apartments, all finished using brightly coloured paint.

*Image: Close up of blue house by Bruno Taut*

Taut's manifesto declared:

'We do not want to build any more joyless houses, or see them built... Colour is not expensive like moulded decorations and sculptures, but colour means a joyful existence. As it can be provided with limited resources, we should, in the present time of need, particularly urge its use on all buildings which must now be constructed.

We categorically denounce the absence of colour even if the house is in the midst of nature. There are not only the lush landscapes of spring and summer, but the snow-covered scenes of winter, which cry out for colour. Let blue, red, yellow, green, black and white radiate in crisp, bright shades to replace the dirty grey of houses.'

The housing settlement he designed in Berlin is now protected and remains almost unchanged. But when it was built it was referred to as the Parrot Settlement because of its colours.

Taut, like Le Corbusier, continued to be both a painter and an architect throughout his career. His use of colour at first attracted derision but subsequently had a profound influence on modern architecture – and on Le Corbusier.

*Image: Villa Savoye 1930 Exterior - summer*

The Villa Savoye, just outside Paris, is considered to be Le Corbusier's seminal work of the International Style and the last of a series of white houses. Construction was completed about 1930.

It was designed as a weekend country house and built in a field surrounded by trees on three sides. The use of colour is rarely mentioned in articles about the house but note green wall at ground floor level, which makes the building, appear to float and blend with the surroundings.

*Image: Villa Savoye Exterior - winter*

Typically we see pictures of architectural buildings in good light with blue skies but it is interesting to see the same colours greyed off with winter light.

*Three Images: Interior at Villa Savoye 1/2/3*

Le Corbusier was much bolder with colour in the interior. In 1965 the Villa Savoye was listed as a historic monument, and from 1985 through to 1997 complete restoration work was performed and many of the original interior colours were restored.

Where the original colour couldn't be determined, white was used, which is apparently standard practice when restoring Le Corbusier buildings.

## 1930 – the first Salubra commission: Claviers de Couleurs

*Image: Salubra 1 cover*

In 1930 Le Corbusier was given a contract by the Swiss wallpaper company Salubra to create a colour collection for their wallpapers. They had an established reputation for innovative design and had commissioned work from other artists and architects, but it was to be Le Corbusier's for which they would become famous.

For Le Corbusier it was an opportunity to present his ideas about colour in an entirely new way. Bear in mind that most architectural books up to the 1950's and even later were printed in black and white, so unless you saw the buildings there was no way of appreciating the effect of colour.

The product was a prefabricated roll of oil paint, which was both washable and colourfast 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 surface areas.

*Image: Salubra 1 inside pages showing colours*

Le Corbusier believed that each person has a tendency towards certain colour moods or harmonies and from a basic palette of 43 colours he created a series of colour groups called 'Claviers de Couleurs' or colour keyboards. This was an analogy with musical harmonies.

As well as the book of keyboards there was a book with full size pages of each colour and a number of pages with small geometric patterns. The books could be opened together so that the full size sheets could be compared with smaller colour samples on the colour keyboards. Special masks were supplied with the books to isolate a particular colour combination.

*Image: Le Corbusier's notes for a lecture on Polychromie*

These are notes for a lecture introducing his exhibition in Zurich on Polychromie in 1938 and illustrate the way Le Corbusier used the palettes in his own work.

*Image: 1980 edition 'Polychromie Architecturale' ed Arthur Ruegg*

In 1980, thanks partly to improvements in colour reproduction technology and partly to his great enthusiasm, Arthur Ruegg began to revive the popularity of the colour charts by organizing a new edition of the original colour books. This is the same man who is one of the curators of the centenary exhibition. There is now in a 2004 edition available as a three volume set.

Le Corbusier's essay 'Polychromie Architecturale', which is meant to be read alongside the colour keyboards of 1931, is included in one of the volumes.

*Image: The three volume set*

The three volumes of the 2004 edition comprised the colour keyboards, the book with full pages of colour, and the text of the editor together with Le Corbusier's essay.

*Image: 1<sup>st</sup> keyboard Space*

On each of 12 keyboard pages, two rows of the same fourteen small colour samples are arranged horizontally between three larger colour strips – so there are 17 colours on each page. All of the colours come from the palette of 43 colours, so they are repeated in several keyboards

*Image: Masks supplied with the keyboards 1/2*

Using the masks supplied with the book it's possible to isolate the colours in different ways to create individual harmonies. Although the groups seem very pre-determined it is possible to make many different combinations, possibly 10,000. It's worth noting that any of the 43 colours could be combined to create acceptable harmonies.

(As a way of putting Le Corbusier's colour palette into context, it was in 1931 that BS381 was published. This was the first British Standard colour range and was produced at the request of the paint industry. The colours were all for exterior use and were probably based on old coach colours).

*Image: 2<sup>nd</sup> keyboard Sky*

Le Corbusier's 1931 colour collection can be described as having a strong relation to Nature; and, secondly, as introducing a new kind of colour link between inside and outside, using colour as a space-defining element. This is re-enforced by the names of the keyboards.

The overall impression of the 1931 colour collection is the strong presence of natural pigments: red ochre, yellow ochre, burnt umber, burnt sienna, all colours found in Nature, together with red and blue - the characteristic colours of Le Corbusier's early Purist palette.

*Images: 3<sup>rd</sup> keyboard Velvet 1/ Mask showing 2 colours against two background colours*

Each keyboard name has a connection with nature and the environment and therefore an emotional appeal, although the colours are simply numbered.

*Images: 4<sup>th</sup> keyboard Velvet 11/ 5<sup>th</sup> keyboard Masonry 1/ 6<sup>th</sup> keyboard Masonry 11*

In his introduction to the keyboards Le Corbusier writes that he has confined himself within architectural limits and has taken care that his own personal taste is in line with the average person regardless of race or culture – who uses colour as a means of expressing joy in life. Here he acknowledges the influence of both Leger and Taut.

*Images: 7<sup>th</sup> keyboard Sand 1/ 8<sup>th</sup> keyboard Sand 11*

I'm not sure about the relevance of the word Velvet to describe two of the palettes, but Sable in French is apparently a reference to being built firmly.

*Image: 9<sup>th</sup> keyboard Scenery*

*Images: 10<sup>th</sup> keyboard Checkered 1 / 11<sup>th</sup> keyboard Checkered 11 / 12<sup>th</sup> keyboard Checkered 111*

For the last three keyboards named Checkered Le Corbusier suggests that the harmonies are more haphazard, the idea is simply to suggest interesting juxtapositions. Checkered 11 has the colours in a different order top to bottom, while Checkered 111 has some different colours top to bottom.

(To make a second comparison with British standard colours at this point, BS2660 was published in 1955. This was the forerunner of BS 4800 and was prompted by the regeneration building work after the war, and in particular the building of many new schools. The Architects Department at Hertfordshire County Council (in particular David Medd) had designed a range of colours based on Munsell, which they called Archrome. It was this range that was the basis for BS2660).

## **1959 – the second colour palette**

In 1959 Salubra approached Le Corbusier to create a new colour collection. Initially this was to have 15 colours, but the final palette included 20.

Between the production of the first colour keyboards and the second there was a period of nearly 30 years during which there were big changes in the technology of paint. The use of natural pigments and freshly prepared and mixed paint had changed to synthetic resins and factory produced paints that were ready to apply. This broke the natural connection between the use of earth pigments and surface of walls. And during this period it is clear that Le Corbusier's ideas about colours for buildings had also changed.

*Image: BP green logo*

The choice of a green for buildings had always been a problem because of the relationship with the colour of vegetation. However it was documented in the research for the palette that the ideal green already existed in the BP logo, which had been used in France and Switzerland since the 1920's. So Le Corbusier didn't restrict himself to the influence of painters and architects, but also looked at the commercial world.

*Image: Salubra 11 cover 1959*

While the 1931 book featured the name Salubra large with Le Corbusier below in small capitals, for the 1959 book it is clear that Le Corbusier is as important as the brand.

*Image: Salubra 11 inside pages showing colours and mask*

The concept was not so different from the first collection but the colours were now much stronger. As well as full pages of plain colours some patterns similar to marbling were included.

In this picture of the original book you can see that once again the possibility of creating individual harmonies was offered. By viewing a full size sheet of one of the 20 colours alongside the page of 20 smaller chips of colour it was possible to mask the selection and create more than 400 combinations. So although the colour range seems rather prescriptive and limited it is actually quite flexible. Nevertheless Le Corbusier had decided where the 20 colours should be placed.

*Image: The 20 colours of Salubra 11*

This is how the 20 colours from 1959 appear in the new edition.

Le Corbusier met with Luis Barragan very early in his career when Barragan visited the 1925 Exposition des Arts Décoratifs in Paris, and later in 1930 when he returned to Paris. Like Le Corbusier he was a painter - and it's interesting to wonder if they kept in touch or if there was any connection between their use of colour in architecture.

By the time Le Corbusier created his second colour palette in 1959 his thinking about colour and use of colour had moved away from the Purist ideas associated with his use of natural pigments and much more in the direction of Leger's assertion 'Man needs colour to live; it is just as necessary an element as water or fire'.

*Images: Mask for 2 colours/ 1 colour / 2 colours*

Here you can see how useful the masks are. There are different masks for the first and second sets of keyboards and both are supplied with the book. As I mentioned before, both palettes are designed so that any of the colours can be combined.

## **Le Corbusier's use of colour in architecture post 1945**

*Images: Unité d'Habitation Marseilles 1947-52 exterior and interior of green kitchen*

Le Corbusier's post war work is marked by use of the stronger colours in his second palette. This is typified in one of his most famous works - the Unité d'Habitation in Marseille which was developed in collaboration with another painter / architect Nadir Afonso and his own designer team. The concept was the basis for four more buildings by Le Corbusier - and the model for others in England like Park Hill (where research on the original colours is being carried out). Each of the five Unité buildings makes full use of colour both inside and outside the buildings.

*Images: Unité Firminy exterior and interior 1954-67*

The Unité at Firminy also has the characteristic use of colour for the brise soleils. And a nursery with striking colours and window features.

*Image: Unité d'Habitation, Berlin 1956-59*

The Unité in Berlin featured quite different colours and a breaking up of the colour surface form that was seen at Ronchamp.

*Image: Ronchamp pilgrimage house 1950-54*

Reformers within the Catholic Church in France at this time looked to renew its spirit by embracing modern art and architecture as representative concepts.

Father Couturier, who also sponsored Le Corbusier for the La Tourette commission, steered the Ronchamp project to completion in 1954, and was also involved in the building 1947-59 of the Chapel at Vence by Matisse.

The basic structure of the Pilgrimage House façade is redrawn with colour, illustrating the autonomy of colour in Le Corbusier's later architecture.

*Image: Ronchamp enamelled doors*

The enamelled doors at Ronchamp illustrate the frequent combination of paintings or artwork with his architecture. Le Corbusier had always spent a large amount of his time painting.

*Image: Ronchamp interior incised colour glass / light*

The concept of the colours shining through these deeply cut windows at Ronchamp is repeated at the Unité at Firminy, which was built later.

*Images: Cité Refuge exterior entrance 1948-52 and façade*

This building, for the Salvation Army on the Ile de Paris, was originally built in 1933 with large glazed panels to the exterior but was reclad with brise soleils between 1948 and 1952 in striking colours from Le Corbusier's second palette.

*Image: Brazil Pavilion Paris exterior*

The exterior of the Brazil Pavilion at the Cité Université in Paris features typically strong accent colours.

*Image: Notes and sketches from Salubra 11*

Sketches and notes included with the second palette show how Le Corbusier made use of his colour keyboards for each of his projects and are meant as an example to users of the book. There is a reference to the Brazil Pavilion in Paris – and Le Corbusier's comment 'Our imagination may now speak!'.  
In the same notes he reminds us that the 20 colours find stability in white and black – which have not been included in the palette.

*Image: Brazil Pavilion Paris interior*

And here is an interior from the Brazil Pavilion showing the same use of strong colour.

*Images: Chandigarh incised exterior façade 1954 / passageway / green exterior*

Perhaps the most exciting building from the perspective of colour is the Palace of Justice at Chandigarh in Northern India which dates from the mid 1950's. It was part of the master plan for the new city, which was drawn up after the partition of India. In a country so full of colour Le Corbusier's use of colour is still remarkable.

India is one of the countries that applied for all Le Corbusier's buildings to have World Heritage status.

*Image: Murals at E-1027*

Throughout his career Le Corbusier used colour both as a painter and as an architect. These are two of the eight murals he painted at the seaside house of Eileen Gray, the celebrated Irish furniture designer, at Cap Martin in the South of France. It was a house which Le Corbusier coveted and he built another smaller house for himself close by. He died while swimming off the rocks below the house at Cap Martin in 1965.

*Image: Heidi Weber Museum*

Le Corbusier's last building was completed after his death. It seems to refer back to De Stijl with its slabs of primary colours. But if you had any doubts you see Modulor man waving from the roof.

This is the Heidi Weber Museum in Zurich which houses more than a hundred works of Le Corbusier: paintings, drawings, collages, sculptures, tapestries, furniture, plans and models.

Heidi Weber is a designer who met Le Corbusier in 1958 and requested permission to make his furniture commercially. (She sold her beloved Fiat 500 car to buy her first Le Corb painting). Subsequently her life's work has been to create a permanent home for his painting and lithographs. The collection gives another insight into his use of colour.

It is interesting to wonder if training in fine art or colour is a necessary requirement for architects to consider colour at the point of concept. You will recall Le Corbusier's preliminary sketches, which show that colour was a vital part of the initial concept. Contemporary architects who are known for their use of colour, such as Louisa Hutton, work in this way.

### **Le Corbusier's colours: conclusion**

Although the period of the 1920's and 30's was typified by stark white buildings it was at this time that Le Corbusier put forward his first theories for the Purist palette based on traditional pigments and the colours used by the old masters. They were colours, he said, that related directly to human experience.

Much later, with the influence of Taut and perhaps of artists like Matisse, Picasso or the painter and architect Barragan – or perhaps a recognition of the folk colours used traditionally on buildings and boats – Le Corbusier had changed his ideas and presented his second palette. This, he said, celebrated the joy of colour and offered the possibility of connecting with our own individual harmonies.

The commission for the Salubra colour palettes gave Le Corbusier the opportunity to present his theories and creative colour concepts, and to show the actual colours using the best available technology.

The 'Claviers de Couleurs' and the 'Modulor' are both formalizations of Le Corbusier's way of working and thinking and are practical tools for the realization of buildings.

The original books are said to be the most expensive and sought after of Le Corbusier's publications, but the new edition of the book can be bought at the RIBA bookshop and elsewhere.

As to the colours themselves: colour technology has moved on considerably since 1959 and the choice of coloured paint and colour systems is much wider and more accessible. In fact we take availability of colour for granted.

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