CHAPTER 30

Practical applications

Introductory

This penultimate chapter consists of sixteen exercises. The first eight are designed to make clear the practical value of ideas presented in Parts 4 and 5. The second eight bring in ideas found elsewhere, not only in "Painting with Light and Colour" but also in "Drawing on Both Sides of the Brain".

Physics books tell us that colour can be defined by the three variable of "hue", "saturation" and "lightness". However, as explained earlier, if we are to consider whole field colour relations and their effect on picture perception, the fourth variable of "texture" must be added, and the definition of "colour" must be stretched to include achromatic elements. The following exercises keep in mind both this fourth variable and its implication for achromatic images.

All the exercises involve making copies from a photograph of a model. It would be much better if a live model could have been used but this is obviously impossible in a book. Nevertheless, it is hoped that readers will find it easy enough to transfer the exercises and the ideas they represent into the three dimensional world.

The first exercise: body-colour as lightness

The *First Exercise* requires an achromatic medium (graphite, charcoal, etc.). The task is to make a copy of the image in *Figure 1* in which the ***different body-colours*** are represented by ***different levels of lightness***. During the process of doing so, the use of contours (outlines) is strictly forbidden. Anyone who has been accustomed to drawing around shapes before filling them in is likely to find this rule quite a challenge. As explained at the beginning of the book in the *Introduction to the Science*, the analysis of contours is the function of the contour-analysing visual-systems, not the surface-analysing ones required for this exercise.

Figure 1 : A colour image of a model

Figure 2 : An achromatic image of a model

If ignoring contours does prove to be difficult, it may help as a way of getting started to fill in each of the regions of body-colour from the centre outwards. People trying this approach for the first time may find it difficult, but difficulty is normal when starting to learn any new skill. With practice, this concentration on patches of colour rather than on outlines will lead to a whole new way of looking: one that can transform and greatly extend our experience of lightness, texture and colour nuances.

To get started, do your best to imagine the colours as they would be without either the gradations or the sudden changes in lightness that are usually represented as shading or shadow. In other words, try and think of each region of different body-colour as being of uniform lightness across its entire surface.

Before starting the task of shading in these regions, it will help to count their number. To simplify matters I suggest assigning only one body-colour each to the patterned screen, to the floor-tiles and to the skin. If I do this and if I count the model's face as having five colours (hair, skin, lips and the whites and irises of the eyes), I arrive at an overall total of fourteen.[1] Remember that each of the separate regions has only one level of lightness. Also keep firmly in mind that, since no body-colour has the same absorption/reflection profile, each of the thirteen regions will be of a different lightness to that of any of the others.

One of the difficulties facing anyone performing this task is that of discounting differences due to cast shadows. For example, it may seem far fetched to count the tiny triangle of dark green/blue that can be seen in the crook of right side arm as being the same lightness as the two regions of bright green/blue behind the left side one. But, since both belong to the same drape, which is of uniform body-colour, this is what is required. The result should be three separate regions of the same ungraded lightness.

In all but one of the exercises that follow, avoiding repetitions of lightness will be a priority. However in this exercise and *Exercise Three* it is not. Accordingly, in addition to the three separated regions of green/blues just mentioned repetitions should occur between regions of:

- Skin colour (face, arms and feet)
- Jeans colour (separate legs).

1 One each for: the floor, the chair, the shoes, the skin, the jeans, the blouse, the hair, the lips, the whites of the eyes, the irises of the eyes, the blue-green cardigan on the chair, the screen, the blue drape and the red drape.

- White chair colour (both side of the model's body and between her legs).
- Patterned screen colour (on both sides of the figure).
- Red background drape colours (on both sides of the model's head).
- Blue background drape colour (main area and glimpse of blue under the arm of the chair).
- Floor tiling colour (on both sides of all the chair legs and on both sides of the model's legs).

To make matters extra clear, the example of the skin colour can be used,. Thus the face (excluding the eyes and the mouth), the arms and the feet should all be shaded as being the same level of lightness.

In all cases, the separated regions of identical body-colour are easy enough to see in the coloured image (*Figure 1)*, but far from easy to do so in the achromatic one (*Figure 2).* Comparisons between the two images provides several examples of the well known truth that regions of body-colour that are easy to differentiate when the four variables of hue, saturation, lightness and texture contribute to what we see, can be difficult to distinguish (on occasion impossible) when only the lightness and texture variables are available. The problem occurs regularly when colours from opposite sides of the colour-circle are compared. For example, a red and a green, despite being very different in terms of hue, may be very similar in terms of lightness. However, be warned: the difficulty of deciding which is the lighter is increased by the influence of simultaneous colour/lightness contrast effects. Just do your best.

If we examine *Figure 2*, we find that the lightest of the body-colour regions are associated with the white plastic chair, while the darkest are associated with the hair. The lightnesses of all the other body-colours are situated between these two extremes. For the reasons just indicated, there are a number of instances where, despite the difference in body-colour between two regions being very evident in *Figure 1,* the lightness difference between them in *Figure 2* is difficult to discern. To give two examples, in *Figure 1* the difference between the orange and the blue fabrics draped over the screen behind the model and between the bright green/blue fabric draped over the white chair and the pink T-shirt is very great, whereas in *Figure 2* the lightness difference between both these pairs of colour is very small.

The question arises as to what we should we do about this discrepancy.

"*Should we try to represent measured or experienced reality?*" If the former, the two colours that are strongly contrasted in *Figure 1,* will be difficult to distinguish from each other in our achromatic drawing. If the latter, the only way of making a striking difference is by falsely exaggerating the differences in lightness. At this point we can take advantage of what we have learnt earlier about the visual-systems that separate out and deal separately with body-colour and reflected-light, namely that the characteristics of the shadows and shading are treated separately from the body-colour of the surfaces upon which they fall.[2] This gives great flexibility to the artists when making achromatic images as it allows them to use variations in lightness as a means of representing the colour experience. For example, in the case of making an achromatic drawing of the model in *Figure 1,* artists have the option of representing the *impact of the body-colour difference* between the orange-red and the blue drapes by means of making one significantly lighter and the other significantly darker (the choice of which one and by how much can be considered as arbitrary as long as neither of the chosen lightnesses correspond to the lightness of any other region in our drawing). Similarly they could choose to make the model's T-shirt lighter to represent the fact that its bright pink stands out particularly strongly in *Figure 1*, whereas it looks quite dull in *Figure 2*. Or, they could consider a similar special treatment for the regions of the bright green drape which catch the eye so much more in *Figure 1* than in *Figure 2*.

Whatever the decisions, the final outcome of the *First Exercise* should be a surface containing a number of separate regions of uniform lightness. There should no repetitions except where regions of the same body-colour are separated from one another. Accordingly, no matter how many regions are created, the total number of different lightnesses should be the same as the number of different body-colours in the scene, which in this case, as already worked out, means fourteen.

The Second Exercise: shadow, highlight and shading as body-colour

As explained in the *"Introduction to the Science"*, the visual systems that separate body-colour from surface-reflection are deceived by cast shadows, shading and highlights into classifying them as body-colour and, accordingly, perceive them as such. This deception lies behind the *Second Exercise* which starts by repeating the *First Exercise* on a separate piece of paper. Since all the neces-

2 *Introduction to this volume*.

sary analytical work has already been done, this should be easy enough. The repetition is useful for three reasons: it provides valuable *practice*, it preserves the *First Exercise* for later comparison and it provides a much more useful point of departure for the *Second Exercise* (as well as all future lightness-based drawings) than would be provided by the untouched, blank paper. The remainder of the exercise consists of adding shadows and shading and subtracting highlights.

If the *First Exercise* has been completed as envisaged, each of the fourteen body-colours in *Figure 1* will be represented by a different level of lightness to the other thirteen. This means that each will represent a separate rung on the scale from black to white. However, when shadows, shading and highlights are added this will no longer be necessarily true. Some parts of one region of body-colour may well be lighter than parts of another body-colour, and others parts of it darker. For example, there are both darker shadows and lighter highlights on the model's arms than any of the darker or lighter parts of her shirt. In other words, the arms contain levels of lightness that are both above and below levels of lightness on the shirt. I call these "*lightness crossovers*". Evidently these complicate matters considerably. In dealing with the additional challenge, it may help to follow the lead of the eye/brain and try to think about the different regions of shadows and shading as being different body-colours.

One consequence of the addition of shadows, shading and highlights should be the elimination of repetitions. To give but two examples:

- There will no repetitions of lightness with respect to the parts of the white chair that are separated by the models's body
- No part of the red drape will be the same lightness as any other part of it.

Most of the changes to be made will consist of darkening parts of regions of body-colour where shadows or shading occur. However, some will consist of lightening the parts where highlights exist. These are only be found where surfaces have a degree of shininess. In *Figure 1* the only examples are situated on left side of the face, the left side arm and the visible instep of the foot. To represent these, the highlighted regions in question will have to be lightened by increasing the lightness of the existing shading, using an eraser or any other method of lifting off the relevant parts of previously filled in regions of shading.

When making each and all of these adjustments it is essential to crosscheck with all the other regions of lightness that no repetitions have been created. Remember that mistakes can only be remedied if they have been identified, and

identification requires making appropriate comparisons.

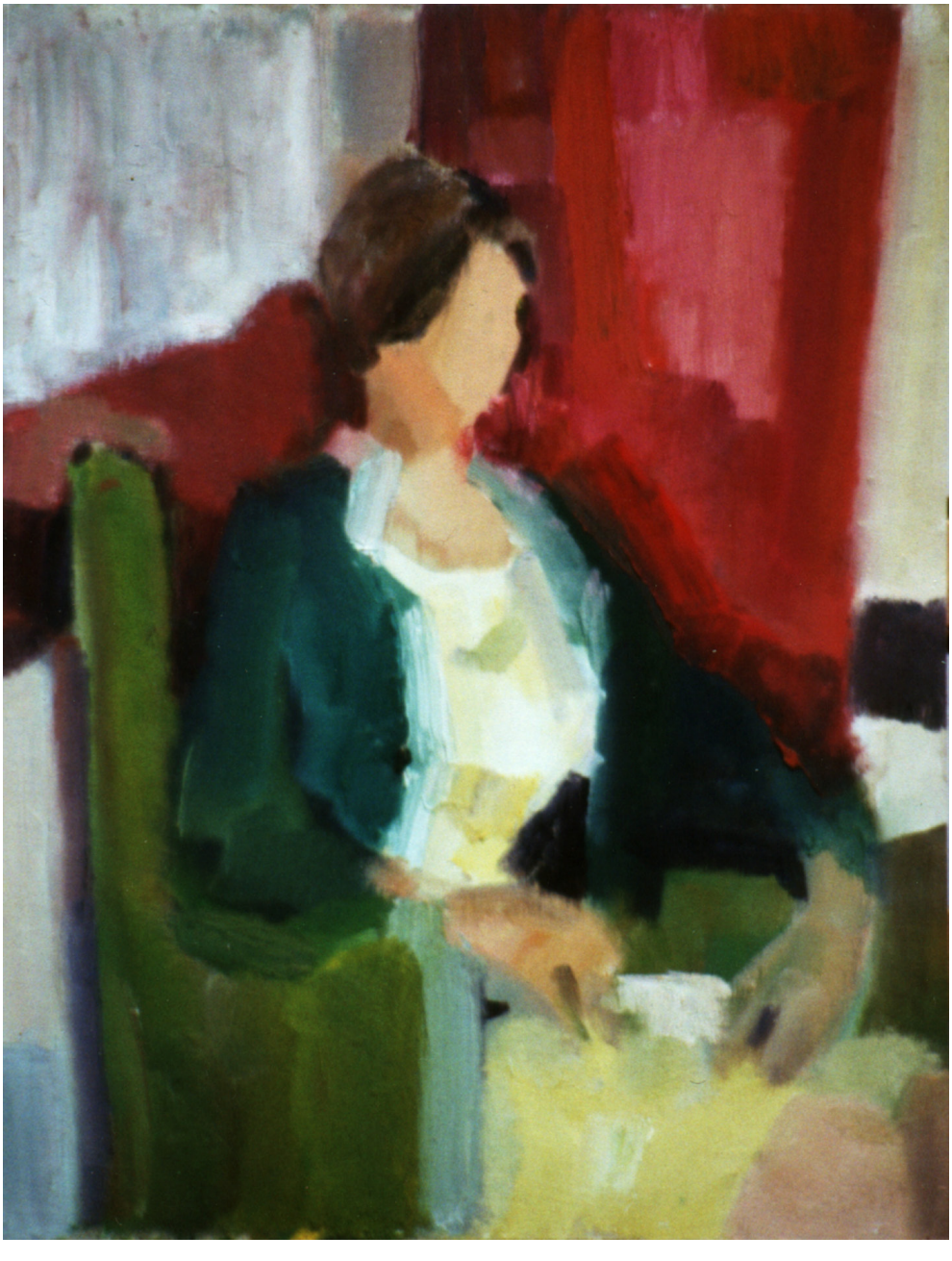

Figure 3 : Portrait of Ann

Figure 4 : Portrait of a man.

Progressing to colour: basic ideas

Figures 3 & 4 are examples of paintings in which regions of pigment-colour and the relations between them are given priority. Contour lines are absent: Defining edges only appear at the edges of regions of colour. Both the paintings can be described as "*colourist paintings*". If we crosscheck between each and every one of the different pigment-colours in either of them, we will not find any repetitions.

What is less easy to see is that each and every pigment-colour on view is a mixture containing some proportion, however small or great, of pigment-colour coming from the opposite half of the colour circle. Thus the greens include oranges, reds and/or violets, the yellows include, red-violets, blue-violets and/or blues, and the reds include green-yellows, greens and/or green-blues, etc.[3] Another feature worth remarking upon is that, despite their somewhat rough and ready appearance, the figures in the finished paintings are more or less in proportion and have a sense of the pose adopted by the model. With a little practice, concentrating on colour alone can make it easier to achieve these characteristics than it is when making outline drawings.

Also notice that none of the colours in *Figure 3* are the same as any of the colours in *Figure 4.* While this may surprise some people, it should be expected by anyone who has read the earlier chapters of this volume. A combination of the theory and the colour-mixing ideas presented there makes it clear why the lack of repetition between different paintings is an almost inevitable outcome of following the rules of Professor Bohusz-Szyszko, particularly when modified in accordance with the ideas presented in *Chapters 13* and *14*. Anyone who uses the colour mixing procedures as recommended there will find it virtually impossible to repeat colours exactly.[4] In this context, it should not be forgotten that, as Seurat by implication taught us, complex colours are needed to characterise reflected-light.

The Third Exercise : body-colour as colour

The *Third Exercise* is also based on *Figure 1*. It repeats the *First Exercise* except that, instead of depicting regions of body-colour as lightness/texture, it

3 In accordance with the fifth rule of Marian Bohusz Szyszko, as modified in *"Painting with Light"*.

4 Even though the same procedures are very effective in helping artists make the closest possible approximations not only to all natural colours but also of synthetic ones as perceived in natural settings.

requires that they be characterised as colour. As it has been done before, it is not necessary to count the number of different colours unless you are feeling ambitious enough to take on the two different tile colours and the two screen pattern colours, in which case there would be an extra two to add to the fourteen.

As in the *First Exercise*, the false body-colour represented by shadows, shading and highlights are to be ignored such that each region becomes a uniform colour corresponding to the most fully saturated part of it (the part that the eye/brain takes its starting point when computing ***spatial colour-constancy***.).[5] The outcome will be a surface covered with many different regions that have been created using the fourteen different complex mixtures of pigment colour (or sixteen if you have opted for the two additional colours). As in the *First Exercise,* there will be a number of repetitions corresponding to regions of the same body-colour situated in separated parts of the picture. Examples are the same as in the *First Exercise* unless the different colour tiles and the screen patterns are differentiated. Thus, the three regions of chair-white separated by the model's body and legs, the three regions of bright green/blue drape and the three regions of skin colour will all be the same.

Since shadows, shading and highlights will be excluded, all the resulting regions of pigment-colour are uniform and based on the most fully saturated part of the surface, the outcome will maximise the chances of generating interesting colour excitements of the kind discussed in *Chapter 21*. As explained there, they are most likely to occur where fairly *equal-lightness complementaries* or near complementaries are juxtaposed (as at the border between the orange-red and the blue drapes).

As a side benefit, the painting will provide a hypothetical example of the "*experienced reality*" which the eye/brain systems responsible for colour-constancy would produce if they were not also responsible for creating the false body-colour represented by shadows, shading and highlights. Accordingly the resulting assemblage of uniform regions of often bright colours will have much in common with the paintings of the *Fauves*, the *German Expressionists* and other colourists within the *Modernist* tradition.

Notice also that the painting, as well as featuring the whites of the chair, will contain blacks and dark blues corresponding to the model's hair, trousers and shoes. Thus the lightness range will be just as great as in that of the most contrasted chiaroscuro painting.

5 See the *"GLOSSARY and REFERENCE.*".

The Fourth Exercise: body-colour as colour plus false body-colour.

The *Fourth Exercise* is a repeat of the *third*, except that false body-colours (shadows, shading and highlights) are now introduced. As in the *Second Exercise*, there should now be no repetitions whatsoever in any part of the painting. It will be much easier to achieve this outcome if all pigment colours used are mixtures containing some proportion of colour from both sides of the colour-circle.[6] The result should have more in common with the paintings illustrated in *Figures 3 and 4* and with the work of artists like Seurat, Gauguin, Cézanne and Bonnard, rather than with the work of *Renaissance Colourists* who restricted themselves to lightness modulations and contrasts.

Acknowledgements and the definition of colour

Throughout both *"Painting with Light"* and *"Painting with Colour"* there have been plenty of reasons to acknowledge my debt both to Professor Marian Bohusz-Szyszko and to Michael Kinder.[7] Earlier I explained how one of the early puzzles of my life as an artist was that both described themselves as "***colourists***" despite the fact that their conceptions of the meaning of that word could hardly have been more different. For Marian Bohusz-Szyszko colour was about interactions between all the colours on the picture surface (what I have been calling "*whole-field colour relations*"), while for Michael Kidner it was almost exclusively about local interactions at the common borders of neighbouring regions of colour.[8] Both of course were right in terms of what interested them in painting.

Another difference is that, while there is nothing in the Professor's approach to exclude the exploration of interactions of the kind that fascinated Michael Kidner, there is something in it that was fundamentally incompatible with Michael's philosophy. This is that the combination of no repetition and complex colours all containing elements from both sides of the colour circle is certain to encourage the sense of illusory space that Michael was bent on eliminating. In his view spatial effects could only lessen the delights on offer through the exploration of what he considered to be "*pure colour*".

It may help to keep these thoughts in mind when doing the next excises.

7 http://www.michaelkidner.com/

8 We were ushered in the direction of Bauhaus ideas such as those of Johannes Itten, 1970, The Elements of Color, Van Nostrand Reinhold. New York and Joseph Albers,1963, Interactions of Color, Yale University Press.

Figure 5 : Introducing a metallic highlight

The Fifth and Sixth Exercises: reprise with extra highlight

Figure 5 has much in common with to *Figure 1*. However, as well as the clothes being different colours, there is now a metallic object on a small table situated to the left of the model. On this is a highlight that is significantly lighter than the lightest white of the chair. The *Fifth* and *Sixth Exercises* repeat the *Second* and *Fourth* ones, making use of the knowledge acquired when working on the *First* and *Third* ones. However, the lightnesses and colours will have to be scaled in relation to the metallic highlight rather than to the lightest white. The only constant will be the black of the hair which remains the same darkness (black). Accordingly, more levels of lightness will have to be fitted into the same total lightness space, which means that the difference between all the lightnesses will have to be slightly less. The phrase I use for this is "*squashing lightness space*".

The Seventh and Eight Exercise: faces and the exaggeration of contrasts

Figure 6 : Smiling face

The *Seventh and Eighth Exercises* are a repeat of the *Fourth* and *Sixth Exercises,* in which the former treats the subject matter ***achromatically*** and the latter ***chromatically***. The only difference is that now the concentration is on the head and shoulders alone. The reason why this is worth doing separately follows from the fact that the face is the most demanding of all subjects with respect to ***recognition***. The extra degree of difficulty in producing an acceptable likeness helps us to understand what is surely the main problem of representing shadows and shading in drawings and paintings, namely the fact that all light/dark contrasts between adjacent regions of colour are exaggerated by the phenomenon of *simultaneous lightness-contrast*.[9] Two examples from *Figure 6* illustrate the difficulty that confronts us. Our eyes tell us (a) that the diagonal shadow underneath the cheek on the left hand side of the model's face is *darker* than the corresponding shadow on the right hand side of the face and (b) that the vertical highlight just to right of her mouth is *lighter* than the corresponding part of the left hand side of the face which is equally brightly illuminated. However an analysis by means of a light meter, that uses principles of physics, makes it clear that this cannot be the case. The apparent levels of darkness and lightness have been artificially induced by the eye/brain because the features in question are to be found in contexts of strongly contrasting intensity contexts.

Although these two examples provide useful illustrations of the problem, we need to realise that the appearance of all shadows and highlights without exception are subject to *simultaneous lightness-contrast* and that something has to be done to compensate for the exaggerations in the regions of darkness and lightness due to this phenomenon. We can get some idea of how much too dark and how much too light these seem to be if we compare them with the darkest and lightest parts of the whole image. In the case of *Figure 6* this means making comparisons: (a) between the shadows and both the darker parts of the model's hair and the brown of her eyes and (b) between the highlights and both the white of her teeth and the fleck of white in the corner of her right hand side eye. Such comparisons can be relied upon to modify our estimate of the lightnesses concerned and will always do so in the direction of reducing difference. Thus, as a general rule, s*hadows should be painted as being lighter than appearances suggest and highlights as being darker*. However, like all rules, there are exceptions (such as when the shadow is actually the darkest part of the whole image or when the highlight is the lightest part of it). The only safe policy is to do as much comparative looking as is necessary to come to decision as what level of lightness to

9 *Chapter 3*

choose with respect to the case in question.

Ninth and Tenth Exercise: bringing in contour

The next two exercises start a process of integrating ideas found "*Drawing with Feeling*" with ones developed in the two books on painting.[10] They start with reprises of the *First* and *Second Exercise.* Accordingly the surfaces of the paper should be shaded using an *achromatic medium* such as graphite or charcoal with a view to creating regions of different degrees of darkness and lightness. In the *Ninth Exercise,* as in the *First Exercise,* each of the differentiated regions should be of ungraduated lightness and should contain some repetitions but no crossovers. In the *Tenth Exercise*, just as in the *Second Exercise,* all regions should graduated and there should be no repetitions but some crossovers. Once the shading-in stage has been completed, an outline should be drawn around contour of the figure. In *Exercise Nine,* the intensity of this *should be kept as constant as possible*. In *Exercise Ten* it *should vary* in relation to the degree of lightness contrast between the regions of colour that define the contour. Since these will be continuously varying so should the intensity of the contour. Although the range of variation required may prove impossible to achieve, it is well worth the effort of trying to realise this goal. Both these exercises prepare the way for issues relating to the use in painting of the technique known as "*cloisonism*", the subject of the next section.

Cloisonism

Painters between the *Italian Renaissance* and the arrival of *Modernism in Painting* wanted to create illusions of space and light in their paintings. Praise was heaped on images that deceived the eye (*trompe l'oeil*). Matters were quite different with the advent of *Modernist* ideas. Now eye-deceiving realism was to be avoided at all costs. *Modernist Painters* embarked on what they felt as being moral crusade against such deception, and took steps to towards emphasising both to the physical reality of the picture-surface and the actuality of the paint. The weapons used were (a) *evident mark-making* and (b) *visibly textured surfaces*. However they were in no hurry to eliminate illusory pictorial space altogether.[11] Indeed some made a virtue of conserving it as a means of creating tensions between what the "*reality*"of the picture-surface and the "*illusion*"

10 This book and "*Painting with Light*".

11 It was to be many years before artists like Pete Mondrian and the American Abstract Expressionist sought to eliminate illusory space altogether.

In parallel, the awakening of an interest in the nature of *experienced reality* as revealed by the scientists led artists to experiment with larger regions of *more fully saturated* and *more equal lightness colours* (representing hypothetically "*pure"* body-colours). Because *shadows* and *shading* served an important role in indicating *illusory pictorial space*, their absence posed a problem for those who wanted to preserve it. One way of doing so was to draw contours between the in/front and the behind surfaces, thereby creating partitions between them ("*cloisons*"). This device worked to the satisfaction of enough artists to ensure that, from then on, C*loisonism* entered the artists' kitbag of standard techniques.

Figure 7 : Cloisonism and colour contrast.

With the advent of nonfigurative art, the need for creating illusory pictorial space was no longer so evident. Indeed, many artists sought to avoid it at all costs, lest it should interfere with their idea of pure colour experience. Accordingly, it is not surprising to find that by the 1960s, when I was at art school, Michael Kidner, my tutor, proclaimed that the only way forward for colourists was to work with interactions between equal lightness colours. The idea of partitioning colours as in the bottom panel of *Figure 7* would have appalled him. He would see the intervening line as diluting the kind of colour experience that he wanted us to explore. He wanted uninterrupted interactions of the kind illustrated in the top panel and in *Figure 2* of *Chapter 21*.

Lightness variation as colour

Figure 8 : Early study by Degas

Figure 9 : Late study by Degas

The remaining six exercises build on lessons coming from the ten previous ones. As a way of introducing them, let us return to the ideas of those *Renaissance Painters* whose claim to be "*colourists*" rested on their ability to use whole-field lightness variations to create impressions of space and light. Integral to their conception of "***colour***" was the representation of shadows and shading in achromatic ***studies*** and ***cartoons,*** using only ***lightness*** and ***texture*** as variables.

The approach I have chosen for helping readers to exploit the opportunities offered by this lightness centred way of doing things starts by making a comparative analysis of the six drawings illustrated in *Figures 8 to 14.* It starts with two studies by Edgar Degas.

Figure 8 shows an early work that is characteristic of the academic drawing methods that he learnt as a young man and which he was to reject later in life. *Figure 9* shows a study produced the artist when at the height of his powers. The contrast between the two works in terms of the subtlety of lightness variation is striking.

In the earlier work, contrasts have been systematically exaggerated. For example, notice how the bands of darkness hugging the entire length of the interior of the left hand contour of the model's body and the exterior of right hand side one has been used to emphasise the lightness of the adjacent regions of background and body respectively. Notice more generally the heavy use of 'blackness' and paper-coloured 'whiteness'. Almost everywhere dark regions are made as dark as possible and light regions are made to be as light as possible.

Observe also how, in this earlier drawing, the concentration on the two extremes of the lightness-scale results in numerous repetitions. It would seem that some viewers feel that the striking contrasts that result produce a more dramatic effect than Degas achieved in the later drawing. Others may find it:

- Less subtle in terms of lightness variation.
- Less varied in terms of mark-making.
- Having a more cut-out look.
- Harder on the eyes.

In contrast to all this, in the Degas' more mature drawing (*Figure 9)*, although a tendency towards exaggerated contrast is still evident, the range of lightnesses is hugely increased. One example, of particular interest in relation to the exercises that follows, is the extent to which contour-defining (*cloisonnist)* lines are used. Whereas, in *Figure 8* they are virtually absent, in *Figure 9* they are

used to define almost every external edge, both of the body and of the arm and hand placed across it. Significantly, if we compare any two parts of these outlines, we find differences between them with respect to their relation to their context, their width, their density and, more generally, to their quality of mark-making.

Figure 10 : Matisse line drawing, presumably made from life

Figure 10 reproduces a drawing by Matisse. Its purpose here is to take us a step nearer to considering contour drawing from a colourists perspective. As in *Figure 9,* the outlines vary greatly in density. The hardest and darkest lines are used to emphasise the character of the pose. They draw attention to:

- The upward twist of the arms,
- The slightly backward leaning consequences with respect to the model's trunk.
- The counterweight being provided by rump and the legs.

However, their effect is dependent on the relativities of softness, lightness, thinness and thickness to be found among the remaining contours. In several places the force of the contour lines is either exaggerated or reduced by a subtle use of texture in the form of crosshatching. Sometimes this abuts a contour, as when used to emphasise parts of the front of the model's body, and sometimes crosses over it, as when widely spaced and extremely subtle lines are used to soften the impact of the line defining the left side underarm. Due to the combination of line density, line thickness and textural differences, the impact of every section of contour varies as compared with every other section of it. As a result comparisons between any two sections of contour always reveal differences.

In this book it is argued that these should be classified as differences in body-colour for at least two reasons. These are:

- The finding of recent research that (a) the eye/brain visual systems separate body-colour from reflected-light and (b) that the way they do so entails a built in computing error that results in them classifying shadows and shading as being visible body-colour rather than invisible lightness.
- The *Italian Renaissance* artists being called "colourists" largely as a consequence of their handling of lightness variations.

In contrast to the drawing by Matisse, if we now turn to the drawing by Picasso reproduced in *Figure 11*, we find minimal variation with respect to either line-width or line-intensity.

Also, unless the artist was consciously seeking to imbue his drawing with something of the jumpiness found in the early Degas drawing (*Figure 8*), there is little sign of interest in using lines as a means of creating pictorial dynamics. Certainly, it has none of the variations of thickness and density that are such an important feature of both the Matisse drawing (*Figure 10*), and the later of

the two Degas drawings (*Figure 9*). The Picasso figures were almost certainly drawn from long-term memory and the artist's interest was on images. The Degas and Matisse drawings almost certainly started life as drawings from observation and reflect an interest in and feeling for whole-field lightness and texture relativities.

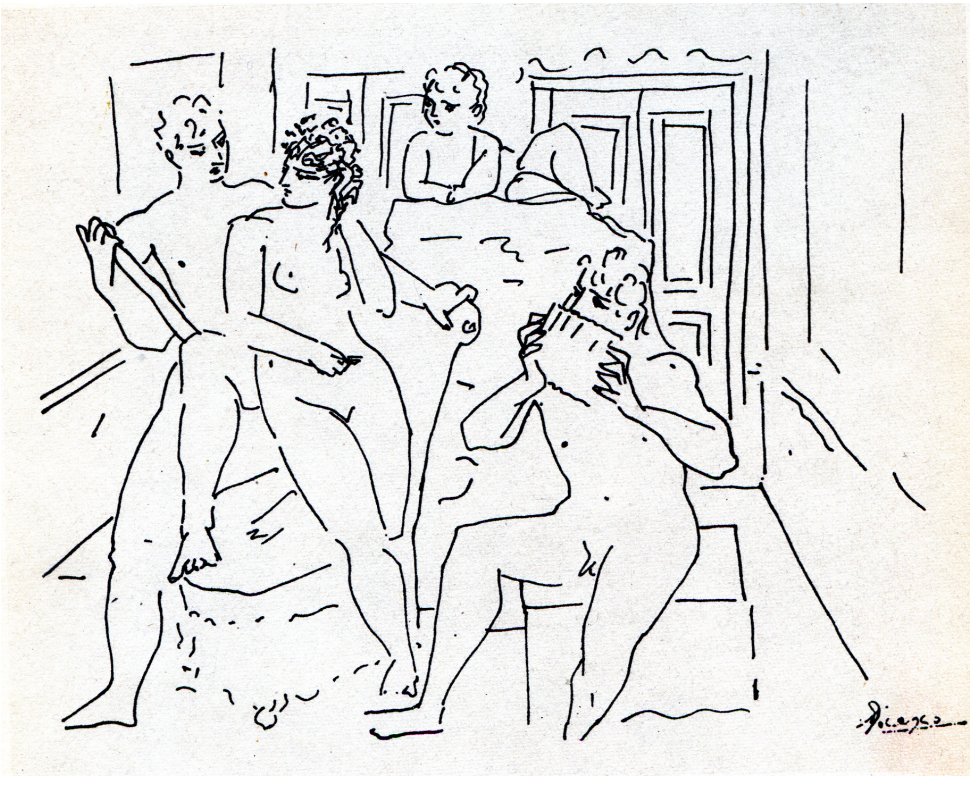

Figure 11 : Picasso line drawing, presumably made from memory

As an aside, it is interesting to notice that, despite the presence of a certain amount of linear perspective information, there is little sense of pictorial depth. This can be attributed to the unrelenting repetition of line density.

Eleventh and Twelfth Exercises: treating contours as colour

The next five exercises continue the process of exploring the lightness/texture dimensions of colour with an achromatic medium. They are focused on issues arising from the above discussion of the drawings of Degas, Matisse and Picasso. Their purpose is to provide an opportunity for investigating the potential

of varying the width and density of contours in the interests of achieving *"a sense of space", "pictorial harmony"* and/or *"personal expression*". The first two of these exercises have much in common with the *Ninth* and *Tenth Exercises*, except that they start with a blank page rather than with a surface that has been covered with regions of different levels of lightness.

The *Eleventh Exercise* involves varying the *thickness, density* and/or *texture* of the contours (along the lines of Matisse in *Figure 10*). As in all the exercises *comparative looking* is used to test whether or not any repetitions remain.

The *Twelfth Exercise* is a repeat of the *Eleventh*, except that this time all differences must be achieved using only the two variables of line *thickness* and *density*. This additional limitation makes the exercise a great deal more exacting, but this does not mean that it is not well worth trying. The easiest way of producing interesting results is to feel your way around the contours and, in doing so, to reflect differences either of local colour dynamics or of feelings (see below).

Reasons for varying line thickness and density

Drawings by Degas and Matisse have been used to illustrate the potential value of introducing variations in thickness, density and texture when making contour drawings. Two possibilities have been suggested. The first of these is that variations of this kind make it possible to emphasise important features and dynamics of the pose and the second that they can help drawings to settle into pictorial space. Another suggestion has been that the variations make the finished product seem more harmonious. However, two other extremely important possibilities have been hardly mentioned. One of these concerns ***colour dynamics*** and the other, our ***feelings***. Each deserves one or more exercises of its own.

Thirteenth Exercise: local colour contrast dynamics

As already pointed out, the model in *Figure 1* and *Figure 5* is the same person and her pose in both is virtually identical. If we exclude the addition of the table with the metal box on it, the main differences lies in the clothes she is wearing, none of which is the same as before. Accordingly, if we compare the contours of her body in the different images, we find that no matter where we look, both the body-colour and lightness contrasts between the any part of the figure and its adjacent context are significantly different. Moreover, if instead of making comparisons between the different images, we make them within either

one of them, we discover that the degree of contrast between object and context varies constantly, whether it be in terms of lightness or colour. We also find that the degree of difference is much greater and more striking in some stretches of contour than in others. In a line drawing made of either of these images such that the contours produced reflect this constantly varying dynamic, no section in either of them would be the same.

The first part of the *Thirteenth Exercise* is to become aware of as many of these differences as possible by making extensive comparisons both within and between *Figure 1* and *Figure 5*. If done assiduously this will increase your sensitivity to the edge contrast dynamics in both and prepare you for the second part of the *Thirteenth Exercise*, which is to choose one of the figures and make a contour drawing of it that reflects the continuous change in colour/lightness contrast dynamics. The lines produced should vary continuously. It may help to study the Degas drawing (*Figure 9)* Matisse drawing (*Figure 10)* for suggestions as to different ways of achieving variation.

This exercise provides yet another demonstration of the value of comparative looking as a means of directing attention to aspects of appearance that might otherwise be overlooked.

Fourteenth Exercise: "*Feeling" 1*

While the last exercise is conceived as a test of our ability to make an objective record of the sequence of colour/lightness differences perceived as the eyes progress around the contours of a object or shape, the *Fourteenth Exercise* brings in the "*feelings"*. This should not be difficult to do for it is natural for anyone who is sensitive to colour and lightness contrast dynamics to respond affectively to them, particularly if they are perceived sequentially as a succession of ever changing relationships. The experience can be compared to that of responding to sequences of notes and/or chords in music.

If sequences of feeling-based responses to changes in the colour and lightness dynamics between of are reflected in the forcefulness or delicacy with which the drawing instrument is applied to the paper, the contour lines produced will vary accordingly. As a result there should be no repetitions in either line width or line density in the final product.

The *Fourteenth Exercise* is to explore these possibilities when making a line drawing of either *Figure 1* or *Figure 5*.

Fifteenth Exercise: "*Feeling" 2*

The *Fifteenth Exercise* is to allow other kinds of feelings to influence line production, when making a contour drawing of the model in either *Figure 1* or *Figure 5*. When engaged in doing so, it is important to remember that all feelings are relative. Some are stronger and some are weaker.

It is also important to stress that there will always be a range of them, no matter what the subject matter being drawn. For example, they might include feelings related to:

- Aesthetic responses to beauty, ugliness, etc.
- The weight dynamics of a pose, such as when a body-part is being supported by or interacting with a surface (floor, seat, arm of a chair, wall, etc.), or another body part (one leg on another, an arm on a leg, head on hands, etc.).
- Other effects of the pull of gravity on appearances such as on the curvatures of flaccid muscles, of body fat, of breasts, etc. or on how clothing clings to or falls away from the body parts of the person wearing it.
- The interplay of abstract qualities such as colour, lightness, surface-form, texture, curvature and pattern.
- The person being depicted (whether a loved one, an acquaintance, a stranger, etc.).
- Parts of the body that we find to be especially stimulating (shining eyes, expressive mouth, sexually arousing perceptions, etc.).

It is worth keeping in mind that, at least some of the feeling-based factors listed above must surely have played a part in creating the variety to be found in the Degas and Matisse drawings illustrated in *Figures 9 and 10*.

Exercise sixteen: putting it all together

For the *Sixteenth Exercise* we combine *"colour"* in the *Renaissance Colourist* sense and the *Modernist Painter* sense. To get the best results it will be necessary to have mastered all the other exercises in this chapter. Its subject matter is left to personal choice but should be taken directly from a scene in the real world (not from a photograph). It could centre on a human figure, a still life or a landscape. The idea is to repeat the *Fourth Exercise* while keeping in mind the colour-contrast dynamics and feeling-based ideas explored in all the exercises since the *Fifth Exercise*. When doing so it is particularly important not to loose sight of either whole-field

colour/lightness relations or the relativities of the feelings based responses to different aspects of the pictorial content.

In the painting produced as a result of this exercise (or in others based on the same criteria) any contour line that is included should be considered as a region of colour which, like all the other regions of colour in the painting, must be related to but different from all the other colours on the picture surface. Also in this painting, the colour mixing ideas from "*Painting with Light*" should be followed.[12] If this objective is achieved:

- Each and every colour will have something of the ungraspable quality of *"pure body-colour"*. In other words, colour freed from the surface solidifying influence of reflected-light.
- As an ensemble, they will create an *"illusory pictorial space"* with its own, independent sense of *"ambient illumination"*.
- The final outcome will be the unique symphony of both local and whole-field colour relations that Cézanne described as *"a harmony that runs parallel to nature"*.

Implications

The exercises in this chapter have been designed not only to provide a way of bringing together the ideas relating to colour dynamics presented in this book, but also to show how the proposals relating to line and contour which make up the subject matter of "Drawing with Both Sides of the Brain" can be fruitfully combined and extended. If we are to believe in and follow Professor Bohusz-Szyszko's contention that his propositions represent all "you need to know about painting", the sixteenth and final exercise can provide, not only a template for a lifetime of painting from nature, but also, a way of thinking about colour, illusory pictorial space, and personal expression in all future paintings, whatever their subject matter. In short, there is no reason why the Professor's rules cannot underpin a lifetime of artistic creativity.

However, while this book has provided much evidence in support of what has just been claimed, it has also made room for the possibility of other "truths". For example, my other key teacher, Michael Kidner managed a lifetime of creativity based on different, incompatible rules, as did Joseph Albers, Bridget Riley, René Magritte, Francis Bacon, and many others.

12 All the colours are mixtures, containing complex colours from both sides of the colour circle.