CHAPTER 21

Local colour interactions

Introductory

This chapter is the first of three which are dedicated to the "colour excitements" that occur at the borders between adjacent, differently coloured regions of a picture surface. Because this subject has had such an enormous amount of exposure in art books,[1] rather than going over the same well trodden ground, the emphasis here will be on issues of importance that are either new or largely neglected. Amongst these are the special excitements produced by thin lines (the subject of the next chapter), the effects of viewing conditions (the subject of Chapter 23) and the integration of ideas from this volume with ones from "Painting with Light", BOOK 1 of this volume. My approach is autobiographical for I have made a personal study of all the matters discussed, both through issues that have arisen in my paintings and in my scientific research. I do not know of anyone else who has done comparable investigations. For the same reason, most of the illustrations relate to my own paintings. However, I start by with a painting by Van Gogh and its link with Seurat's chromo-luminarist ideas.

Link with Seurat

Figure 1 provides a visual link between *Chromo-Luminarism* and the approach to colour discussed in this chapter. The influence of Seurat is clearly evident in this astonishing work by Van Gogh, even if the Dutchman has taken it a big step in a personal direction. Almost everywhere there are juxtaposed slashes of bright opponent colours. The outcomes are so optically thrilling that the artist might claim the accolade of, "*The first Op Art painting*". No "*Grey and colourless"* outcomes here!

1 Amongst which two of the most influential have been: Johannes Itten, 1970, *The Elements of Color,* Van Nostrand Reinhold. New York and Joseph Albers,1963, *Interactions of Color*, Yale University Press.

Figure 1: "L'Italienne" by Vincent van Gogh

Personal context

As explained in "*Painting with Light*", I had spent four years testing out the ideas of Marian Bohusz-Szyszko before I eventually decided to go to art school.

I chose the *Bath Academy of Art.* It was there that I met Michael Kidner who was to become the second of the two teachers who have most profoundly influenced my life as an artist. One reason I found them so stimulating is that it is difficult to imagine any two people, who both described themselves as *"colourists",* could have been more different in their approach to colour.

Professor Bohusz-Szyszko was exploring territories opened up by such artists as Cézanne, Bonnard and Matisse. Like them, he gave priority to *whole-field colour relations* and revelled in the exploration of the huge variety of interactions made available by the effectively limitless number of colours that can be created using his *colour-mixing rule*. Under his influence, I had got to thinking of myself a "*colourist"*.

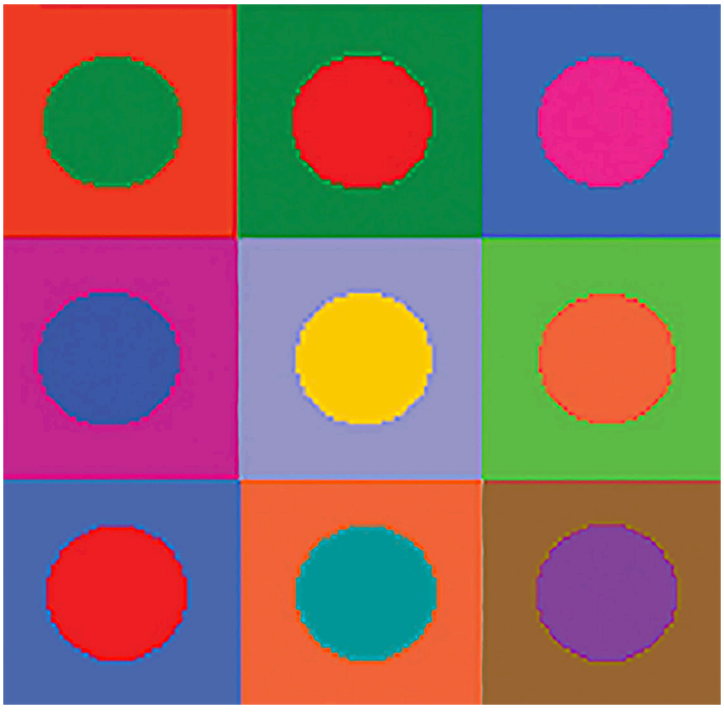

Figure 2 : Nine discs on nine rectangular backgrounds

Michael Kidner forced me to question this belief: His approach to colour had almost nothing in common with my previous understanding of that word. This was because he made paintings using a severely *limited number* of *unmixed colours (*typically three or four), with a focus on *local colour interactions*. Ac-

cordingly, it is no surprise that our first project with him was "*very Bauhaus*".

We were asked to make displays like the one illustrated in *Figure 2*. Our task was to find nine pairs of colours (a disc and a surround) that "*worked*" especially well together. At the time, I did not even know what Michael meant by the word "*worked*". However, I soon learnt that it referred to an almost electric, iridescent quality that can suffuse juxtaposed colours, particularly at their edges, giving them something of the quality of pure, surface-less body-colour and even, on occasion, the vitality of a primary light-source. Michael told us that the desired effect was related to the phenomenon of "*simultaneous colour contrast"* and asserted that it worked best if the colours concerned were "*atonal*" (his word for *equal lightness*).

As the course progressed, although I began to understand the kind of results Michael was after, a puzzle manifested itself that was to remain grit in the oyster of my mind for many years. It emerged at the end of day, when the students were asked to discuss each other's productions and decide which colours were working the best. No matter how much good advice and practice we were getting, this process took a long time and usually led to no very clear conclusion. Even our expert tutor seemed to hum and haw an incredible amount and never seemed to come up with definite pronouncements. The mystery that teased my thought processes was that something so apparently straightforward as *equal-lightness* should be so hard to agree upon. If I had known what I know now, I would have been able to suggest numerous reasons, all of which concern viewing conditions. The importance of taking these into consideration will be discussed later. (*Chapter 23*). But first, we must say something about "*simultaneous colour contrast"*.

Why artists became interested in "*simultaneous colour contrast*".

The phrase "*simultaneous colour contrast*"[2] was originally formulated by the French chemist Eugène Chevreul (1786-1889). He published his ideas in 1839, halfway through his unusually long and fruitful life. The title of his book is, "*The Principles of Harmony and Contrast of Colours and their Applications in the Arts*".[3] His discoveries were a spin-offs from researches made while he was employed at the historic Gobelins fabric-printing works (founded in the fifteenth century and destroyed by fire during the year of the Paris Commune 1871). He was working there because the directors of the company, in keeping with the spirit

2 "*Contraste simultané des couleurs*".

3 Chevreul, Michel-Eugène, 1839, *De la loi du contraste simultané des couleurs et de l'assortiment des objets colorés*, Paris.

of the *Industrial Revolution*, were keen on finding how science could help them improve their products. Chevreul's main work was to investigate the commercial viability of the numerous new dyes that were emerging. How lightfast were they? Were there any deleterious effects of interactions either between them, or between them and potential chemicals in the air?

He also became interested the perceptual interactions between adjacent regions of colour in the finished product. What he discovered was:

> "*In the case where the eye sees at the same time two contiguous colours, they will appear as dissimilar as possible, both in their optical composition and in the height of their tone. What we have then is simultaneous contrast of colour.*"

In particular, he called attention to the degree of mutual enhancement:

- When a colour is placed next to its complementary
- When the juxtaposed colours are of equal lightness..

Chevreul's work soon came to the attention of artists, including Eugene Delacroix (1798-1863), who experimented with juxtaposing complementaries in his paintings and, in doing so, significantly influenced the early *Impressionists*. These young lions of the 1860s, saw Delacroix as a precursor of their modern ideas and, largely due to his influence, there followed a period when the inclusion of complementary juxtapositions became a hallmark of progressive painting.

Experienced reality

The artists who explored the potential of these ideas prepared the way for future generations. The combination of theory and experience led them to concentrate on juxtapositions between larger areas of less graduated, more fully-saturated and more equal-lightness colours. Their approach was epitomised in the painting illustrated in *Figure 3*, known as the "*Talisman*". This remarkable work was made by Paul Sérusier in 1888. It owed its special character to a combination of:

- The fact that he was following directions from of Paul Gauguin.
- The influence of the *Chromo-Luminarists*' demonstration of the theoretical and practical advantages of extending the palette of pigment colours.

The increased range of potential colour juxtapositions that resulted, liberated colourists (Gauguin, Bonnard and many others) to explore all sorts of hitherto unsuspected riches.

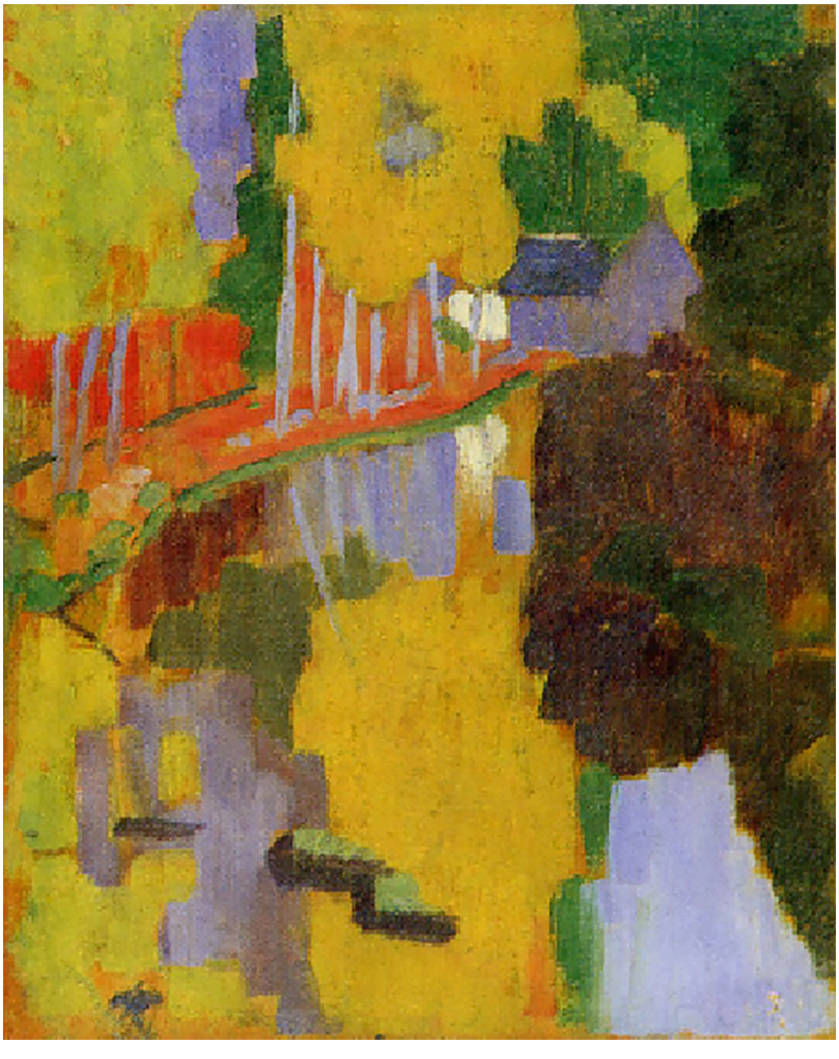

Figure 3 : Paul Sérusier :"The Talisman" 1888.

Later, at the *Bauhaus*, these colour juxtapositions were explored in quasi scientific ways, a development that led more or less directly to the works of Paul Klee, Joseph Albers, Michael Kidner, Bridget Riley and many others. The thoroughness of their research is epitomised in Albers' book, "*The Interactions of Color."*[4] By the late 1960s when I attended art school, the subject seemed more or less wrapped up.

4 Published in 1963 by Yale University Press.

My own journey

Figure 4: Indian Series number one

After setting the scene, we now turn, as promised, to my own exploration of simultaneous-colour contrast and how it opened up unexpected new possibilities. For launching me on this journey I owe a particular debt to Michael Kidner and also to Malcolm Hughes, another of my tutors at the *Bath Academy*. Perhaps the most lasting influence of my art school education was their insistence on taking into consideration the totality of factors which influence the spectator when looking at paintings. In the case of local colour interactions, they left all the issues that follow, in this chapter and the next three chapters, open for investigation.

Integrating the ideas of my two mentors

As already mentioned, another consideration which guided my work at this time was my wish to bring together the ideas of my two mentors. After various false starts, I produced a number of related paintings that I called the "*Indian Series*",[5] the first of which is imaged in *Figure 3*. Although rather less brilliant in colour than the paintings from India that inspired it,[6] like them, it makes use of near-complementary colour juxtapositions. Unlike them, it also features subtle modulations of complementary-containing colours. The interest for me was that doing so opened up an extra spatial dimension. At the same time, they did not prevent me form exploring colour-contrast ideas in a relative gentle way. As both the Indian artists and various European colourists[7] have shown, there is no reason why contrast effects have to be explored with a view to maximising their optical punch. However, as is the case with *Op Art*, maximising simultaneous colour contrast effects can sometimes be central to the artist's project.

Thin lines

My own interest in this subject was given focus when I was planning the illustrations for a children's book I produced as part of my art school silk-screen printing course. I saw this as an opportunity two pursue interests:

- The investigation of colour contrast interactions featuring thin lines,
- How these would be effected if I only used complementary-containing colours

My idea was that I could use the book project as a way of imposing a large variety of different coloured thin lines on a large variety of different coloured grounds. *Figure 5* provides an example of one page. All the colours used in it, both for the lines and the backgrounds, are complex mixtures containing a very small component of complementary colour. Since, the book was to have 32 page openings, I could mix 32 colours, each of which could be placed on 32 different grounds, my book would provide a way of testing a very large number colour combinations.[8] In the event, many of these turned out to be particularly striking.

5 It was given this name because the ideas for both its composition and colouring came from Indian paintings.

6 From the collection of Howard Hodgkin, On exhibition in the Victoria and Albert Museum in 1968.

7 For example, Bonnard and Matisse

8 Since the book had sixty four pages, and each colour pairing took up a double spread, the

What distinguished them from the majority of other demonstrations of simultaneous colour contrast was an extra dimension of vitality.

In retrospect, at least one reason for this should have been obvious. Michael Kidner had dinned into us that it is at the edges that the most spectacular effects occur and thin lines are regions of colour in which the proportion of edge relative to surface area is maximised.

However a question that interested me even more was how the use of complex, complementary-containing mixtures would effect appearances. What I found was that all the colour combinations I tried had a quality that was not to be found in anything I had seen in other explorations of colour-contrast effects. To describe it in words would be difficult, but it had something to do with a sense of depth (more on this later).

Whatever the explanation, the experience of working with thin lines fuelled

number of line and background colours was in both cases thirty-two. Each of different thin line colour was printed onto thirty-two different backgrounds, making 32 X 32 experiments.

my interest in their capacity to maximize colour contrast effect. As it turned out, I found I had embarked upon a fascinating adventure that was to:

- Have a significant influence on the direction of my future work as an artist.
- Provide an important step in the research into the scientific aspects of the equal-lightness story.

Implications

This short chapter has focused on local colour interactions, a subject which has received a great deal of attention in art books and in the work of certain groups of artists. Rather than spend too much time going over well trodden ground, I decided to start the process of exploring two somewhat neglected issues. The first issue relates to the use of thin lines to maximise contrast effects. The second, concerns the potential of combining ideas about the local colour interactions with ones the relating to the ideas involving whole field colour relations presented in the first book of this volume.[9] Both will play important roles in the following chapters.

9 *"Painting with Light".*