CHAPTER 24

Colour and surfacelessness

Introductory

This chapter picks up where the last one left off by describing a painting project that provides a particularly good illustration of the two main themes being explored, namely, different effects of viewing conditions and how freeing colours to take their place in illusory pictorial space can give an added dimension to the experience provided by colour-contrast excitements.

The method adopted

The deeper I delved into aspects of visual perception, the more I wanted to pursue them further. But how should I proceed? I did much playing around with possibilities, but none of those I considered took root, until I remembered an earlier project stimulated by the cover of a catalogue for an exhibition of *Islamic Paintings* at the *Metropolitan Museum of Art, New York.* On it was an earth-red pattern on a blue ground. I had been attracted both by the colours, because they had a certain elemental quality about them, and by the pattern, because it contained interesting sub patterns. I now saw that, as the two colours were approximately *equal lightness* and at *different ends of the spectrum*, they would be very differently effected by *chromatic aberration*. Just the property I needed for further exploration of the viewing-distance effect. Having rejected the catalogue pattern as being too complex, I was able to create one of my own that seemed ideal.

I now needed to choose the approximately equal lightness blues and earth-reds for my painting. After much experimentation I produced sixteen studies looking much like *Figure 1*, but each with subtle variations in the colour balance and in the rate of gradation across the picture surface. All the colours used were premixed complex mixtures containing complementary oppositions. Finally, I had to develop methods for mixing and applying them that would give the necessary level of control over subtle gradations of complex colours.

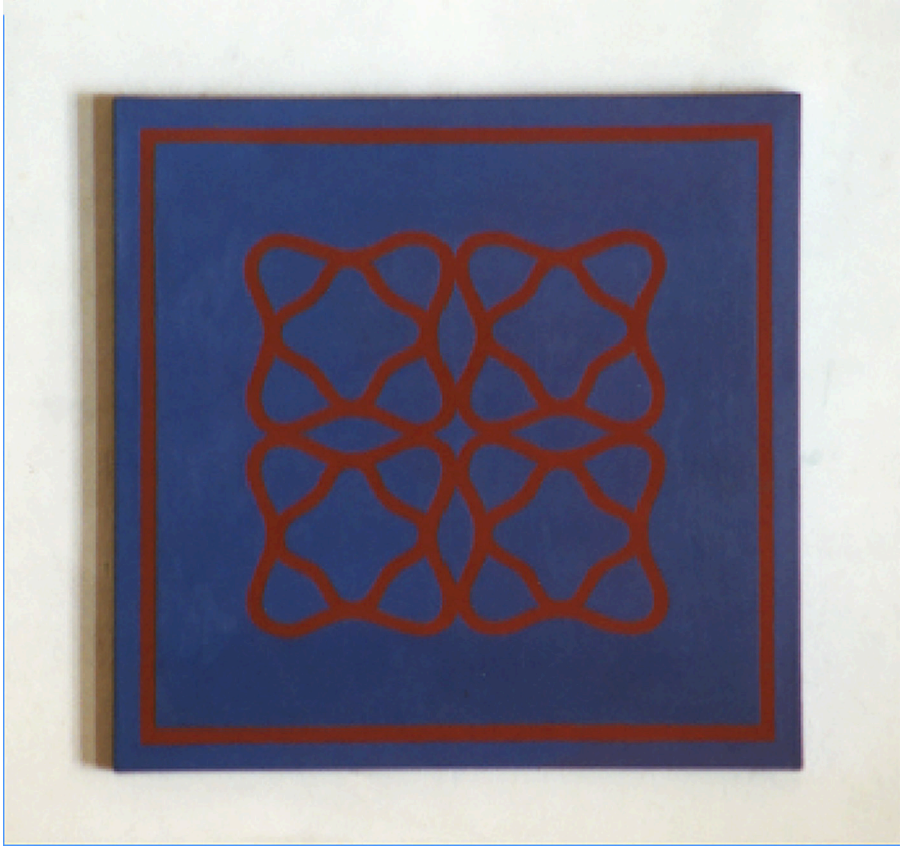

Figure 1: Islamic Series, a single panel preparatory study

The nine panel painting

The next step in my plan was to combine nine similar panels into one larger painting. *Figure 2* shows the completed work on exhibition alongside eight of the preliminary studies.

The following account of procedures and thought-processes involved in making this nine panel painting provides a summary of ways in which the ideas about *colour* presented in this volume and ones about *light* as described in the previous one can be advantageously combined. To a greater or lesser extent, all of the factors have relevance to the way we experience all paintings and it will never hurt to keep them in mind when embarking upon any painting project.

Figure 2 : A nine panel painting from my Islamic Series on exhibition with eight single-panel studies.

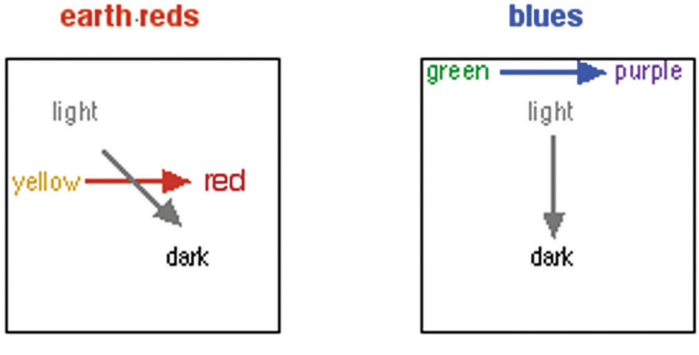

Figure 3 : Schemes for mimicking reflected light

The procedure for making the nine panel painting was as follows:

- Having primed nine canvases with white paint, I applied two coats of earth-red. The second of these was graded according to the scheme illustrated in the left panel of *Figure 3*, which describes both the individual paintings and the nine panel painting as a whole. Thus, I ended up with nine different earth-red grounds, each graded as illustrated, with the one destined to be placed at the top-left of the nine-panel display being both yellower and lighter than the one destined for the bottom right, which was both darker and redder. To accomplish this result I used only ten pots of premixed colour. It would have been better to use more. The paint was slightly thinned with water to encourage a relatively matt effect.
- I prepared a drawing of the motif with its surrounding rectangular border on tracing paper, which I transferred separately onto each of the nine red grounds. To do this, I chalked the back of the lines with white soft-pastel, laid the tracing paper, the right way up, on the painting and traced over the lines of the motif. This procedure, which I remember using for making maps in Geography lessons at school and which Degas used a great deal, produced white outlines of the motif and border on the earth-red grounds.
- I filled in the blue areas of the painting, according to the scheme illustrated in the right hand panel of *Figure 3*. I needed five or six coats to cover the earth-red as I had mixed the paint with a fair proportion of medium with a view to giving the benefits of a glazing technique in terms of the depth of colour. To accomplish this result, I used fifteen pots of premixed paint and two small watercolour brushes (No 3 and No 5). They needed to be small for the fiddly work. Because I was using the premixed pots of only just noticeably different colours, I did not have to worry about streaks of darker or lighter colour spoiling the smoothness of the finish.[1]

The panels were now complete and ready to be hung.

Various considerations

The above description of the manufacture of the nine panel painting provides only small hints about the whys and wherefores of the many decisions made. Most importantly, it fails to explain:

1 The just noticeable differences (JND) is a standard measurement for scientists. As any smaller difference would not be noticeable no streaks, due to visible differences, can occur when making mixtures between two JND colours.

- The reason for opting for a number of panels rather than one large surface taking up exactly the same space with the same with nine motifs painted on it in the same positions.
- The width of the gap between the nine panels.
- The criteria for deciding upon the colours used.
- The choice of matt paint for the earth-reds and shiny paint for the blues.

Why nine separate panels?

This brings me to the question of the why I wanted to use nine separate panels arranged as an array with gaps between them, rather than making one painting divided into nine parts? The original and fundamental reason for concerned the issue of competition between real-surface and illusory-space cues. Anyone who both wants to work with object/illusion dynamics and who wants to makes large paintings faces the problem of keeping visual contact between marks painted in the central parts of the picture-support and its edges. Since this was exactly what I had in mind, the logic of the situation ruled out one big painting with the nine patterns painted on a continuous surface. Instead it suggested the use of nine separate panels, each with their own pattern, with gaps between. In this way, each motif would be equally effected by the real-edge/illusory-space dynamic.

Why the gap width

Other decisions included the width of the gap between the panels. This was chosen for two reasons, the first of which is somewhat arbitrary and the second more calculated. The are:

- Because it corresponds roughly to the width of their outer blue borders (the part between the earth-red stripe and the edge of the picture-support) such that three equal stripes are created, two on the picture-surface and one in the gap between the panels.
- The width of the gap between the different panels has an effect on the way that the shadows of the picture support influence appearances. Thus:
    1. If the light is coming from the side of the panel, the vertical channels between the paintings, will be in shadow, such that they will appear to be dark-grey or black, while the horizontal ones will be the colour of the fully illuminated wall (white).

2. If the light is coming from above, the situation will be reversed with the vertical channels white and the horizontal ones black.
3. If the light is diffuse, all channels will be a relatively gentle white.

Trial and error showed that these variations were emphasised when the gaps were the same width as or narrower than the shadows.

Why the matt/gloss refinement?

The fact that the earth red of the patterns is painted to be matt and the blue of their context is painted to be gloss makes an important difference when the paintings are looked at from an acute angle. From there, the matt earth-red patterns, being much less reflective than the glossy blue surrounds, are perceived as a darker than them. Accordingly the pattern motifs are made evident. If both the reds and the blues were equally shiny or equally matt, the motifs would be obscured. The outcome is dark, virtually achromatic patterns on a shiny ground

Why the choice of colours?

The earth-red and blue colours chosen for the nine panel painting were fundamental to their original inspiration. The reproduction from the *Metropolitan Museum* had colours very close to the ones I actually used. As far as I am concerned, to move too far away from them would lose something irreplaceable, both in terms of reference and in terms of feeling. From the moment I first saw them on the cover of catalogue, to this day, I have resonated with what I sense as something "*eternal*" and "*right*" in the juxtaposition of these particular colours: I have wondered whether this is nothing more complicated than primal intimations associated with the notions of earth and sky.

The fact that these sentimental reasons have nothing to do with the logic which underpins the idea-base of the painting does not make them any the less important. It has been a leitmotiv of this series that the feelings associated both with the process of making and with the appearance of paintings are always of fundamental importance. However, the clinching reason for choosing the blues and the earth-reds was that they fitted the evolution of my theoretical interests and, in particular, my involvement in the subject of changes taking place over space and time.

As already indicated, two particular properties of these colours were important to me. Thus:

- The fact that wavelength combinations of red and blue peak near the extremes of the visible spectrum, gives them special significance in terms of all the colour dynamics that depend on differences of wave-length.[2]
- The earth-red and the blue are ideal colours from the point of view of simultaneous contrast effects, being both roughly equal-lightness and not so far from complementary.

Role of personal pleasures and overarching goals

When artists make paintings, they do so for a host of reasons, many of which can have personal meaningfulness. For example, when making my nine panels, I enjoyed the notion of using the small watercolour brushes. I must admit that this is partly due to a perverse pleasure in the idea of covering huge surfaces using tiny tools. But, much more important to me is the whole ethos associated with taking time over laying on the paint. Whether or not the physical properties of a painted surfaces are affected by the spirit in which it is made, my own feelings about them can be. My experience has been that using a small brush, by slowing things down, helps me to enter a quasi meditational state. Since, one of my central aspirations is to create paintings that encourage contemplative experiences, I feel a rightness in working in a quiet and contemplative frame of mind.

As these last remarks suggest, I seek to create what some would describe as a "*spiritual dimension*" in my work. Though myself no longer a religious person, I recognise that, over the centuries, spirituality has been linked with religiously inspired works of art. For example, the patterned tiles that line the walls of Islamic mosques, can encourage a contemplative state of mind. I am happy to acknowledge a link between this and the sense of contemplative space that I hope to experience when several of my nine-panel paintings are placed in a large sunlit room. However, it is also important to point out that the fact my panels are painted with ever changing nuances of colour made from mixtures of colours from both sides off the colour, gives each of them a contemplative sense of space that is in no way paralleled by the experience of looking at the individual tiles within the arrays of them that can give a temple space such a special feeling.

Similarities between the "*Grey Series*" paintings and the "*Islamic panels*".

Earlier, I explained how the different elements in the *Grey Series* paintings[3] are

2 As discussed above in *Chapter 23*, in relation to the "*Stirling Series*" paintings.

3 See *Chapter 22*.

arranged so as to maximise certain pictorial dynamics. Important factors include:

- The sense of depth provided by the complex colours and the many layers of glazing.
- The different directions of gradation within the two regions of grey.
- The use of subtly different colours for each of the orange-bar elements.

If these steps had not been taken and instead the greys had been made uniform and the orange bars had not been differentiated, all the elements would have been perceived as lying on a solid flat picture-surface. In contrast, because these steps had been taken, the orange bars were freed to move forward and back in an illusory picture space with the direction of movement being determined by the cognitive cues provided. In this case, what creates the perceptual push/pull is the different relationships not only between the orange bars themselves, but also more importantly between the orange bars and:

- The painted borders of the grey triangle.
- The real borders of the picture-support.

In the *Grey Series* paintings, all these factors contribute to the destruction of perceptions of the *real picture-surface* and thereby, contribute to the creation of an *illusory pictorial space*. Within this, both the orange line elements and the earth-red motifs and borders can seem to:

- Float,
- Be anchored
- Exist in a provokingly intermediate state.

The same factors are important in the nine panel painting for the same reasons. Several layers of glazing are used to give depth to the blue, both the earth-red and the blue are made from complex mixtures and graded such that there is no repetition of colour within or between the patterns (including the red border lines). As well as applying to the colours within in each panel, the continuous graduation applies to the colours across the full extent of the combination of the different panels. No part of any one panel is the same colour as any part of any of the other panels.

An important difference

However, in the *Islamic Series* paintings, the cognitive cues do not include

the perspective recession implied by the grey triangle in the *Grey Serie*s paintings. One of the outcomes is that the push/pull between the different elements is much more subtle. Just what I wanted..

Ambiguities

As already pointed out and as illustrated in *Figure 3,* the graduations across the surfaces of both the earth-red motif and the surrounding blue are painted, using complex mixtures, containing a small proportion of near complementaries, in such a way as to mimic the slow-varying reflected-light profiles that characterise real world flat surfaces illuminated by daylight. The idea is to deceive the eye/brain systems into computing these as actual reflected-light profiles. That is to say, ones which they will automatically separate them out from the body-colour and in the process provide a sense of surface. However:

- Since the lightness profile of the false reflected light does not correspond to the lightness profile that characterises the actual picture-surface, both the reds and the blues are perceived as being separate from it, situated in illusory pictorial space.
- Since the rates and directions of change in lightness and colour across the surface of the two painted colours are in both cases consistent with the slow-varying reflected-light profiles that characterise flat surfaces in general, both can be perceived as flat surfaces in illusory pictorial space.
- Since the rates and direction of change in lightness and colour across the surface of the reds is different from that of the blues, they cannot be perceived as being on the same plane in illusory pictorial space.

In view of these considerations, what do we actually perceive? There are three alternative possibilities:

- The earth-red motifs are perceived (a) as having a sense of surface, (b) as being uniform in colour and (c) as existing on an illusory plane, which is suspended in front of a surfaceless, self-illuminated blue (analogous to the blue of the sky).
- The blues that are perceived (a) as having a sense of surface, (b) as being uniform in colour and (c) as existing on the same illusory plane which is situated in front of the surfaceless, self-illuminated earth-reds.
- Cognitive cues override colour ones and block the above possibilities.

The chance of the first alternative being chosen will be greatly enhanced if the

red motif is perceived as a coherent pattern and, as such, taken as the main object of attention.[4] However, it is also possible that the blues could be perceived as the pattern, in which case the second alternative will be chosen.

Another potential ambiguity relates to the regions of the blue that are to be found within the interstices of the motif and those that surround it. Although it is likely that viewers will experience both as part of one insubstantial, surface-less blue background, it is also possible that they will perceive the internal blues as held on the same surface as the earth-red motif. If the blues outside the motif were to be graduated as shown in the diagram and the interstices of the motif were to be graduated in the same direction as the earth-red, the coincidence of gradation would almost certainly tip the perceptual balance in favour of seeing them both as coplanar on the same illusory surface. As it is, the tipping consideration will be a purely cognitive one. Different people are likely to experience different outcomes at different times.

Yet another alternative is that the blues in the interstices could be perceived as all on the same plane as each other, but in front of the motif. If so, they would be perceived as being separate from the blue surround which would remain as being insubstantial, surface-less blue illusory space.

The point being made is that, as soon as the real-surface is denied by the gradation and the complex paint-mixtures, all these possibilities can come into competition, potentially de-stabilising the interpretation and giving energy to the situation. But this is far from the end of the story.

Colour contrast

There are many other potential ambiguities and, therefore, many different possibilities for interpretation. For example, the possibility that the *earth-reds* might be interpreted as self-illuminated is increased by their being approximately complementary to and equal in lightness with the blue surround. As explained above, these are exactly the conditions under which simultaneous colour-contrast effects at the junctions between colours of the kind that favour the creation of iridescent, surface-less seeming colours The likelihood of this being the outcome is increased because the lines that describe the earth-red patterns are relatively thin and, consequently have the optical properties associated with thin lines, as explained earlier in *Chapter 22*.

4 A possibility that would be enhanced in the likely event that the blueness triggers an association with sky.

The eye/brain abhors equal lightness[5]

At this juncture, another factor might kick in. The eye/brain, which depends a great deal on lightness contrasts at edges for making its interpretations, is not comfortable with juxtaposed equal-lightness colours. If its possessor is young enough that his or her inner crystalline lenses retain their original fine-focus-enabling flexibility, something can be done about the situation. This is because the shape of the lenses can be altered by means of flexing the ciliary muscles that controls them, thereby adjusting their focal point. In view of the relation between focus and lightness already alluded to, any such alteration would result in a shift in the relative lightness of the colours viewed. In the case of the painting under discussion, in which the reds and the blues are of approximately equal lightness, the only possible direction for change is towards lightness inequality. Accordingly, the outcome of any adjustment in the shape of the inner lens would be the creation of a more visually comfortable but less optically exciting situation: the earth-red motifs. In other words they would lose their self-luminous appearance. Since, as pointed out above, movement to unequal lightness facilitates its interpretive function, the eye/brain is programmed to make this adjustment happen automatically.

However, once the transformation has occurred, the eye/brain is longer presented with a reason for changing the shape of the crystalline inner lenses. Consequently it would allow the controlling ciliary muscles to relax and, by doing so, would allow the crystalline inner lenses to return to their former shape. This would (a) restore the original uncomfortable equal-lightness situation and the seemingly self-illuminated earth-red motifs, (b) recreate the eye/brain's need to do something about the situation it now faces and (c) reactivate the ciliary muscles and (d) restore the unequal lightness and the visual comfort. The result would be a cycle of creation and destruction, which will be experienced as the unstable, visually exciting experience much loved by *Op. Art* enthusiasts.

Avoiding equal lightness

There are at least four other ways of avoiding the unnatural excitements of equal-lightness, all of which require positive action on the part of the viewer:

- Viewers can increase or decrease the distance from which they are viewing the painting. For example, of they are standing two or more paces in front of the picture surface, they might try moving closer to it. Due to the

5 The explanation which follows was one that I gleaned while at Art School and which seems to me to have some plausibility.

chromatic aberration in the eye's lens system, this manoeuvre will cause the lightness of the blue to be increased relative to that of the earth-red. Moving back again would restore matters to as they were.

- Viewers can choose a combination of inaction and patience and wait until evening approaches and the level of illumination in the room lowers sufficiently to favour the participation of rod receptors in colour perception. This favours the blues relative to the earth-reds, which become relatively dull.
- Viewers wearing spectacles on account of the age-associated progress toward inflexibility of their inner lenses can experiment with removing them, a manoeuvre that can produce dramatic results. For myself, a hypermetrope, the earth-reds become almost black and the blues becomes bright and astonishingly luminous. As nothing is in-focus, there is little sense of surface from other cues and I enter an unfamiliar, mysterious and exciting colour space.
- If the viewers are young people with both fully flexible crystalline lenses and a lot of patience, they can opt for waiting around for ten, fifteen or twenty years. What they are waiting for is the coming of inflexibility of the crystalline lenses. According to the theory just explained, this new state of affairs should considerably calm down the visual activity generated by the panels.

  By putting my faith in this tentative and unproven hypothesis, I can allow myself the pleasure of imagining my paintings adapting over time to suit the changing needs of aging human beings: full of bounce for the young and exuding a peaceful vitality for the old.

The cusp

All the above factors will work *best* if the colour relations in the paintings are just *right*. My problem as an artist was that I could not know either what is "*best*" or what "*right*" means without committing myself to long-drawn-out experimentation. When thinking about this state of affairs, a metaphor came into my head. It was that of the finely honed knife-edge that the Zen masters posited as dividing heaven from hell. Certainly I feel I am on a knife edge when working with my *Islamic Series* panels. Nor would I have it otherwise for my aspiration is to hold the excesses of optical and visual disturbance (my hell) in check and use

them to energise my contemplative space (my paradise). It is a delicate juggling act, which is why I spent two winters trying to get my colours just right and, why I am not yet sure whether I have succeeded or, indeed, whether I can ever succeed. Perhaps I aspire to more than can be achieved. All I can say is that when I sit in my studio, alone with my paintings, I feel very hopeful. Just imagining the first nine-panel painting and its as yet unpainted companion panels all around me makes all my years as an artist seem worthwhile.

The flip side

Unfortunately, hard reality can undermine dreams for it turns out that what is particularly pleasing to one person can be anathema to another. I should not have been surprised at the gamut of remarkably different responses to my *Islamic Series* nine panel painting, when it was completed. For example:

- Some older people can hardly bear to look at them. I wonder if they need to go to an optician and are reacting negatively to something along the lines of what I see (and enjoy) when I take off my spectacles.
- Short-sighted people must perceive the panels differently from long-sighted ones. What would they see from a distant viewpoint?
- I have noticed that people in art galleries, when viewing paintings, tend to favour a particular viewing distance. Making a habit of this will limit the experiences available considerably.
- When the nine panel painting has been exhibited, quite a number of people, thinking that only two colours have been used (one earth-red and one blue) and wondering what all the fuss is about, turn away without giving the painting a chance.

The uncomfortable fact is that, whereas with my previous paintings (whether figurative or abstract) I have felt fairly confident that other people will be seeing something that is comparable to what I see, with all the paintings in my *Islamic Series*, I can only speculate at how they will be perceived.

Back to the Art School exercise

On looking back at Michael Kidner's colour exercise (*Chapter 21*), I realise that the explanations for the difficulty of finding agreement about equal-lightness can be explained by some combination of the factors listed above. Everybody was looking at the interactions between the various discs and grounds with dif-

ferent eyes, some long-sighted, some short-sighted, some wearing spectacles, some looking from nearer and some from further away and two were older than the others. In this situation, as with my *Islamic Series* paintings, we all have to live with the knowledge that we can only guarantee the experience for one person, namely ourself. We are all stuck with what we see through our own eyes and what we feel through our own sensibilities. However, this does not mean that we cannot learn to see paintings in new and more rewarding ways. One approach to encouraging this happy outcome is to take the time to experiment with viewing conditions.

A footnote

Because the concentration has been on colour, one important feature of the Islamic paintings has been omitted. It concerns the shapes within the patterns. I am not sure whether I could have found an easier and more mechanical way of copying them from the original drawing because, from when I first tried it out, I saw advantages in the approach I chose. I very soon found that, no matter how careful I was, the chalk transfer method was far from producing exact copies. This being the case, the method faced me with the problem of rectifying the inaccuracies by eye. I knew that for all the reasons explained in "Drawing on the Right Side of the Brain (the book on drawing in this series of four volumes) that this would be an impossible task. However, being a glutton for punishment, I welcomed the prospect of challenging myself to get as near as I could to perfection. My idea was to create subtleties of differences in shape would parallel the subtleties of the differences in colour. I challenged myself to see if I could do well enough that nobody would notice the shortcomings unless they engaged in careful comparisons. What I hoped was that our eye/brain systems which deal with whole-field colour and texture relations would be sensitive to the small differences at its subconscious level. My thought was that repeated textures might be treated by them in much the same way as repeated colours. My reasons for this speculation should become apparent in the next chapters, which deal with chiaroscuro, cast shadows and shape from shading. In the event, I convinced myself that they were well founded.

Implications

The aim of this chapter and, indeed, of PART 3 as a whole has been to suggest ways in which the extensive but nevertheless limited treatment of local colour interactions might be expanded. In particular, attention is draw to the potential importance of alterations in appearances due to changes in viewing conditions

and to ways of using colour to manipulate real surface/illusory space dynamics.

Viewing conditions

With respect to viewing conditions, it is emphasised that how we experience colours may be influenced by:

- *Viewing distance (close-up to a couple of metres and more).*
- *Viewing angle (as explained in relation to both the Stirling Series and the Islamic Series.*
- *Level of illumination (e.g. Midday and dusk).*
- *Spectral composition of illumination (daylight and various forms of artificial illumination).*
- *Sightedness and the use or abuse of spectacles.*
- *Age and consequent loss in the flexibility of the crystalline lens.*

Illusory pictorial space

There are a variety of reasons why artists might want create a sense of illusory pictorial space in their paintings and drawings. However, to do so they have to confront the fact that, ***with only one exception****, all the visual systems that are used for the perception of surface can only perceive picture surfaces as being what they are, namely flat and solid. The exception is the visual system, described earlier, which normally makes use of the information contained in the portion of light that is reflected directly off surfaces to tell us about surface-solidity and surface-profile.[6] Luckily for the history of painting, this system can be deceived into perceptions of illusory pictorial space when presented with multicoloured arrays of complex, nonrecurring and complementary-containing pigment colours.[7]*

Ambiguity

Artists can make use of incompatible perceptions to create dynamic tensions within paintings. The sustained interest of the community of artists in the real picture-surface/illusory pictorial space dynamic is evidence of the value they attach to this possibility. For nearly four centuries after the Italian Renaissance,

6 *See "Second Introduction: The Science Behind the Art"*, as well as in"*Painting with Light*" and *"What Scientists can Learn from Artists".*

7 *This is why the artists associated with "the art of the real" have always set their face against using them.*

their explorations focused on cognitive cues such as those provided by linear perspective, shape-from-shading and chiaroscuro. Colour only came into their thoughts in the most limited of ways.[8] *It was only after the Impressionists interest in complementary colours and Seurat's experiments with optical mixing that a reliable way of using pigment-colour to encourage the perception of illusory pictorial space was discovered. Two simple rules provided the key to this:*

- *No two regions of colour on the picture surface should be the same.*
- *All regions of colour on the picture surface should created using complex mixtures containing colours from both sides of the colour circle.*[9]

Although this formula succeeds in freeing the colours from the picture surface, it does not tell them where to go in the illusory space. The task of doing this is achieved by the eye/brain systems whose function is to make sense out of the visual array on the basis of previously acquired knowledge of the nature of appearances. By far the most powerful of these cognitive cues is ***overlap*** *because it signifies in front/behind relations, but they also include others such as* ***linear perspective****, the* ***relative size*** *of known to be similar sized objects. As the artists using them discovered, these can deceive people into seeing things as relatively nearer or further away without resorting to nonrecurring, complex, complementary-containing colours. The assertion being made in this book is that the effect of these cognitive cues can be significantly enhanced in paintings that do resort to them.*

The perception of surface

Artists and, indeed, everyone else have visual systems that have evolved to tell us about real world surfaces. These depend on one or other of three sources of information:

- *Surface texture.*
- *The edges of the picture support.*
- *Rate of change in the reflected-light profile.*

Thus, ***Texture*** *can be accentuated either by using impasto, by making brush marks more visible or by approaching the picture surface. It can be made less influential on appearances by creating smooth surfaces, by removing signs of brush marks*

8 *In particular in the context of aerial perspective.*

9 For the rules of Professor Bohusz-Szyszko, see, "*Introduction to this Volume: The Science Behind the Art*" and "*Painting with Light*",

and by stepping back from the picture-surface. Also the importance of ***edges of the picture support*** *can be varied in various ways:*

- *The most widely used method of diminishing their effect is the use of the picture frame, which the eye/brain sees as a window onto a space beyond. However, even when a painting is framed, regions of colour and marks that are close to its edges are more likely to be experienced as being on the picture surface than those that are situated at a greater distance from them.*
- *If there is no frame, the influence of the peripheries of a picture support on the way we perceive the picture as a whole is greater when its edges are clearly visible. If so their influence on appearances can be further enhanced by increasing the depth of its sides. If this is done, the extra bulk of the picture support, emphasised by its more extensive shadows, emphasise its objectness and, accordingly influence the object/illusion dynamic.*
- *The proportion of the viewer's visual field taken up by the picture-support influences the real surface/illusory pictorial space illusion dynamic. This will vary according to the size of the painting and the distance from which it is viewed. Obviously, if the edges are outside the visual field, they cannot influence the pictorial dynamics.*

Objective versus nonobjective subject matter

Many books for artists tell us about induced colour and the excitements of simultaneous colour-contrast effects. However, those who read them may find their contents difficult to relate their own work, particularly if their interest lies in naturalistic depiction. However, although likely to be less potent in figurative work, the dynamics of abstract relations that are the subject matter of the previous four chapters will always apply to some extent to all paintings.

The reason for the mismatch between the issues relating to the nonfigurative paintings used as examples in these chapters and the practical requirements of the general run of figurative works follows from the following related observations:

- *Simultaneous contrast effects are created by interactions between regions of colour that abut one another on the same surface.*
- *The most palpable effects occur when the interacting colours are both near-complementary and of equal-lightness.*

- *In natural scenes instances of juxtaposed regions of equal lightness on the same surface are rare, although some occur in the case of animal camouflage. If adjacent regions of equal lightness, complementary colours, are situated on different surfaces at different distances from the viewer (creating in front/behind relationship),[10] both simultaneous contrast and lightness constancy effects will be abrogated because the eye/brain's main priority is that of separating objects from their context.*

For some combination of these reasons, exciting, optically-induced simultaneous colour-contrast effects are few and far between in nature. In comparison, they are more common in paintings of natural subjects. The reason for this is that when in front/behind relations in the external world are depicted they become juxtapositions of colour on the same surface. This is one of the many ways in which paintings provide potential excitements that are not available in nature.

While it is true that the phenomena discussed above are more likely to be central to the subject matter of nonfigurative paintings, this does not diminish the importance of taking them into consideration in figurative ones. We should not forget that the first artists to be excited by Chevreul's formulation came well before the era of abstract painting. The critical factor was not figurative or nonfigurative but three dimensional or two dimensional, for Chevreul's rules only apply to interactions of colours on the same surface. They do not apply to in front/behind juxtapositions.

Experienced reality

Finally, it is appropriate to emphasise once again that Chevreul's rules were by-products of the discovery by the scientists of visual perception that ***experienced reality*** *is not the same as* ***measured reality****. It was this that proved to be the catalyst that enabled artists to look at the natural world in new ways. Amongst other things it allowed them to claim to be "realists" when they were exploring the chromatic excitements of relationships between larger, less modulated and more equal-lightness regions of colour, such as those to be found in the work of Van Gogh, Emile Bernard, Paul Gauguin, his Nabis admirers (including Bonnard), the "Fauves" (including Matisse), the German expressionists and many others. The painting by Van Gogh, known as"l'Italienne", illustrated earlier,[11]*

10 Though perhaps the most common example is that of an orange roofs perceived against a blue sky, which is not strictly speaking a surface.

11 *Chapter 21, Figure 1*

wonderfully evokes a moment in art history when these new possibilities were in the melting pot. It was only later that the exciting advantages of non-representational art were realised and explored. When this happened, although providing artists with undreamed of opportunities, it meant cutting themselves off from other excitements.