Comparative treatment of light of the major post-impressionist painters at the turn of the century

Edwin Gow
Colby College

Follow this and additional works at: https://digitalcommons.colby.edu/seniorscholars
Colby College theses are protected by copyright. They may be viewed or downloaded from this site for the purposes of research and scholarship. Reproduction or distribution for commercial purposes is prohibited without written permission of the author.

Recommended Citation
https://digitalcommons.colby.edu/seniorscholars/105

This Senior Scholars Paper (Open Access) is brought to you for free and open access by the Student Research at Digital Commons @ Colby. It has been accepted for inclusion in Senior Scholar Papers by an authorized administrator of Digital Commons @ Colby. For more information, please contact mkelly@colby.edu.
THE COMPARATIVE TREATMENT OF LIGHT
OF THE
MAJOR POST-IMPRESSIONIST PAINTERS
AT THE TURN OF THE CENTURY

Edwin K. Gow
May 24, 1961
Senior Scholar
Program
(Dr. James Carpenter)
Approved by

James M. Carpenter
Tutor

James M. Carpenter
Chairman of Major Department

Colin E. MacKaye
Chairman of Senior Scholar Committee
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>INTRODUCTION</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Color and Light in Painting</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>CHAPTER ONE</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A Background for the Post-impressionists</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td><strong>CHAPTER TWO</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Georges Seurat: Neo-impressionism</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td><strong>CHAPTER THREE</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Paul Cezanne: His Development</td>
<td>47</td>
</tr>
<tr>
<td></td>
<td><strong>CHAPTER FOUR</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Paul Gauguin: The Synthetic Style</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td><strong>CHAPTER FIVE</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vincent van Gogh: Expressionism</td>
<td>69</td>
</tr>
<tr>
<td></td>
<td><strong>CHAPTER SIX</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Conclusion</td>
<td>78</td>
</tr>
<tr>
<td></td>
<td><strong>APPENDIX</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The Science of Light and Perception</td>
<td>1</td>
</tr>
</tbody>
</table>
INTRODUCTION

COLOR AND LIGHT IN PAINTING

Previous to the twentieth century, painting could have been defined as the reproduction of the images of objects with pigments. However, subject matter and objects as representations have been denied existence by many of our twentieth century painters, and unless we are to deny all this as painting -- and many might be inclined to do so -- we must find a new definition. If this is to include the tremendous variety of what is now called painting, our definition must necessarily be very general. We may term painting, as it is used herein, as the application of pigment on a surface whose completion is intended as a work of art.

While considering the uses of color and light, its limitations and the problems posed for the artist in painting, we must ask and attempt to answer some very fundamental questions. Are color and light the same thing in painting? And if not how can we distinguish between the two? These are not simple questions. As we examine the work of Vermeer, of the Impressionists, and of the major
post-impressionists, we will be asking these questions. The answers will differ.

In all representational painting where the artist is looking at nature, he must decide what he wishes to represent out of all that he sees. He must select an approach to nature -- what aspects of nature are most important to him. A representational painting is an illusion, a translation, of what the artist chooses to see. How he translates is up to him, and the vocabulary he uses within the framework of the language of painting is also his choice.

A literal or visual translation would have to take into consideration the multiple characteristics of that physical energy which we call light, without which nature would not be visible to us at all. Just as any object which appears in a painting is a representation of, or an illusion of the physical object, any light we observe in a painting is an illusion of the light in the physical world. Such an illusion of light we do sense in many paintings. It is sensed because the artist has represented in a pigment some of the effects light has on the

1 See the Appendix for a general summary of the science of light. The main characteristics of light are discussed, and a familiarization with them will be a helpful background in understanding the necessary translation from physical light to the illusion of light in painting.
surfaces of objects -- changes in value and hue, highlights, and cast shadows, etc.

The artists' concept often relies purely on the testimony of the eye, and this often differs significantly from the scientists' view of reality. The scientist and many of us have trained ourselves to rely on what we know rather than on what we actually see to such an extent that it takes the naïve and the artist to show us what we actually see. This represents really only the realist school of art however. Much painting is not at all concerned with recreating a subject but, with recreating an experience the artist uses color to express the mood, his personality -- his way of seeing.

The intended purpose of a given work dictates the use of color and not the physical properties of the object matter. It is this purpose which dictates every decision the artist makes, and it is these decisions on a common basis that give the finished work its unity -- unity in composition, unity in color organization, unity in treatment of light. The requirement of color in a painting if the painting is to have the quality of a unit is consistent treatment not the adherence to reality.

See the appendix, para. 10-12, b,c, 13-16, 17, 19, 21
When discussing light as a unifying factor in painting, Mr. James K. Carpenter places light in two main categories, pervasive and directed light. Directed light is that which originates from a definite light source. This source can exist either within the painting, such as from a candle or lamp on a table, or can exist outside the limits of the painting, such as through a window in the painting. The point is that one can perceive its direction. Pervasive light is that which seems almost to be a quality of the object matter in the painting not acting on the objects. It envelopes the scene and has no direction. The use of directed and pervasive light helps unify and organize a work in many ways. They set up consistent relationships in the work. For example, a directed light from a window on the left illuminates the room in the painting (the window is in the work). Excluding, for the moment the secondary sources due to object surface reflection, the lights and shadows of the object matter are orientated the same; that is, the light side of the object is on the left facing the light of the light source and the shadow side is on the right of the object. The scene will be non-uniformly lighted. Such lighting is the only condition under which good three demensionality and modeling are
seen in the subject. Pervasive light creates an overall light eliminating shadows. It can achieve a flatness to the surface as exemplified in much contemporary painting.

Light can be used in many ways besides a unifying element. As mentioned above it can express plastic form through modeling from light to shadow. It can express space through this modeling and through its regular decrease in brightness with distance increase from the light source, or its causation of hue changes as in distant objects appearing bluish (because of the scattering of light). Light can also have a psychological effect by influencing the observer as to what the artist considers important in a work, and as to what is relatively unimportant.

Whatever the functions light fulfills for the artist, he must create the illusion of the desired light effect for he has no physical light in the painting. He does have at his disposal pigments which, when viewed in physical light, absorb and reflect selectively some wavelengths more than others of the light striking the canvas and therefore appear colored. With these pigments the artist


5 The Appendix, para. 21, note also Fig. 2.

6 The Appendix, para. 2a, 9c.

7 Rembrandt often used light for this purpose, particularly when telling a story such as in his biblical paintings and drawings.
can create value and hue scales which give the illusion of light.

In so doing he must establish the required brightness (value) scale around which the picture is to be built. The range of this value scale, due to the limitation of the pigments, is considerably less than that found in nature. As Mr. Carpenter points out, "one of the problems which a painter desiring to create light faces is that of suggesting more brilliance than there actually is." Light is not perceived as a definite quantity or intensity level but is perceived relative to the neighboring values. Because light is relative, the artist is able to translate the relations of light and dark that he sees in nature into the value range between between black and white much as the camera does. That light is known by comparison is illustrated when all the values in a given field are changed in the same proportion. The result is that each value is seen to remain constant.

An individual becomes orientated within the particular intensity scale or system at which he is looking. For example, if an individual has two paintings side by side, one more bright than the other, he has no trouble registering the contrast in brightness. However, if he looks only at one of the paintings his eyes become accustomed to its


intensity scale. He does not see in terms of a universal brightness scale by which a given moment's perceptions can be compared. It is, then, the relative contrast between the lights and darks within one picture that creates the illusion of really intense light.

If an intense light possesses a brightness value well above the rest of the field it will appear to glow even though the absolute brightness might be quite low, as exemplified in many of Rembrandt's paintings.

Author Pope cites three value relations used in painting other than the normal rendering of value relations. These others are distortions of the true value relations, but they may better express his ideas or give him the desired tonality for a particular work. Their use is a question of aesthetic result and not of the visual referent in nature.

"Crowding the darks" consists of extending the upper part of the value scale, and crowding the lower part. (Fig. b) The effect of this value relationship is one of large masses of extreme dark, relieved by small spots of gleaming light. When the darks are crowded the difference between the low values is decreased such that there appears to be fewer different dark tones, a more uniform

10 The Appendix, para. 23.
11 Arnhem, p. 248.
tonality in the darks.\textsuperscript{12}

Opposite to the relation and its effect is "crowding the Lights". (Fig. c) The range of light values is decreased such that the tonality becomes more uniform in the higher values. Such a value relation causes an "impression of a glare of light with very slight contrasts in the light portions."\textsuperscript{13}

Some artists crowd both ends of the value scale. (Fig. d) "Crowding of both lights and darks" creates sharp contrasts between light and dark. The intermediate tones lose importance in such a value relation.\textsuperscript{14}

Arthur Pope's figures above illustrate these different relations.\textsuperscript{15}

\textsuperscript{12} Arthur Pope, p. 101.
\textsuperscript{13} Pope, p. 103.
\textsuperscript{14} Pope, p. 103.
\textsuperscript{15} Pope, p. 101.
In the same way the intensity range of the colors can be manipulated by either the suppression of the range, or the exaggeration of the range. This intensity range, whether normal or altered, is similar to the value range, in that it is limited in painting compared to nature. But like values, the perceived intensity of a given color is relative to those around it. The artist can, therefore, create the illusion of great intensity by using a primarily low intensity range and a high range, suppressing or eliminating the middle range.16

Because of its unifying effect by producing tighter relationships between the colors in a picture, the use of limited palettes or limited tone sequence is common in painting.

The use of such a palette is a further breaking away from the visual representation of a scene. For instead of attempting to equate a given hue and value in pigment with one in nature, the artist tries to equate the relationship of colors and tones in pigment with relationships perceived in nature.17 Again we stress relativity.

Besides choosing the proper limited palette for a particular effect he must know how one color will react when

16Pope, pp. 104-105.
17Pope, pp. 115-131.
placed in juxtaposition with another. When two colors are placed in contiguity each is changed as though it had been mixed to some extent with the compliment color of the other.\textsuperscript{18} When any two colors of the chromatic circle are brought into competition or contrasted, the effect produced is apparently to move them both farther apart. The changes of tint are greatest when the colors which are situated nearest each other on the color circle. Complementary colors are already as far apart in the chromatic circle as possible; therefore, they are not changed in hue but only appear more brilliant and saturated.\textsuperscript{19} There are many other laws of color contrast but the above will illustrate that the artist must be aware of how his pigment will react together if he is to achieve the desired color effect.

One of the most important laws of contrast which affect color is that of simultaneous contrast. A surface or a light source of any color looks lighter when it is surrounded by a darker color. The difference in the lightness of any two surfaces is exaggerated if they are placed adjacent to each other and the effect is greatest when a small area of one is completely surrounded by the other.\textsuperscript{20}

\textsuperscript{18}Ogden Rood, Modern Chromatics, p. 244.
\textsuperscript{19}Ogden Rood, p. 246.
\textsuperscript{20}Evans, p. 308
It is a fact that side by side application of pigments produces a much brighter and fuller intensity hue combination than does direct mixing which neutralizes. All these facts are used by the artist in his task of painting.

According to Ralph Evans color always plays the two-fold role of decoration and representation in a painting. It shows local color or the effect of lighting but at the same time it is decorative in that it creates patterns of color relationships. Color plays many other roles as well. It is an important element as can be, of the composition. By manipulating hue intensities and values the artist can stress areas of weakness in achieving balance in a work. Color can be used also in a symbolical sense -- represent moods and emotions of the artist. “Any artist may view

21 Luichiesh, Color and its Application, p. 299
22 Evans, p. 308
color in three valid but quite different ways: symbolically, esthetically, and realistically.\textsuperscript{23} When color is used symbolically or esthetically the artist may create a sense of light. This light will usually be pervasive light. If it appears to be directed light, the treatment will be arbitrary in that it will be used for other purposes than to create an illusion of natural light.

There are two opposite conceptions of color behavior in nature: one, that color is what the eye reports; two, that color is what the mind knows it to be regardless of what the eye reports at the moment.\textsuperscript{24} It does not matter to which opposing concept the artist subscribes. It does, however, matter that he is consistent if he chooses to use either in his painting.

In much contemporary painting the artist does not choose to subscribe to either because his purpose is often to use color and any illusion or symbols of light as abstract elements of his surface pattern. When using light in this manner, he is not concerned at all with creating the illusion of real light and its effects on the objects, nor is he concerned with the real color of an object as his mind knows it to be. For him color and light are the same thing: namely, the only elements of his composition to be used as the composition dictates and not necessarily for anything else.


\textsuperscript{24} Beam, p. 182.
This illustrates one very important point. Light and or color treatment cannot be analyzed without considering the intended purpose of the artist -- what he is trying to do.

Color in painting is pigments manipulated by the artist for his own particular purpose. As the artist places more and more emphasis on design, color relations, and the material with which he is working, he tends to suppress his interest in subject matter. When he does this, the treatment of this subject matter, if there is any, is controlled not by laws of nature or the artist's visual experience, but by the requirements of the composition. The illusion of physical light in painting is part of the subject matter of a painting. If the artist is primarily concerned with the representation of subject matter in nature, he will use his pigments to create tone relations which obey nature's laws and give the illusion of light striking surfaces and acting on them. In other words light in painting is an illusion created by using color pigments which appear as objects on which real light seems to be falling. Color is a quality of the pigment which is perceived when physical light illuminates the painting, its particular color being determined by what wavelength the illuminated pigment reflects and absorbs. The distinction admittedly is confusing. The light we sense in a painting
is in reality color pigments. We perceive it as light because it looks like it and obeys its laws or because the pigments form a symbol of a light source (the moon, sun or stars, for example.)

This thesis will analyze the treatment of this light in painting, the ways in which the artist creates this illusion or rejects its creation.
CHAPTER ONE

A BACKGROUND FOR THE POST-IMPRESSIONISTS

Although our main concern is the treatment of light of Cézanne, Gauguin, Van Gogh, and Beurut, it is helpful if not necessary that we have a background of light treatment preceding these major post-impressionists. As well as looking at the Impressionists, with whose light treatment our protagonist will break in degrees, we might consider briefly an earlier artist who represents the naturalistic or visual approach to light. Such an artist is Jan Vermeer van Delft (1632-1675).

"His manner of seeing is the basic excellence of Vermeer's art—the thing that sets it apart from the work of other men. Where others had a genius for drawing or for colouration, he had a genius for vision. One arrives, while studying his work carefully, at a feeling that he looked at things harder than others have looked at them.... to see if there was anything he could do to his picture: to make it portray more closely the real aspect of nature."

When the approach to painting is one of creating an exact illusion of nature, the illusion of real light becomes of primary importance.

In the "Young Woman with a Water Jug" we can see painstaking observation of the effect of light as it streams through the bluish window-glass on the left side of the canvas. We are struck immediately with the realism of this illusion of light. It will be helpful if we analyze some of the ways in which Vermeer has created this illusion in this painting, and some of the ways in which he has used light.

The light serves as a unifying element as the light source is directed from the left and sets up consistent relationships of light to shadow in the modeling of all object matter in the painting—on the young woman, the jug and tray, the garment draped over the chair, on the colorful table cloth, and on the open chest on the table. Her hood and shawl which have a local color of white, are influenced towards blue as the light becomes a little blue as it passes through the bluish window-glass. This blueing is very subtle. The light passes through the white material illuminating her face a little, except where the material is doubled over at the hem. The shawl is lightest or brightest on her right shoulder where nearest the window. The values step down as the shawl moves around the figure into shadow. The hood illustrates this well.
The clarity of this light into shadow modeling seems to be due to Vermeer's ability to determine optically just how much change is worth noting. The jump from light to half light to shadow is just great enough and simplified enough to create vividly the illusion of light into shadow. The directed light, by its action on the figure as it goes into shadow, expresses the three dimensional form.

Vermeer's conscientiousness in observing separations was continued in his registration of light and shadow. He noted in a remarkable way the comparative obscurity of the shadows in their relationship with light. He did not paint them hazy and obscure, but gave each shadow its own luminosity and colour. The shadow side of the table cloth facing us illustrates Vermeer's sensitive eye for shadow color. The muted reds, blues, and whites maintain relative values as those in the sunlight, but the value differences become less and become lower or darker. Adherence to physical shadow illumination is found in the colored reflection of the cloth's pattern on the side of the silver tray—the reds and blues being clearly reflected by the highly reflective surface of the metal of the tray, and because of the greater distance away, reflected obscurely on the pitcher.

2. Philip L. Hale, Vermeer, p.67
Vermeer is very conscious of the reduction of light intensity with the increase in distance. Philip Hale states that "no one has ever painted the graduated light on a wall better than he." We notice this graded light on the patterned cloth as well as on the neutral wall. His attentive eye seems to catch all of the effects of light and he is careful to include all that he sees. "As the eye moves across the surface, from corner to corner along the rectangular avenues and returns, we are reminded again of the limit of its meaning, paradoxically both narrow and bottomless, reminded that the grace of Vermeer's world is to wear to the last the garment of the retinal impression, to claim no greater depth than the play of light."

Further indication of Vermeer's concern with "the play of light" can be found in his careful treatment of cast shadows. In the "Young Woman with a Water Jug", for example it is the shadows of the map, the chair, and on the wall under the window that help place the objects in the picture space. The observation of shadow shape, size and degree of sharpness of edge relative to distance between the object casting the shadow and that surface on

3. Philip Hale, p. 67
which the shadow appears, is a primary way of reading the relative position in space of the object matter. Note the diffused edge of the chair's shadow on the wall compared with the map's shadow on the same wall. The map's shadow edge is sharper clearly indicating that the map is closer to the wall than is the chair. The fact that the woman casts no shadow on the wall indicates that she is sufficiently far away from the wall so as not to interfere with light reaching it.

While discussing shadows as placing objects in relative space, we might consider how his treatment of light further contributes to clear spatial relations. The justness of his study of edges (the separation of one form or mass from another) is significant. Edges vary in character according to the conditions of light, their distance from the spectator, and their own intrinsic sharpness or softness. There is the complete absence of linear contours found in so many artist's work. Vermeer's edges become more diffused as the objects step back in space, the difference of diffusion between two edges being dependent directly on the differences in distance from the spectator. According to Philip Hale it was the sensitive study of edges that gave Vermeer his mastery of light and shade.

5. See Appendix para.
6. Hale, p. 66
In his best paintings one is struck by the balance of his composition. Besides shape and rhythm, dark masses that are per se dark and light masses, per se light, are used as important elements of the composition. It is important to realize that these light and dark masses in his compositions must have been controlled by the initial placement of his object matter. His compositions are usually simple (particularly in his later works) and include only those objects necessary to the composition. His subjects nearly always look posed, set up with great care. It is this quality plus the idolatry of the appearance of things in light that leads one to believe that the balance of dark masses and light masses was achieved before he actually began painting his picture.

"He did not rely on dark shadows as Rembrandt and also some of the Italian masters often did, to get him out of a compositional difficulty by indicating a murky passage due to temporary or accidental conditions.

Vermeer often designs in dark against light. This is the reverse of the method of nearly all the Netherland paintings. They employed a dark background as a foil to a light figure. This can be observed in the "Women at the Casement Window", the "Reader", the "Pearl Necklace", and several others including the "Young Women with a Water Jug." He crowded areas of lower value in the foreground

7. Hale, p.83
against a more luminous middle distance even when he did not place his figures against a paler background. The "Young Woman with a Water Jug" will again serve as an illustration. The picture space is divided into alternating light and dark areas. In the foreground the side of the table facing the spectator is in shadow. The top of the table is in light and separates the darker figure from the foreground. The wall is light silhouetting the figure.

Light, in the history of painting, has often been used in a psychological sense, (as a way of influencing the observer as to what the artist thinks is important in a work) and used as a means of telling a story. Often these two uses were connected. Rembrandt is the best known proponent of light use in this way. Vermeer, however, never used light in quite this manner. He avoids telling a story. Often there is some anecdotal thread but it is tenuous excepting "The Studio." The color scheme, the design, the rendering—these engaged his attention and enthusiasm. Vermeer is thus in favor with those who believe in art for art's sake—a particularly modern outlook.

Vermeer endeavored to paint each tone relative to what he saw, whether warm, neutral or cool. His use of color had no scientific basis. He merely observed the appearance of things more closely and more natively than

8. Hale, p.84
others. Very apparent is his "rejection of both the mechanics and the mental background of painterly perception." The representational rules themselves create the very visual consistency which establishes the perfect order that we see.

In summary the Vermeer's description is always exactly adequate, always completely and effortlessly in terms of natural light. He relies entirely on the retina as his guide and abhors preconception and design in the representation of the visual image. This is not to say his works lack design. The composition, in terms of color, space, and surface design, is established in the setting up of the object matter before the painting begins.

The simplicity and strength of his compositions reminds us of the Japanese designers. Their use of agreeable, well-planned distribution and balance of light and dark masses is very apparent in his work. Philip Hale observes that "he was so situated as to have observed many oriental designs which could have suggested to him his own scheme of pattern (i.e. designing in dark against light).

10. Hale p. 78
11. Gowing, p. 23
12. Gowing, p. 45
13. Vermeer was so situated as to have observed many oriental designs which could have suggested to him his own schemes of pattern, Hale p. 33.
14. Hale, p. 83
In contrast to conceptual representation, Vermeer's treatment is an impressionism of a sort. The definite patterns of localized color which we find in Vermeer is quite unlike the manner of the recent painters called Impressionists. His impressionism is more like that of Velazquez and Manet in that it is in terms of tone more than of color.

Manet is a good transition from Vermeer to the Impressionists of whom Manet will be used as our example. Vermeer gives us an impression of solid bodies through the interplay of shadow and light. When compared to Vermeer's, the figures of Manet look flat. There is a strong light effect in Manet's works, created through the use of bold contrasts. He observed that figures in full light of day in fact do look relatively flat. He therefore reduced the image to essential planes which he painted in bold flat areas. Part of the effect of contrast is due to the omission of transitional areas between light and shadow (in effect the minimum use of surface modeling). Important to the illusion of Manet's light is the shadow areas are reduced to a minimum. "It is as if the lights had spread, consuming all intermediate values and compressing the

15. Gowing, p. 20
shadows into areas so small and concentrated that they may even be reduced to a mere dark line along side of the form." The image is depicted as the eye might see it in a momentary flash of light and with flat objectivity. Manet's light reveals close objects rather than those in depth. With two notable exceptions, the "Le Deseuner sur l'Herbe" and the "Olympia", Manet painted everyday people in everyday clothes. Although these two exceptions were based on traditional works, Giorgione's "Concert Champetre" and Titian's "Venus of Urbino", respectively, they are interpreted in quite different terms. "Manet's borrowing, however, has nothing to do with new interpretation or enlargement of the subject; He is, in fact, not much interested in subject, a subject merely supplies him with forms to be painted. He is interested in a way of doing the picture, the means of representation rather than what is represented." He is interested in art for art's sake.

Manet's indisputable masterpiece, "Olympia," will serve as an excellent example of his light treatment. One of the first things which we notice is the lack of light in the background space. The figure, the bed and the attendant are brightly illuminated in light. This lighted object matter is sharply contrasted against the

18. John Canaday, p.165
dark background of dark browns and dark greens. The black cat at the foot of the bed is almost lost against the background. The cat serves, by its black feet contrasted against the off white of the bed linen and by the lack of contrast of its coat against the background, to tie in the background plane of shadow with the foreground plane of light. Looking at the nude, Olympia, we notice the flattening effect of Manet's light. This flattening is created by the omission of transition tones or by the minimum use of surface modeling on the figure. The modeling has been reduced to almost a line along the edge of the form, i.e., the contour of the left breast, the torso and along the right leg. The most modeling appears on the face, but even this is relatively flat when compared with the modeling of Vermeer or of the Italian masters like Titian.

The seeming simplification of the effects of light to essential planes of light in the "Olympia" is not so simple. The "line" modeling is absent along all contours which appear against the dark background. Olympia's left arm and leg are good examples. The absence of this modeling increases the contrast between that in light and that not illuminated. It also causes the illuminated region to appear more bright due to the great differences between the two juxtaposed areas (without any transition area between them). The same kind of contrast is seen between the attendant's pink dress and the dark green
backdrop. We are struck by the light-dark pattern.

Although figures in broad daylight do, in fact, look relatively flat, Manet has exaggerated this illusion in his painting. The left arm and leg of the figure, which is farther away from the light source, appears brighter (due to the adjacent background) than the nearer arm and leg. There also is more modeling on the nearer arm and leg which makes them appear less brightly illuminated. A tension is thereby set up between the left arm and leg which really is in back of the right arm and leg, and the tendency for these farther limbs to read on the same plane as those in front. Another example of this tendency to flatten depth to a surface pattern of light can be seen in the white paper in which the attendant brings the flowers. The whiteness of this paper, though in back of the bed in space, is as great as that of the bed linen in the closest foreground. Almost as white too is the collar of the attendant's dress which is still farther in depth. Due to this similarity of brightness, all these areas read on the same plane in light, denying what little depth is expressed through the placement of the object matter. Depth is further denied by the foreground area of dark brown of the bed at the lower left hand side of the picture as the color is the same and the brightness is the same as the backdrop in the background.
In general there is more modeling in the foreground objects than in those farther back in the picture space. The contrasts of those flatter areas in the middle distance against the background is greater than the contrast between the foreground and the background. The middle distances appear brighter against the background causing them to read as on the foreground plane.

The light source must be large (daylight probably) as a smaller source would create larger shadow areas and would demand more surface modeling. There are no large cast shadows except that which is cast by the cat. This particular deep shadow is consistent with the use of the cat to tie the background to the foreground, as the shadow's value and hue is very close to that of the background. This connection of foreground and background plus the almost uniform low value of the background itself tends to flatten the overall sense of depth in the painting. This runs into conflict with the tendency of low, neutral values to recede. This tendency creates a tension which is felt most strongly with the dark brown of the bed in the lower left foreground of the painting.

The shallowness of picture space found in the "Olympia" can also be found in Manet's "GareSaint-Lazare", but it is achieved in a different manner. In "Gare Saint-Lazare" Manet's light has the same essential characteristics
(its flattening effect, etc.), but in this case light is not limited to the foreground. The "Gare Saint-Lazare" is a painting of a young girl and her nurse. The nurse is seated and facing the observer, while the young girl grasps the iron fence and peers into the background space. The young girl and the nurse are in the foreground. Immediately in back of them and extending across the entire picture is a almost black iron fence which separates the foreground from the background, obscuring and breaking it up. The boldness of the contrast of color and value between the dark fence and the light background causes the fence to read on the surface. It does much to deny what space is expressed in the background through parallel plane recessions. The fence tends to halt the observer from looking into the background as he follows the gaze of the young girl. In this work Manet's light brightly illuminates the background—particularly the smoke which fills most of it. The smoke is used to obscure any background objects which might cause the observer to linger in the picture space. The smoke is illuminated enough so that it tends to deny its place in the picture depth. When we follow the girl's gaze, we see only white smoke. The contrast is greatest, with the dark fence against the white smoke (where the girl's gaze leads us).
In the "Olympia", the light grouped the figure and the attendant together on one plane. In the "Gare Saint-Lazare" the lighter areas which are grouped together are the background and the little girl, establishing a compositional relationship between the girl and the background into which she is gazing. Manet creates a tension in the composition by putting in the dark fence separating the girl from the background with which she is compositionally grouped. The nurse is not interested in the background and is grouped with the dark area of grass in the foreground. An "L" shaped area is formed by the darkly attired nurse and the darker grass in the foreground. By placing the girl such that she blocks out the dark grass, she ties in the foreground with the background much as the cat did in the "Olympia".

The "Gare Saint-Lazare" represents a slice of everyday life caught in a moment of time. Manet is a passive observer of the scene; he represents on canvas a momentary vision which anyone might see in a passing glance in his everyday life. His "Olympia" is less a slice of everyday life. It is a traditional theme handled in a new way, a very vivid way.

Above we have discussed Manet's minimum use of surface modeling and its flattening effect. That lively, vivid quality we see in all of Manet's paintings can to a great extent be attributed to this summary modeling. For besides
stating the subject in greater contrast with its surroundings, and alluding to light, his summary modeling offers distinct advantages in the use of color. "The broad light areas of Manet’s forms could be painted in colors at full intensity over their whole breadth, whereas in conventional modeling the color would have had to be depauperated by darkening and graying where it began to turn into the intermediate tones between light and shadow," To further emphasize the broad expanse of color in the lights he often exaggerates what blackish and greenish tones appear as shadow. The blackish background of "Olympia" emphasizes the broad areas of color such as the pink dress of the attendant, the flesh tone of the nude and the whiteness of the bed linen. Manet applies his paint flatly in large spots of color placed next to each other. The result is a vivid boldness and simplicity of presentation.

Manet has often been called the leader of Impressionism. His paintings of everyday people caught in an instant of time, and his bold presentation of whatever subject matter he chose were admired by many of the younger painters. Manet was primarily a figure painter whereas most of the Impressionists were landscape painters. What the

19. Canada, p. 163
20. John Rewald, the History of Impressionism, (NY, 1946), The Museum of Modern Art, distributed by Simon and Schuster, p. 44
Impressionist chooses as his subject matter is not important, however. It is the attitude with which he views his subject which matters.

The Impressionists said "record the visual impression exactly as you see it not as you know it to be." They soon realized that this wasn't factual recording. The artist must intensify and transfigure his object to agree with his impression. 21 The impressionist does not analyze form but attempts to reproduce the effect of the light reflected from that form, rather than the form of the object reflecting it. The impressionist paints what he sees not what he knows. He paints colored light, "light colored because it is reflected from the varicolored objects making up the world—the impressionists will shatter the surface of their canvas into thousands of fragmented tints." 23

The momentary vision and the portraiture of light both imply a loss of compositional form and a loss of solidity in individual forms. 24

22. Canaday, p. 182
23. Canaday, p. 184
24. Canaday, p. 184
Impressionism devoted to the representation of the effects of light out of doors is exemplified most purely in the painting of Claude Monet (1840-1926). He pushed this technique to its limits, and in his later years, beyond. Let us look closely at several of Monet's works.

In "View of Antibes" we certainly see the illusion of directed light throughout the picture. Monet has created this illusion by setting up consistent light, shadow relationships. The light is coming from the left side of the picture as indicated by the yellows on the left side of the foreground bushes and the cool blues on the shadow side (the right). In the foreground many browns, yellows, greens, light blues and pale reds are juxtaposed and intermingled. At close range we can see each individual colored stroke by itself, unmixed on the palette beforehand and not blended on the canvas. At the distance the eye mixes these multicolored strokes, resulting in a vibrant color unattainable by blending or pre-mixing.

The effect of one color next to another was studied extensively by such men as Chevreul, Helmholtz, Maxwell and Rood. The Impressionist painters studied these treaties with care. Monet was no exception as indicated by his color harmonies. The Impressionists were particularly interested in the color found in shadow areas. They

25. Canaday, p.185
observed that the shadows were not so neutral as past painters had depicted them. Shadows were illuminated by colored light reflected from nearby surfaces, not blackish or grayish as usually always depicted in the past. We can see in "Antibes" the blues and greens in the shadow side of the bushes. Across the water the shadow side of the city buildings are juxtaposed, violets, blues, and greens, but not blacks or greys.

The illuminated side of the buildings are made up of pale yellows, off whites, pale pinks which, when combined by the eye, give off a warm, vibrant light which contrasts with the cool adjacent shadows. The water in the middle distance is shot through with blues and greens, with white violets and some yellows. In this stage of Monet's impressionism form has not disappeared, although light is permeating and softening its surface and edges, obscuring its details. The feeling of atmosphere is achieved also from the vibrating color. Very important to the illusion of atmosphere is the increased use of blues in the background space, alluding to the effect in nature called scattering.

"Light is morning light, or that of noon or dusk; it is the light from a summer sun or of a winter day, it is the light of rain or cloud or blue sky. If painters are to deal with light alone they must give us those instants."

26. Canaday, p.185
27. Charles E. Gauss, Aesthetic Theories, p.22
Monet painted the Rouen Cathedral facade (forty pictures) and a haystack (fifteen pictures) over and over again under different conditions of light as it changed from moment to moment during the day. The subject matter is light, the cathedral or haystack is merely a motif over which numerous variations are played.

Monet's quality of light and shade was far beyond the simple recording of nature. His sensibilities of general color harmony had outstripped recording. "Light had been intensified past the place where it had been drawn from nature. It became a formal element usurping the place of structure and was labored beyond its potentialities as the vehicle for form." Shadows whose illumination and color had been carefully represented in Monet's earlier works became so illuminated and colorful that they no longer appeared as shadows, but instead appeared equally pervaded by light as did those areas in full light. Monet in his later works became more interested in an abstract problem than in responding to nature. His technical process of juxtaposed color, which created a vibrant light, devoured the object matter he chose to depict.

Monet's last work was of water-lilies, but the forms of nature are barely discernable. These works are more to be regarded as abstract arrangements of color applied in

28. Gauss, p. 23
directed strokes. "The colors are woven and built into a structure that is its own reason for being." 29

It is Monet, the Impressionist, who painted spontaneous approximations of visual effects of light and atmosphere (in his earlier work) who we want to have as background for the Post-impressionists. Of Monet, Beam says: "He saw only color, movement, and light. He had little interest in the contours, masses, and surface textures of forms. Judging by his paintings, his impressions had small room for the solid world." Charles Gauss said that the ideas of impression led to their own disintegration and painters began to search for a new aesthetic. 30

The main body of this thesis will deal with four post-impressionist painters who found new, individual aesthetics. With this general background of light treatment, we will look closely at the way Seurat, Cezanne, Van Gogh, and Gauguin broke away from impressionist light treatment as seen in Monet.

29. Canaday, p.188
30. Philip Beam, Language of Art, p.248
31. The Aesthetic Theories of French Artists 1855 to the Present, p.23.
CHAPTER TWO

Georges Seurat: NEO-IMPRESSIONISM

Georges Seurat (1859-1891) reacted against the Impressionist's waue forms and against their apparently hap-hazard compositions. He was not willing to be faithful to the momentary observation. Seurat was intent on pulling together again the disintegrating forms of impressionism, redefining their boundaries and solidifying the masses that had become ambiguous in their fusion with light and air.¹. Seurat, like many of the impressionists, studied the writings of Chevreul and Ogden Rood on the science of color contrasts. "He was too much in love with scientific research not to want to generalize the laws of harmony and color in precise formulas applicable to the visual arts."² Seurat, by any comparison, was the most systematic in his painting.

Seurat has been termed a neo-impressionist. He did not reject the main ends of impressionism rather he rejected the means to those ends. The ends are the same: light and color.

¹. Canaday, p.328
The technique of the impressionist is instinctive and instantaneous where that of the neo-impressionist is deliberate and constant. "The important thing for a neo-impressionist is that a work of art is a synthesis of the color values composing the canvas." Seurat said that if we admit the duration of luminous impressions on the retina, synthesis imposes itself as a result. The means for expression is the optic mixture of tones and colors, that is, the mixtures of lights and their reactions (shadows) following the laws of contrast, diminution, and irradiation."

Paul Signac in his D'Eugene Delacroix an neo-impressionisme says that the neo-impressionist has developed the technique called divisionism in employing the optic mixture of tones and colors. They have used this manner of painting because by using it they can obtain greater luminosity than by any other means. Before analyzing a specific work by Seurat for light treatment, it might be interesting to refer to two small paintings done by the author. These paintings attempt to illustrate just how much more luminosity can be attained by using the divisionist technique. The author had painted one in the divisionist technique, the other with the paint applied flatly, the color blended on

5. Gauss, p. 27
the canvas. The same scene is used in both paintings and
the colors (seen at a distance) were made as similar as
possible. We certainly must agree that there is more
luminosity created by Seurat's technique. This results
from the vibration or contrast between the many juxtaposed
dots of color which when seen at a distance are optically
mixed. This technique of juxtaposed dots of color has been
called "pointillism". This really is a misnomer. The new-
impressionist did not "pointille" but divided, employing
the little daube of color because of the necessity of doing
so from scientific principle. "Divisionism assures them
luminous colorful, harmonious effects through: the optic mix-
ture of pigments; the separation of diverse elements, color,
form, light and their reactions; the equilibrium of these
elements and their proportion (according to the laws of con-
trast, diminution, and irradiation); the choice of touch
proportional to the dimension of the picture." Divisionism
is merely the separation (division) of color into its com-
ponents (i.e.), blue into yellow and green as shown in the
author's painting mentioned above. "The basis of division-
ism is contrast, and is not contrast art itself?" asks Signac.

The sensory aspect of light is for the neo-impressionist
as well as for the impressionist the fundamental aspect of
nature. The impressionist was, to a great extent, willing to
depict this aspect of nature as he saw it at a glance. The
new-impressionist proceeds from the vision of nature to the

6. Gauss, p. 27
traditional rules of art itself. The artist arranges what
he sees, manipulates his vision into controlled color arrange­ments and into a desirable composition. So much space has
been spent on the neo-impressionist technique because it is
this technique which allowed Seurat to create the light he
did.

"A Sunday Afternoon on the Island of La Grand Jatte"
summarizes Seurat's aesthetic. The artist made a great
number of drawings and sketches in oils as studies for "La
Grand Jatte". Such careful preliminary work was a change
from the spontaneous expression of the sensations of the
impressionist painters. We are struck, when we look at "La
Grande Jatte," by the clarity of the forms, even of those
deep in the picture space. The contours of the figures have
been simplified to silhouettes in accord with their basic
geometric equivalent, modified so as to increase their effect­
tiveness as pure design. Unlike Monet, Seurat's taste was
for the most exquisite precision of contour.

The canvas is full of vibrating light and its reactions
(shadow). When "La Grande Jatte" is viewed at the proper

8. Rewald, Seurat, p. 20
9. Canaday, p. 329
distance, such that optical mixture of color takes place, the light created seems to adhere to nature's laws. Those areas in shadow are made up mostly of strokes rendering the local value of the grass; others, orange-tinted and thinly scattered, express the hardly felt action of the sun; bits of purple introduce the complement to green; and a pale blue thinly scattered hints at atmospheric effect. The very warm areas in sun light are made up of pale green and orange. The sunlit area adjacent to the foreground shadow is lighter next to the shadow-edge to better define the difference, by increasing the contrast between the two, thereby making the illusion of strong light greater. The light source is orange tinted as indicated by the addition of orange daubs to the grass and other objects.

In "La Grande Jatte" the treatment of light is very important to the composition. The narrow shapes of the shadow areas are important horizontal elements in the composition. They serve to mark off the distance into the picture space by breaking up the uniform hue of the grass into alternating light and shadow. These alternating light and shadow areas perpendicular to the many vertical forms (the tree trunks and many of the people) give the static stable feeling we get from the surface pattern and from the composition as a whole. (The author's painting in divisionism illustrates this use of alternating light and shadow as horizontal elements both
in the composition of depth and of the picture plane.)

Although Seurat's figures exist more as silhouettes than as full solid forms, light plays an essential part in expressing what solidity that does exist. It is because light is used thusly that the forms which are in direct sunlight have more solidity than those which exist in shadow. This is particularly noticeable with the figures in the middle distance of the picture space.

Not only do the figures in light have more three-dimensional form, but they also have more color contrast and therefore react more strongly with the background and have a tendency to read on the surface. Seurat carefully limits the color contrasts of the figures which exist in shadow (in the foreground). The purples and dark blues of the shadow are juxtaposed with the local color of the forms. These dots of blue, purple and green can be found intermingled even with those tints which make up the flesh tones. The black dog in the foreground is shot through with these same greens and blues of the grass. This creates the illusion that the figures really are in a shadow which envelops the air around them and not merely situated in a dark patch of grass. The figures in the shadow dabbed with the blues and greens, and the area of the shadow itself, tend to recede by the nature of cool tones to recede. The warm tones of the middle distance and the figures occupying the same (plus the greater contrast of color in this region)
tend to come forward. A tension is created between this foreground area which tends to recede and the middle distance, and the far distance in light, which tends to come forward. This tension gives the painting a vitality which augments the vibrant light. The green shadow areas on the ground lighten very slightly as they appear farther in the picture space. The green shadow areas of the foliage in the middle distance are darker than the foreground greens and tend to seek the surface. The decrease of the pointille effect in the foliage helps keep these trees in the picture space.

Light is, by its consistent treatment and direction, a unifying element in "La Grande Jatte". Seurat has the light coming from the upper left. Light to shadow modeling is consistent--the shadow side being to the right. The picture depth is unified by the alternating light and shadow planes, by the pattern of light.

"La Grande Jatte" demonstrates his completely worked-out technique. Three years prior to painting this he painted the "Stone Breakers" using large sweeping strokes. This work was extremely luminous. Great masses of light and shadow express the subject. This work is much more characteristic of impressionism than of his developed technique. The vision seems more instantaneous. Seurat applied strokes on top of one another without blending them much as Monet did. The divisionist technique is not used in this work.

10. Rewald, p.8
although juxtaposed color (to be optically mixed to a degree) is. The shadow areas are blue and green with some purple. The luminosity of this painting is achieved through sharp contrasts of the shadow areas and the areas in light. Some purple has been sparsely placed on these warm hues (areas in light) which by contrast makes the warm tones appear even warmer. The shadow cast by the wheel barrel is green with purple and is surrounded by areas in light. Simultaneous contrast makes the shadow area appear darker thereby intensifying the sense of bright light on the surrounding ground.

The figure is not forced into geometric equivalent as in later works, nor are the contours as definite as in "La Grande Jatte". Light does serve to express depth in the "Stone Breakers". The left foreground is in shadow; the middle distance is in light; the farthest distance is in half-light going into dark blue shadow. This alternation of light and shadow in parallel planes to the picture plane leads us into the picture space.

"The Circus" was painted in 1981 and was Seurat's last work. "The Circus is an odd picture, with its thin, rather stringy forms and its immobility, which denies the theoretically lively action of its subject." Looking at this

Canaday. p. 334
last work of Seurat's the limitations of divisionism or pointillism become obvious. To use a technique which is as painstaking and slow as is Seurat's divisionism on a subject which needs freedom, action and motion seems to be attempting the impossible. In this case the results indicate that it was impossible. The technique lent itself so well to creating a static permanence to the scene in "La Grand Jatte." Theoretically, "the lines swirl in the right way to express action in "The Circus." Theoretically, the silhouette of the rider's skirt should express gaiety by its upward movement above the horizontal. The colors are reds, oranges, and yellows which are, in Seurat's codification of rules, expressive of action and gaiety. All these "theoretically" don't work because of the technique itself.

"The Circus" has an indoor setting of limited space, instead of an outdoor one with deep space. The illusion of artificial light rather than daylight becomes the artist's problem. Action instead of static permanence is the mood. As a demonstration of his technique "The Circus" is successful, but as a picture which speaks for itself it is a failure. "La Gande Jatte" must remain Seurat's great masterpiece, his primary statement of his theory on light, composition, and technique. His light basically was that of the impressionists as indicated clearly in the "Stone Breakers." To this he added careful composing, and solidly defined forms which were modeled in light not disintegrated by it. He
refused to approach his subject matter with spontaneity, or as seen in a moment in time. He gave the observer a balanced composition filled with well-defined contours of all objects; and by his divisionist technique, he gave the observer the illusion of vibrant light.

The neo-impressionist and impressionist needed artistic sensibility but their painting was, to a great extent, scientifically orientated.
CHAPTER THREE

Paul Cézanne: His Development

Some artists were bound to reject the "scientific" painting of the impressionists and neo-impressionists. Paul Cézanne was not a studio theorist and insisted that the painter's first allegiance was to his subject. He must work in the presence of his subject. He denied any connection between science and art. He probed, instead, the relation between art and the natural world. "I have tried to find the geological substructure," was how he put it. Cézanne denies that the visual sensations are primarily of the luminous surface of bodies. He maintains that we perceive receding planes by means of light and color. The painter, Cézanne believed, should be concerned with depth, the plasticity of nature. Cézanne wanted to "make of impressionism something solid and durable."

The impressionists, in breaking their colors and applying the multiple tints in individual strokes side by side, conceived of color as a manifestation of light, and specific kinds of light. Cézanne was a contemporary of

2. Charles Gauss, Aesthetic Theories, p. 45.
3. John Canaday, p. 341
the Impressionists and from 1872-1877 he was painting as an impressionist. He soon became dissatisfied with what they were doing; thus, "turning his back resolutely on Impressionism (of which he retained little but a few aesthetic pointers), he set out methodically to ascertain in the scene before him—Nature at her most candid, and denuded—not how it was, but how it acted." It was for him to detect in nature her essential organic structure. The transient effects of impressionism are rejected. In the world Cézanne paints there is no time of day—no early morning, no noon, no early evening. There are no "effects" of season or weather. His forms exist in a uniform and enduring light that impregnates and reveals. Cézanne's light does not flow over objects or consume them. His light is a pervasive light, integral to the canvas; "it is 'painted in' with every stroke of color."

The broken color of impressionism which when optically mixed creates a vibrating light in air did not interest Cézanne. What did interest him was the use of impressionism's strokes of varying color to express form. The optical tendency of warm colors to advance and of cool colors to

5. Canaday, p. 341
6. Canaday, p. 341
recede is the basis of Cézanne's color modelling. The object being painted might consist of many small planes of different colors. An apple might be changed into a roundish form of facetlike planes which might go from purple to green from green to red, from red to orange, from orange to yellow as one plan succeeded another.

Let us look at Cézanne's development and how his light treatment changed. Cézanne's first period is one of confusion, and groping. As indicated by the "Man in a Blue Cap (Uncle Dominio) painted in 1865-61 Cezanne's early work is impetuously stated in a strong but dark and oppressive manner. Other works such as the "Autopsy", the "Lazarus", or the "Assassination" illustrate this early period also.

In the "Lazarus" we sense something of the spiritual fervour in which it was conceived. The paint is laid on in a full impasto with giant sweeps of a large, heavily-loaded brush. The color is intensely personal with black and white predominate. The black often a dead black, the white scarcely toned. The nude figures are entirely in this menacing "grisaille", against which the vermilion touches clash. Pale sky-blue and green complete this unusual color chord.

7. Canaday p.341
It is the exact opposite of the complex color scheme of infinitely gradated color associated with Cézanne's later work. The very strong chiaroscuro effect and the lack of half-lights give an impression of strong light like that found in Manet's "Olympia". The shadows are deep and obscuring. There is some sense of directed light coming from the left side of the painting. Because the value or brightness of the figures is way above the other areas in the painting, the figures seem to glow in strong light. Cézanne seems to be interested in creating a dramatic effect, the attempt to convey by the shock of these masses of unbroken color-the tragic emotion at which he aimed.

These earlier works "were all conceived from the data of the inner vision; they were the result of Cézanne's invention rather than his direct observation of nature. 9

The years 1873 and 1874 were of greatest importance for the development of Cézanne's artistic personality. He came into contact with Pissarro and became in effect apprentice to him. During this period of association Cézanne painted the picture of "Auvers". This impressionistic work describes a road going diagonally back into

9. Roger Fry, Cézanne p.18
10. Roger Fry, Cézanne, p.34
the picture space from the center right to the left. The road is bordered by a clump of three trees and a house. A woman and a child walk on the road. In the background center there are some seven houses, and a few trees and bushes. It is executed so entirely in Pissaro's Impressionist manner as to be almost mistaken for a picture by him. The difference is essential for although Cezanne may be obedient to Impressionist doctrine he remains more self-determined, more positive than his master. His color sense prevails above all and the summary synthesis of his earlier color is abandoned. He enters into all the complexities revealed by nature. "The smallest face of stone wall becomes, for his analytic and searching gaze, of unspeakable richness." The grey of the wall contains tints tending toward violet, towards blue-green and blue, and with hints towards yellows and oranges. A brighter light falls on the road, contrasting strongly with the clump of trees on the left. The two figures cast long shadows towards the picture plane indicating that the light source is from the back left.

"The House of the Hanged Man" (1873-1874) is another standard example of his impressionism. It is much more

11. Fry, p.36
12. Fry, p.36
concerned with rendering the objects than with rendering the light effects themselves. It has the heightened color instead of the earlier blacks and browns, and his application isn't so broad as in his earlier works.

As has been mentioned above Paul Cezanne did not stay with impressionism. Light was not to be his subject matter. He wanted the solidity, depth, structure, or, in general, the underlying organization of the visual world. In a letter to Emile Bernard, he says of light: "An optic sensation is produced in our visual organ which makes us class by light, half-tone or quarter-tone, the planes represented by colored sensations, (light does not exist, therefore, for the painter)." Light then is the means of the artist to see planes (structure) in nature.

The Third period of his development extends from 1878-1887. It is during this period that he matures as an original artist. In this period of "adolescence", so to speak, Cezanne turned to still-lifes for subject matter. It wasn't that he rejected nature as source material but that only still-lifes allowed him sufficient time, admitted all the delays which were necessary for him to seek out his idea.

14. John Canaday, Mainstreams, p. 350
15. Roger Fry, Cezanne, pl 39
Using fruit he sought to trace the "notion that changes of color correspond to movements of planes throughout all the diverse modifications which changes of local color introduced into the observed resultant."  

"Still-life" (Boston Museum) will serve for our analysis. It consists of some ten fruits (oranges, apples, and lemons) in or near a white dish, in back of which is a jug. These are set on a round table with a dark blue cloth. We sense light in this canvas. The nearest orange has an off-white highlight on its center, concentric to this is a yellow-orange spreading outward, then an orange-red and an area of green-yellow near the outer edge. The yellow-orange being brighter and warmer advances in front of the orange-red, the high-light in front of the yellow-orange. Thus the sphere is modeled from dark (the edges) to light (the center) in colors which by their relative warmth advance different amounts thereby expressing the solid form. Light falling on this form appears to be the cause of these different colors. The modeling, unlike that of Vermeer or Manet, does not proceed from a more neutral lower value to a more intense higher value. In fact, often the lower value color at the edges of Cézanne's forms are more intense than the higher value color—such is the case in the described orange.

Fry, p. 39
of the "Still-life." Having a more intense color at the edges denies the action of real light on the sphere, and tends to create an over-all surface pattern of color, leaving the rendering of the solid solely to hue change. There is a shadow cast in the dish by the orange we have been discussing, further implying a light source. Although Cézanne does imply light we must constantly come back to his statement that light, half-tone or quarter-tone make us class the planes represented. His concern is representing planes not representing light, and to insure that these planes are discernible he willingly outlines contours to separate one plane from another in back of it. Our orange has a broken outline of red-orange to separate it from the lemon and other oranges in back of it.

The gray jug in back of the dish of fruit has a highlight similar to the foreground fruit. The gray has tints of rose, yellow ochre, red-orange and violet in it as if some of the color from the fruit was reflected off the surface of the jug. The background drape too has a lighter area below the diagonal fold, and is also shot through with rose, blues, violets, and greens. It would be impossible for these tones to be attributed to reflectance and it must be assumed that they are merely used to tie in the color scheme and to liven what would otherwise be a "dead" area. Such arbitrary insertion of color would be out of the question.
for Vermeer or anyone else using light as the basis of the treatment of object matter, but for Cézanne it was mandatory.

"L'Estaque and the Bay of Marseilles" (1883) is representative of the landscapes done during this same period of development. There is a tremendous sense of organization in Cézanne's "transmutation" of the subject matter (in this case, water, sky, foliage, small architectural forms—all except the last are elements favored by the impressionists). Besides the houses and factories being architectural forms, the entire landscape is treated as having architectural structure.

In a letter to Emile Bernard, Cézanne says to "treat nature by the cylinder, sphere, and the cone; the whole placed in perspective, let each side of an object or a plane be directed toward a central point. Lines parallel to the horizon give extent..... Lines perpendicular to this horizon give depth. Indeed, nature for men is more a thing of depth than of surface, whence comes the necessity of introducing in our vibrations of light, represented by the reds and the yellows, a sufficient sum of blues for the air to be felt." In his process of simplification, Cézanne paints volumes not houses, planes and not walls. Such being the case the interest must lie in created abstractions, not in

imitated picturesqueness.

Paul Cézanne placed forms in a perspective expressed by color instead of vanishing points. "The principle under which the artist orders his perceptions is recession from the eye. From this he perceives volumes in depth, overlapping planes, and the blue effect of aerial perspective." In "L’Estaque and the Bay of Marseilles" the recession into the picture space is by parallel to the picture plane recession, with overlapping to distinguish separate planes. These means do not imply that Cézanne wanted to create the illusion of distance in this or other works. There instead seems to be a limiting of space. The bay and the mountains on the far side tend to come to the surface, the bay because of its large area of relatively flat color, the mountains because of their size and modeling.

The light treatment has changed. High-lights and cast shadows, for the most part, have been eliminated in "L’Estaque and the Bay of Marseilles". The light is more a pervasive light emanating from within the object matter than directed light acting on the surface. Cézanne is not trying to create the effects of light. He does represent light through the colors (reds and yellows). Similarly the atmospheric effect (scattering) is represented by strokes of blue (on the distant

mountains, and wooded areas). There is a fairly consistent modeling of the buildings, with the darker side facing the observer. We might read this as being caused by a directed light from the right because of one cast shadow on the nearest most roof. However, if this was a directed light whose reactions were carefully observed, the sides of the roofs facing the observer would likewise be darker. They are not, indicating a stress on expressing solidity and not on expressing light per se. If light was consistent and directed the flat area of water would be broken into many more facet-like planes of lighter color. The mountains further express an interest in structure and solidity. For if light was striking the mountains, we would find more intense, higher value hues on the light receiving side.

The fact that the darker values mostly appear on the same side of the object matter, is unifying in effect. Cézanne observed directed light striking the scene before him, but he did not desire to create the illusion of real light (as did Vermeer or the impressionists).

In Cézanne's final period (1886-1906), we find forms approaching complete abstraction. Space is further compressed until finally his canvases read as color-planes interacting on the surface. "Fields, mountains, and sky are concentrated into the shallowest depth compatible with the
interlocking crystallization of vivid blue, green, and orange planes."

The forms exist as color-planes only "Mont Sainte-Victoire from Les Lauves" (1904) and "Le Cabanon de Jourdan" (1906) are good examples. In "Le Cabanon de Jourdan", (Cézanne's last painting) we see a sky of intense blue which seeks the surface. The same blue appears in the doorway and is scattered among broad green patches which must be trees. Orange patches of various shades make up the cabin and path. Dabs of this same orange are placed next to the green of the trees, further stating the picture plane.

In these last works the light is pervasive. It is a quality of the color-planes, an integral part, not reacting on the color but the color itself.

Paul Cézanne's light treatment began as a strong chiaroscuro effect in his earliest work, then went through a period of pure impressionist treatment in his second stage of development. In stressing color modeling to express form in his third stage, Cézanne subordinated light and shadow. Finally, in his last works color and light become one and the same thing with no light effects other than overall intensity.

20. Canaday p. 355
The author has painted a landscape in the style of Cézanne. It attempts to illustrate his light treatment in the seventies and early eighties. For later comparison the scene was taken from a Gauguin landscape. The oranges and yellows used in the foreground are the same in the middle distance tending to flatten the space. Enough blues are left along the contour and middle of the mountain to express the atmosphere. The forms are modeled. What depth there is is expressed through parallel plane recession into the picture space. The light is pervasive.
CHAPTER FOUR

Paul Gauguin: THE SYNTHETIC STYLE

Paul Gauguin (1848-1903) developed his style fairly quickly once he had decided on painting as a career. Like Cézanne, Paul Gauguin toyed with impressionism under Issarro's guidance, really in his career. Also like Cézanne, Gauguin rejected it. He had theorized a great deal about what his art should do. For him, creation is the consequence of thought not of a momentary vision. So, by 1885 "the idea" became his motive of art instead of reproducing visible appearances of nature.

"The Impressionists study colour exclusively but without freedom, always shackled by the need of probability.... They heed only the eye and neglect the mysterious centres of thought, so falling into merely scientific reasoning." Gauguin wanted the "right to dare everything in art in the name of the spirit. The absolute and legitimate comination of thought upon nature, and the need of the artist to express thought by artistic means, equivalent to nature's own"

2. The Letters of Paul Gauguin to George Sandriel de Monfreid, tran. Ruth Petkovo, (N.Y. 1922), Dodd, Mead and Company, p.17
3. Letters of Paul Gauguin p.19
Not to have this freedom to paint as one wishes is not to be an artist.

Gauguin sought to translate light (sunlight) into color by simplifying and exaggerating the contrast of colors. He began to realize one cannot reproduce natural decomposition of color as attempted by Pissarro and the other Impressionists. He observed that the Japanese, who were admirable draftsmen, drew life outdoors and in the sun without shadows, color being used only as a combination of tones, into a harmonious color chord. Gauguin said he wanted to "avoir as much as possible that which conveys the illusion of a thing, and as shadow is the 'trompe l'oeil' of the sun, (he was) inclined to suppress it."  

Gauguin stated his ideas in 1888 in a canvas called "The Vision after the Sermon—Jacob Wrestling with the Angel." Painted in Pont-aven, it shows a group of Breton women in regional costume watching Jacob wrestle the Angel in a field of solid bright red. The unreality of the red field establishes a supernatural quality. The women seem to look at the scene literally as a struggle between man and the angel. The women's bonnets are almost flat silhouettes stressing their decorative shapes. In contrast with the flatness of the bonnets and of the robes, the women's faces are modeled.

The two foreground figures on the left show the effects of directed light. The effects are not consistent, however. In fact, light affects each face which we see in a different manner. The lower left figure's face indicates the light most strongly. The edge between light and shadow on her forehead is sharp but diffused on her nose. The contrast between light and shadow is greatest on this figure which balances the larger off-white areas of the over-lapping bonnets in the foreground, off center to the right. The woman off-center on the left has a very soft diffused white light on her forehead and on her cheek-bone.

This apparently arbitrary treatment of directed light indicates a concern not for reproducing real light effects, but rather for manipulating light as an element by which to create balance in the composition, equal surface attraction over-all.

A small cow, out of scale, appears in the upper left quarter to maintain balance. The trunk of the tree cuts diagonally across the composition separating the Biblical struggle from the Breton spectators.

Gauguin insists, in this work, on the right of the artist to effect an entirely arbitrary arrangement of nature, as indicated by the diverse light striking the figures, the reduction of forms to their essential outlines which may just as well as not be distorted or pushed for compositional
reasons, and by the elimination of modeling within these outlines (particularly modeling by shadows). The "Vision" is characterized by decorative rhythm and symbolic harmony.

During this period at Pon-Aven Gauguin painted the "Yellow Christ", the "Breton Calvary", and the "Bonjour Monsieur Gauguin". "These works signalise themselves by the boldness of their conception, the unexpected make-up, the naked brutality of the forms, the radical simplification of drawing, the brilliance of the pure and bright colours which violently harmonise, the ornamental character of the composition, and the wilful flatness of the planes."

Gauguin was the center of a group of painters who called their manner of painting with heightened color, flattened form and heavy boundary lines, "Synthetism". He had studied stained glass windows of the 13th century and wanted to translate the effect of sunlight into luminous color much as the stained glass colors appeared with the light shining through. He treated landscape as a synthesis, a decorative whole not as exercise in analysis of atmospheric vibration. By instinct he discovered, as Cézanne had already discovered, that the sensation of light could not be painted, could only be rendered in color.

6. John Canaday, Mainstreams of Modern Art, p.380
7. Rewald, Gauguin, p.17.
8. Fletcher, Paul Gauguin, p.89
Gauguin was always looking for new sensations and inside he felt that he could paint with complete freedom only if he retired from the so-called civilized world. So he went to Tahiti to paint. In "Noa-Noa" he wrote: "The landscape with its pure and ardent colours dazzled and blinded me. It was so simple after all to paint as I saw, to put a red, a blue on my canvas without so many calculations! Golden forms in brooks enchanted me. Why should I hesitate to make all this gold and all this joy of the sun flow on my canvas? Old European routine, timidities of expression of degenerate races!"

Gauguin believed that he could recover man's primitive nature by leading a primitive life in Tahiti. This yearning to return to a "natural state" is the stuff of all primitivisms. One who is a primitive in life is better able to be a primitivist in art. The works of art will correspond to the emotions and joys he experiences. For Gauguin the work of art was also the symbol of his own emotion: "The work of art for him who can see is a mirror wherein is reflected the state of soul of the artist."

There is an expression (the music of the picture) resulting from the particular arrangement of colors, lights and shadows. Even before knowing what the picture represents..."}

9. Rewald, Gauguin, p. 21
11. Gauss, Aesthetic Theories, p. 54
sents... we are frequently seized by this magic accord.... This emotion addresses itself to the most intimate part of the soul. In art color symbolizes this interior emotion; "Color, being an enigmatic thing in the sensation it gives us, can logically only be used enigmatically, every time it is employed, not for drawing but for giving the musical sensations which proceed out of its own nature, its own interior, mysterious, enigmatic force." To Gauguin the work of art and the feelings of the artist are both expressions of a common center. For Gauguin then, true art is not a technical tour de force but a symbol of the state of the artist's soul and is subsequently able to or even forced to go beyond science.

Let us look at some of Gauguin's paintings. "Tahitian Women Bathing" (1892-93) illustrates very clearly Gauguin's style at its extreme simplicity. From the broken brushwork of Seurat and even Cezanne, we find Gauguin applying color smoothly and unvaryingly to a definite area of canvas, much like a block print in its effect. A surface pattern of color is his result. There is no modeling to speak of at all. The light is pervasive, a quality of the pigment. There are no high-lights or shadows. The standing figure just left of center has her back to the observer and is clutching her dark blue hair with her left hand. Her flesh tone

12. Gauguin, p. 56
is uniform throughout and her contours are outlined much as if it was a thin leading between pieces of a stained glass window. A flat area of red with a flat yellow design represents a skirt on which the figure is half standing. The contrast of this red area with the surrounding area of its complementary color, green, is vivid. To the right of the standing figure, another native in a dark blue, off-white patterned skirt sits on the grass. Extending diagonally through the canvas, the green is divided by a fairly wide inlet of water. The ripples of the water are reduced to white strokes which serve as a pattern similar to and balancing that of the blue-white patterned skirt of the seated native. The green of the grass in the upper left quarter is lighter and more yellow asserting the surface of the canvas. The third figure is shoulder deep in the water at the left.

Each area in the composition has its own luminosity value which is relative to the size of the area, and is assigned its value such that the composition is a surface pattern of color of equal attraction throughout. The amount of light "brushed-into" the particular colored area is governed not by the visual effect of light on its surface, but by the need of the particular area for brightness so as to hold its own in the surface pattern.

The amount of modeling is governed also by the need of
the colored areas to maintain equal attraction. A large area, such as the blue area at the top of this canvas, if left flat might be too strong relative to the other areas. Gauguin breaks up the area with limited modeling—just enough such that the attraction towards the area is equal to others. In the blue area mentioned, he has brushed in a few dark, neutral blue ripples to subdue the area. An excellent example of Gauguin's relative modeling can be found in his "Breton Landscape, The Mill." (1894).

"Fatata te Xiti" (1891) consists of a horizontal tree trunk which divides the composition, top and bottom. Behind the trunk three figures contrast against a dark blue sea. Below the tree trunk is an area which seems to be the trunk's cast shadow. This shadow is certainly not realistic for its shape does not follow the contour of the trunk at all. Its shape is significant by itself as a unique shape. Light treatment is arbitrary for Gauguin. He puts lighter areas where they are needed in the composition. Relative to the intensity of colored areas is the desire for a surface pattern of lights and darks. The figure in the middle ground is illuminated more than the foreground figure. A tension is thereby created between the brighter figure's place in depth and the tendency of the figure to read on the surface. Realistic light is further denied when Gauguin places the intense red-orange blossoms against the tree trunk which is in shadow. Such other contrasts such as the
white blossoms against the dark sea stress the pattern of equal surface attraction.

The author has painted a copy of a "self-portrait with a hat" which by Gauguin's abstraction of light effects shows his use of light for compositional purposes. The band of light yellow in the upper left half of the picture is needed to balance the wall painting. The highlights on the face have been abstracted into lighter shapes and areas. Note also the author's copy of "Tahitian Mountain's by Gauguin. When compared with the Cezanne-like interpretation of the same scene, we can quickly notice the flatness of Gauguin's color areas. The "brushed-in" light of the Gauguin is quite different from the color modeling of Cézanne. Gauguin's free use of color as symbol not as representation of nature shows vividly in the red-orange mountains, etc.
CHAPTER FIVE

Van Gogh: EXPRESSIONISM

Vincent Van Gogh took up painting in 1880 when he was twenty-seven years old. "He entered this new life not as one enters a profession but as one accepts a spiritual calling, in fore-knowledge of self-sacrifice." If Monet was "only an eye—but what an eye!" Van Gogh was only soul—but what a soul! Impressionism aimed at expressing visual sensations; Van Gogh's art at the expression of emotional experience. Vincent was hypersensitive and for him "quite trivial happenings had a vast, almost transcendental significance." He had a psychological need to paint as a direct expression of self, as a release of his inner emotions, as a sort of therapeutic treatment for the smouldering unrest that never left him. "Unstable, physically unfit, an erotomaniac," Van Gogh throughout his life" was victim of a temperament at the mercy of every passing impulse."

In 1885 Van Gogh painted the "Potato Eaters". It may be considered the summation of his work at Nuenen, and it also expresses most strongly and fully his social and moral feelings. "I have tried to make it clear how those people, eating

1. John Canaday, Mainstreams in Modern Art, p.363
their potatoes under the lamplight, have dug the earth with those very hands they put in the dish, and so it speaks of manual labor, and how they have honestly earned their food. I have wanted to give the impression of quite a different way of living than that of us civilized people....To paint peasant-life is a serious thing, and I should reproach myself if I did not try to make pictures which raise serious thoughts in those who think seriously about art and about life...."}

The overall tone of the "Potato Eaters" is dark; the colors are neutral; the handling is coarse. The dismal greens and browns of the work are as depressing as the subject itself. The coarse brush stroke lends itself very well to expressing the haggard figures. Light is directed from the oil lamp over the table (at which the five peasants sit). Although the brightness scale of this painting is quite low to express the drab existence of the peasants, Van Gogh has used relative contrasts within this range which make a grey tone appear quite white. Within this low brightness level Vincent has created the illusion of the lamp light falling on the five figures, on the table, etc. Light strikes the face of the left-most man modeling it from shadow to light pretty much as Van Gogh must have seen it. The woman next to the right faces

Vincent van Gogh, ed. by Alfred H. Barr, Jr., introduction and notes selected from the letters of the artist, (NY 1935), The Museum of Modern Art, Dutch Period, para. 9, letter 404.
the observer, the right side of her face is bathed in light, the left side is in shadow. The light source is situated between this woman and the man to the right thus the left side of his face is in light, the right is in shadow. The young girl in the foreground with her back to the observer should be in complete shadow. Vincent has inserted a highlight on her neck to break up the large shadow area.

The coffee cups cast shadows on the table. The man's right arm (on the left side of the picture) casts a shadow on the table. The oil lamp is surrounded by a small glimmer of light which appears to be in the atmosphere, given off by the lamp. The treatment is quite naturalistic.

Early in 1886 Van Gogh left Holland for Paris. In Paris he discovered impressionism, pointillism, and Japanese art. Suddenly his palette lost its drab greens and blues and he took to using pure tones. It was at this time that he developed his symbolic use of color-color as the derivative of his moods.

What a glorious change we find in the color of his portrait of "Père Ganguy" compared with the "Potato Eaters." The colors are vivid. The strong dark blue of the coat in the center is surrounded by emerald greens, yellow-oranges. Strokes and line of Vermillion are everywhere except in the

"Raynal, History of Modern Painting," p. 65
blue coat tying the background in with the foreground. The vermilion at the same time outlines the blue coat separating the figure from the setting. When comparing this with his earlier work, we find the adoption of impressionism's broken color gives his work a "life", an intensity of expression not present before. On the face for example Van Gogh has placed strokes of Vermillion on the shadow side of the face, dark green on the lighted side. The color scheme is vibrant throughout and the warmth of the vermilion, orange-yellows, and yellows helps express the warmth of Tanguy's personality. The background of Japanese prints is very gay in its coloring and the result is a joyous harmony of bright and deep colors. The Japanese heads are rendered in pale flat tones faithful to the originals and contrasting strongly with the multi-colored head of pere Tanguy.

The pale yellow strokes found on the right side of Tanguy's face and on his hands read as highlights. The light which seems to be striking his face, however, fails to strike his deep blue coat with a consistent intensity although the right side of the coat is lighter than the left. A flat area of yellow ochre highlights his left leg. The use of the vermilion outline tends to flatten any form defined through modeling with light and shade. Often also those hues in the shadows are more intense than those in light (an Impressionistic trait).

In Arles in 1888, van Gogh painted "The Night Cafe".
Vincent judged it to be "one of the ugliest pictures I have done."  

"I have tried to express the terrible passions of humanity by means of red and green. The room is blood red and dark yellow with a green billiard table in the middle; there are four lemon yellow lamps with a glow of orange and green. Everywhere there is a clash and contrast of the most alien reds and greens in the figures of the little sleeping hooligans, in the empty dreary room, in violet and blue. The blood red and the yellow green of the billiard table for instance contrast with the soft tender green of the counter on which there is a nosegay in rose colour. The white coat of the patron, on vigil in a corner of this furnace, turns lemon yellow, or pale luminous green." "I have tried to express the idea that the café is a place where one can ruin one's self, run mad, or commit a crime.

Vincent's light treatment is always governed by what he is trying to express. The billiard table casts a large shadow establishing the importance of the table to the painting. The lamps above cast this shadow. A little of the lamp's yellow has been brushed into the green table top to show the light's oppressive warmth. Around the lamps themselves van Gogh has

7. *letter 534.*
concentric circles of broken color (orange and green) which spread and fade into nothing a short distance from them. The resulting glow given by the optical mixture of this orange and green results in a color unlike that given off by any known light source, but this does not matter. Expressive quality of color is all that matters. This lamp light is mixed with the local colors of all the objects and envelopes them in a heavy warm atmosphere.

The perspective is exaggerated and pulls the observer headlong into the picture space. This force is halted by the broad horizontal band of the red wall.

Vincent van Gogh's last period is at Salt-Rémy. It was during this last period that he painted what is probably his best known work, "The Starry Night" (1889). This work exposes van Gogh at one of his most passionate, vehement moments. The transfigured night sky seems to explode in a rushing movement from left to right. This dynamic motion is achieved through the uniform direction of the brush strokes which course upward through the landscape, into the hills, and then into the sky. Van Gogh has placed a lighter area next to the hills so as to distinguish them from the sky. The moon and the stars are surrounded by concentric circles of pale yellow which mesh with the major movements. The major movement in the sky is composed of dark blue and a very pale blue applied in directed brush strokes. The same pale blue appears on the landscape affecting the illusion of light on the town.

To these active, swirling lights, the rectangular, station-
ary lights of the town contrast. The cypresses act as a break to the sky's movement. The greens and browns of the trees contrast with the blues of the sky making the sky appear more luminous. The pale blue of the sky is used in the town on the church and on the other building illuding to the reflection of the cool light of the sky.

The moon itself has been depicted as a yellow form in the shape of a new moon. Being surrounded by blue, the moon, because of optical mixture, appears to have a tint of yellow green. The celestial whirlpools have white or pale blue strokes to prevent the tone from becoming too warm and thereby from destroying the cool atmospheric effect.

Another work of this period illustrates the use of concentric rings of yellow and orange around the light source to show its radiance. "Landscape with Ploughed Fields" depicts a furrowed field with the sun just over the horizon. These concentric rings of the sun are carried into the hills, and dabs of the yellow are interspersed and follow the direction of the strokes of the field. By doing this Vincent has achieved a sense of the field being bathed in the warm sunlight. Pale blue strokes invade the field giving a sense of atmosphere to the work.

Van Gogh does not always choose to depict light in the above way. Often as in Wheat Fields with Cypresses, objects retain their local color and only by the brightness "brushed-in" do the objects read as being in light. The brightness
"brushed in" is of the color of the source. As there is no sun visible, a very pale sky blue is brushed into the local color (i.e. into the yellow of the wheat, the green of the bushes). The hills in the background are blue-obeying but exaggerating nature's appearance.

The light treatment is a unifying element for van Gogh for it is usually handled consistently within a given painting. He makes no attempt to represent the visual mode treatment as did Vermeer. He does, however, observe light's actions on surfaces and is willing to represent these actions in a non-naturalistic manner. Surfaces are altered by the light source by strokes of the light source's color being juxtaposed on the surface with its local color.

Light is used as a compositional element, by van Gogh. "The Starry Night" is a prime example, for the primary areas and movements in the sky are due to light treatment. In the "Landscape with Ploughed Fields" light is very definitely a compositional element. This landscape has two centers; the observer's viewpoint which is indicated by the violet furrows converging hurriedly and accompanied by rushing streams of contrasted colors in the field, and the second is the sun at the right, with its concentric rings, reaching beyond the horizon and the frame, and complementary to the violet tones of the other vista and to the blue of the mountains. The two
schemes, the concentric and the convergent are in conflict. They are broken and varied penetrating each other in color and line. The rivalry of the centers is a dynamic means of expression and design. The use of more yellow strokes in the middle distance and in the yellow-green of the foreground ties the yellow rings of the sun in the background with the foreground planes.

The middle distance yellow is more intense than the more closely weaved color of foreground. The distant plane of the field and of the mountains contains relatively little yellow, with the farthest plane of the sun itself containing yellow-oranges moving towards cooler tones at the edges. An alternation of yellowed planes is thereby set up which measures off the picture space. The intensity of the yellow-orange of the sun tends to seek the picture plane creating a tension between the creation of depth or space and the surface pattern of color.

For Van Gogh the rivalry of centers probably has some relation to human conflict, a tension between self and its goals possibly.
CHAPTER SIX

CONCLUSION

We have looked at four major post-impressionists, each had his own approach to nature, each had his own treatment of light. Each rejected to some degree the doctrine of the impressionists, each rejected the visual mode of representation.

In the introduction we asked whether color and light were the same thing in painting. For Paul Gauguin and Paul Cézanne they were synonymous. They both discovered that the sensation of light could not be painted, but could only be rendered in color. They rejected the impressionist technique of broken color as the means of portraying vibrant light. Gauguin rejects broken color altogether and turns to broad areas of flatly applied color arranged in a decorative pattern. Cézanne takes up the technique of broken colors, using it not to portray light, but instead to model forms in facet-like planes of varying color, utilizing the theory of the advancing and receding characteristics of warm and cool tones respectively.

Instead of saying that light is color as did Cézanne and Gauguin, the impressionists might have reversed the phrase and said color is light. This would apply to Monet anyway for he believed that one sees light (colored light
due to the reflectance of object surfaces) and not objects themselves. Any form discernible was due to the different colors of light reaching the retina. Early in his development, Monet painted objects existing in light and shadow. In this period light and color were not identical. Objects had local colors which were altered consistent with creating the illusion of light acting on these local colors. Light could be distinguished as having certain characteristics such as high lights, and cast shadows, the illusion of which the artist create through the use of colored pigments. These characteristics or qualities of light vary with the season, the weather, and the time of day. Monet sought to capture these instants of particular light as they appeared to act on objects. At this early and middle stage of his art, Monet distinguished between color and light. Shadows became so full of light (equal in fact to those areas in light) that no longer could we say he was painting colored objects in light, but must instead say he was painting light itself. At this point color is light (one and the same thing).

Seurat with divisionism painted his canvas full of vibrating light. Color is light but he was unwilling to accept the lack of form of Monet's later work. Thus when Seurat painted light he stressed colored light as reflected from definite forms or surfaces.

Vermeer painted in the visual mode of representation.
He created the illusion of light acting on forms by using his colored pigments in such a way that the characteristics of light behavior in nature seemingly were being obeyed within his canvas. Color and light were not the same thing because light as a physical entity was discernible—the illusion of it was created ("Young Woman with the Water Jug"). For Van Gogh light and color were likewise distinct. Unlike Vermeer, Van Gogh did not paint light's qualities or characteristics exactly as they appeared in nature. He was too impetuous in his painting to observe with Vermeer's eye, but more important he was not concerned creating the visual image. Physical light's behavior is clearly implied if not stated. The pale sky blue strokes on the landscape and on the town in "The Starry Night" imply reflected light from the luminous sky. Since we distinguish light behavior as separate from the color, light and color are not identical.

The intended purpose of a given work dictates, to a great extent, the use of color and the treatment of light. The purpose of a given work is a choice made by the particular artist. The four post-impressionists studied had at least one thing in common. They all refused to accept the Impressionists' idea that the world must be met on its own terms and interpreted through its own appearances.

Georges Seurat and Paul Cézanne found impressionism too lacking in form. Cézanne denied that visual sensations were primarily of the luminous surfaces of bodies. Light and
color were the means under which we perceived the depth and plasticity of nature. Paul Cézanne sought to paint the substructure of nature not its haphazard arrangement as painted by the impressionists. He forced an organization on nature. Instead of painting nature as it appeared, defined by light and shadow, he modeled forms with many varying colored planes. He observed that warm tones had a tendency to advance and that cool tones tended to recede. The solidity he felt in nature could best be rendered by modeling from cool to warm as well as from dark to light. Cézanne saw nature not as changing with the changes in light of different seasons, weather, or different times of day, but as something stable and permanent. His light therefore became an unchanging light, a pervasive light which was "brushed-in" with his color. He believed that the accurate color tone would give simultaneously both the light and shape of the object.

Georges Seurat, in reaction to impressionism's formlessness, reduced nature's complex shapes to geometric equivalents. These simplified, distinct objects were then arranged in relation to each other on the canvas to achieve a static harmony of contraries and similarities of tone, color, and line. Seurat's divisionism with all its prerequisite knowledge of color behavior and contrast made painting a scientific technique which was explored at the expense of nature's appearance.
Paul Gauguin rejected the impressionists' adherence to nature's appearance and tended back to the old decorative tradition that a picture must be a harmonious unit in itself. He stressed the artist's need to have the freedom to effect an entirely arbitrary arrangement of nature. For Gauguin, the painting was a synthesis, a decorative whole not an exercise in analysis of nature's appearances, or analysis of atmospheric vibration. The illusion of physical light would only break up his flat pattern of harmonious color. Besides being used for decorative purposes, color was the symbol of the artist's emotions. The arrangement of color created color chords (the music of the picture) which expressed the artist's most interior emotions.

Vincent van Gogh rejected the painting of nature's appearance for painting her as a means of expressing emotional experience—his own emotional experience. Painting served as a spontaneous outlet of feeling. Pure painting and technique were replaced by expression in significance to the artist. Vincent met the world on his own terms and interpreted it with his own hypersensitive feelings. Early in his career he concerned himself with the hard lot of common people. The color and implied humanitarianism were on a dull heavyhanded level. He later developed a way of painting in short, choppy strokes of bright color which writhed and bended at his impetuous command. Such a technique did
did not lend itself to creating naturalistic light nor was such his concern. Light behavior was implied in many of his works but always for expressive purposes and not for the reproduction of nature.

Realizing that the artist's approach to nature determines his treatment of light: and having established that the major post-impressionists refused to accept the world on its own terms and interpret it through its appearances, it follows that their light treatment would deviate from that of creating the illusion of naturalistic light. Let us briefly review the major post-impressionists' light treatment compared with the visual treatment as seen in Vermeer.

In the visual mode of representation, light usually was a unifying element in a painting. Vermeer made use of directed light to set up consistent relationships of light to shadow modeling of all objects within a painting. Pervasive light was never used by Vermeer. Seurat made use of the characteristics of directed light as a unifying element. His objects were consistent in light to shadow modeling in that the same side of all objects was light and the opposite side, shadow. An important distinction between his light and Vermeer's lay in the fact that his shadow side was darker but still luminous. Actually in nature (and in Vermeer's works) a shadow is the absence of light and, excluding light reflected into the shadow, is not luminous. Seurat's overall luminosity leads us to call his light pervasive, that is, lack-
ing a source. This overall illumination was also a unifying element of a work as a coherent whole. Both Cézanne and Gauguin rejected directed light and painted light into their colors. Their pervasive light eliminated light to shadow modeling creating instead an overall, consistent light. Van Gogh painted lights and shadows implying directed light. Like Seurat his shadow areas were too full of color to indicate an adherence to the visual experience. Often also Van Gogh was not consistent in his light treatment. Both he and Gauguin painted a head implying light and shadow modeling but painted the clothes without shadow. In such instances light treatment was not utilized as a unifying element but for other purposes.

As carefully noted by Vermeer light affects color. Colored light sources affect the local color of an object towards the color of the source and in the case of highly reflective surfaces, the local color becomes the color of the source. Colors which are in light have a higher value or brightness. They become warmer or cooler in tone depending on whether the source is predominantly warm or cool in tone. Colors in bright light become more neutral as well as higher in value. All the above characteristics were faithfully represented on Vermeer's canvases. Van Gogh often represented the color of the light source as affecting the color of
object matter ("The Starry Night" and "Landscape with Ploughed Fields"). He did so by placing strokes of the color of the light in juxtaposition with the object's color. Seurat also placed dabs of "light" juxtaposed with object color. Cézanne scattered blue strokes about his landscapes to represent the phenomenon of scattering. He also placed bright colored strokes to suggest light (light defines planes). Seurat, because his purpose was in part to portray light, paid more attention to its effects. He painted the colors in light with high value, neutral tones ("La Grande Jatte"). Another characteristic of light behavior is the reduction of contrast in shadow. Seurat represented this contrast. In the few instances where Van Gogh and Gauguin use shadows this characteristic is noted.

Light and its counterpart shadow can be essential elements of the composition (of the two dimensional surface or of the composition of the picture space). Seurat used alternating areas of light and shadow to mark off the distance into the picture space. These same areas created a surface pattern of verticals and horizontals whose right angularity was essential to the stable, permanent world he represented. Van Gogh used light as a center of interest in "Landscape with Ploughed Fields". Generally speaking only when light has its counterpart can it be used effectively as a compositional element. If, however, we say that color is a
compositional element in a painting by Gauguin or Cézanne and that light is color, then light must be a compositional element. The author has copied a "Self-portrait with a Hat" by Gauguin in which a band of light was placed diagonally in the upper left corner, purely for compositional reasons. The other areas of light in this portrait are so manipulated as to create a balance of light areas on the picture plane.

Vermeer created the illusion of space by his light treatment. He represented the regular decrease in light intensity as the distance from the light source increased. He also arranged his objects so that light striking them would lead the observer on diagonals from object to object back into space. He often set up an alternating dark foreground, light middle ground with dark figure against a light background. As mentioned above Seurat used alternating areas of light and shadow to lead the observer into space. Seurat observed that lighted objects or areas in the distance appeared more blue due to scattering so he applied more pale blue dots in the background. Gauguin did not use light to express depth rather he used light or color to express the surface. Cézanne expressed depth through overlapping planes of color, utilizing a broken outline when necessary. Usually he denied this depth by placing colors of the same intensity in the background as in the foreground. Van Gogh, like Cézanne, created depth on the one hand, and denied it
on the other. With an exaggerated perspective and with gradation of brush strokes, we are rushed into the space only to find color of equal intensity and line of the same strength as found in the foreground. Such treatment stresses the surface pattern of color over spatial relationships.

Light expresses plastic form in the visual mode of representation. Vermeer's objects and figures exist as solid forms defined by light to half-light to shadow modeling. In modeling a form Vermeer was careful to represent the decrease in value of the object's color as it went into shadow. Seurat also used light to express plastic form. The color of shadows did not drop in intensity. The color merely became of a lower value. The presence of divisionism in the shadow areas maintained an overall brightness above that which we could find in nature. Cézanne was the real innovator in the expression of plastic form. As he modeled from light to dark not only did the value drop but the color itself changed from a warm to a cooler tone. The intensity did not drop because the recession of form could be achieved by the tendency of cool colors to recede. He desired an overall surface pattern of color which created a tension between the expression of plastic form (through modeling with color) and expression of a lively color pattern on the picture plane. Gauguin did not use light to model form nor did Van Gogh really. When light was depicted by Van Gogh as falling on an
object or surface, it was done by juxtaposing a few strokes with the color of the source on the surface. These strokes were lighter than the color of the object and appeared to advance. No shadows were put in along with these "light" strokes.

Gauguin and Van Gogh used light and color in another way, symbolically. Light and color, and their particular arrangements were a means of expressing the artist's emotions, his innermost self. These two artists believed the work of art to be a statement of the artist's soul and not a technical tour de force. Gauguin added to this belief the traditional concept that a work should be a decorative whole and his color and light were used to create the same.

The treatment of light is determined by the artist's approach to nature. Although Vermeer was interest in art for art's sake or in the formalistic qualities, he was primarily a translator of the visual image of nature. In creating the illusion of nature as seen, he was interested in depicting one of nature's elements, light, as closely as possible to what he saw. As later artists began to accept different purposes, the importance of depicting light naturalistically became less, in proportion to the artists rejection of the visual world. For Georges Seurat light was his major subject matter. His departure from creating a
visual representation was due to his acceptance of the technique of divisionism. Because Vincent van Gogh approached his subject matter as a means of expressing himself and not itself, the naturalistic treatment of light was contrary to his purposes and rejected for a treatment which could express the artist's moods. As the purpose of art becomes more in creating a coherent unit which is significant in itself, by itself, any representation of the visual world loses significance. Cézanne went beyond nature in his search for an organization, a substructure which would show nature's underlying unity. In his search for an order to impose on nature he rejected the ever changing character of nature's light. Paul Gauguin in his acceptance of a painting as a decorative unit in itself and as a symbol of his sentiments, rejected more than the others the representation of physical light. Since these post-impressionists' time and in our own time where the values or purposes of art are solely abstract and formalistic the treatment of light has become abstract or formalistic. Certainly it has become even less naturalistic. The author has painted two works illustrating contemporary light treatment. In "The Waterfront" we see a symbol of light in the upper right corner. Its purpose is formalistic. It creates a tension, a pull on the observer. It balances the painting. In "Color in Motion" the sole purpose of the work is the abstract interplay of
color. Yet we can sense a pervasive light in the painting. The light is "brushed-in" as it was in Cézanne and Gauguin. The light treatment of Seurat, Cézanne, Gauguin, and Van Gogh, their individual and distinct approaches towards nature, have initiated what is being done today and will influence in the future.
APPENDIX

The Science of Light and Perception

1. ELECTROMAGNETIC ENERGY: Light is a form of electromagnetic energy. Once this energy is created, it travels outward in all directions from the light source at a constant velocity until it is modified by striking some object in its path.¹

2. BRIGHTNESS: The farther away from the light source, the same amount of electromagnetic energy is spread out over a much larger space, therefore the quantity falling on a given object is very much decreased until so far from the source that the amount is too small to be detected.²

   a) Point sources of light produce an illumination which decreases as the square of the distance from the source.³

      b) When the source is larger than a point, all points of its area may be considered as individual points and the effect at a given distance is that of the sum of all of the points.⁴

¹ Ralph M. Evans, An Introduction to Color, (NY 1948), John Wiley and Sons, Inc., pp. 7-8.
² Evans, Color, p. 8.
⁴ Evans, p. 41
3. WAVE THEORY: The phenomena of light propagation may best be explained by the wave theory. When waves are emitted by a small source in a uniform medium the wave fronts are spheres concentric with the source. Rays may more simply represent a series of light waves than the wave fronts, a ray being an imaginary straight line emanating from the light source.

4. REFRACTION: If not in a uniform medium, the direction of a ray is changed in crossing a boundary from one medium to another, except when the light falls on the surface perpendicularly. The deviation or change produced on the ray's passage back into the first medium from the second medium is always the same as the first, but in the opposite direction.\(^5\)

5. THERMAL RADIATORS: The greater part of all our known sources are caused by the radiation of light due to high temperatures. These are classified as "thermal radiators". Some familiar examples are the sun, incandescent lights, burning materials, glowing coals, hot metals, etc. The color of the light varies with the temperature -- the first noticeable glow is red; at a higher temperature this changes to orange and then yellow; at still higher temperatures the yellow becomes white and then at the highest

\(^5\)Evans, p. 43
temperatures the white becomes blue. The sun's surface is white indicating the very high temperature of its surface.

6. SECONDARY LIGHT SOURCES: Reflective surfaces, such as the moon, show that the color of the light is not always an indication of surface temperature. These will be called secondary light sources.

7. WAVE LENGTH AND COLOR: According to the wavelength theory, different colors are due to different wave lengths of light. The reds, oranges, and yellows, and blues emitted by a light source are radiations of different wave-lengths (of decreasing wave-length). Very few light sources are composed of only one wavelength.

8. DAYLIGHT: We find daylight, when broken down or dispersed by a prism, is composed of a spectrum of different colors or wave-lengths from long waves (red) to short waves (violet). The ability of a prism to break down light is because different wave-lengths are refracted as slightly different angles. The reds are refracted least, and the violets most.6

9. SCATTERING: The process of scattering is very complex, the detailed explanation of which is beyond the scope of this paper. Simplified, scattering occurs when a beam (a collection of rays) of sunlight strikes molecules in

6 Black, and Little, p. 694
the atmosphere. The electric field of the beam causes the electric charges (electrons and protons) in the molecules to set them in motion. Some of the light is scattered by this motion in directions other than that of the beam.  

a) According to the Rayleigh law the amount of light scattered in any direction varies inversely as the fourth power of the wavelength.

b) This means that more short wave-lengths are scattered than long ones. Since the shorter wave-lengths appear blue or violet, and the long appear red; the scattered light is more blue, and the light transmitted by the medium is changed towards red.

c) The amount of light scattered by a given volume of air is the same at all places in the view, but the amount of blueness seen by an observer depends on the total distance through the air to the distant point at which he happens to be looking.

d) Scattering explains the blueness of the distant haze and therefore of distant objects, and of the sky itself. The transmission of the long waves explains the redness of a sunset. When the sun is going down the light must travel through a much greater volume of atmosphere due to the

oblique angle of the rays on the surface.\textsuperscript{8}

10. OBJECT SURFACES: The nature of this light source affects the appearance of object surfaces. If the light source is small and concentrated, it will cause the object to take on a glossy finish with small sharp highlights. In the case of a large diffuse source the surface takes on a satin effect with large diffuse, soft highlights. Or when the source is one of diffuse uniform lighting, the objects appear dull, opaque with no real highlights.\textsuperscript{9} The angle of the source can affect the appearance of its surface by light and shadow defining the texture of the surface. The color of an object is also affected by the light source.

11. OBJECT COLOR: There are two main variables which affect the color of an object. The color of an object is dependent on first, the color of the light which illuminates it; and second, on the light it reflects or transmits to the eye. A skein of red yarn held in the red end of the spectrum appears red. Yet when the same yarn is held in the blue end of the spectrum, it appears nearly black. Similarly blue yarn appears black in all parts of the spectrum except the blue, where it has its proper color. Thus when a piece of paper looks white in daylight, it is because it reflects all visible wave-lengths equally, and when a cloth looks blue in daylight, it is because it reflects only those

\textsuperscript{8} Evans, p. 65

\textsuperscript{9} Evans, p. 45
short waves which produce blue. When a piece of white paper is illuminated by a blue source, it appears blue.

a) The general rule then is that the color of an opaque object depends on the wave-length of the light it reflects -- that it does not absorb.10

b) The color of a transparent object depends on the wave length of the light it transmits. For example, the red glass used by photographers for their safelight lanterns transmits freely only red light and absorbs almost completely the yellow, green, blue, and violet light which affects the chemicals on the photographic plates.11

12. LIGHT AND VISION: We perceive light because it effects the retina or sensitive rods and cones of our eyes. The cones are activated under bright illumination and are responsible for the experience of color (hue) while the rods are trilight receptors capable of registering only value differences.12 The eye is far more sensitive to shorter wave-lengths at low light levels.13 And at low brightness levels there is a marked increase in the sensitivity of the rods. They cannot respond selectively to different wave-lengths because of the nature of their nerve

10 Black and Little, p. 695.
11 Black and Little, p. 696.
13 Evans, p. 102.
Appendix

structure. At exceedingly low brightness levels only rough form may be distinguished. This is due to an insufficient amount of energy to activate enough rods other than those farther away from the center of the retina. This improves rapidly with an increase in brightness up to a point at which under extremely high brightness there is a decrease again in definition of form.¹⁴

a) We see objects only because of the effect that the objects have on the light before it reaches us, i.e., the objects absorption, and transmission or reflection of various wave-lengths. Light defines the shape and color of objects, how they are turned and how far they are from us and their neighbors.¹⁵ In the case of a white opaque unpolished object, every point of its surface reflects the white light which illuminates it, in all directions, into the surrounding space. A point becomes visible when one of its rays strikes our eye. The image of a body in a particular position is composed of the sum of all these physical


points which send to our eye a portion of the light which each point radiates. The same holds true for a colored object except that each point reflects the wave length of that color and absorbs the other wave lengths. When the surface reflects the light source, highlights result. This actually is the addition of the reflected colored wave lengths. If on the other hand, an object appears black and disappears from sight when all the light is absorbed, the object's existence becomes known only because it lies near surfaces which do reflect or transmit light. However, we know of no completely black objects and it is because they all reflect some of the light source that we can see that they have surface relief like other objects.

b) There are two opposite outlooks on color behavior, both based on perceptual experience. The primary difference is that to one view, color is what the mind knows regardless of what the eye reports at a given moment; to the other view, color is exactly what the eye reports. The former stresses the continuity of color by stating that an object has a

---


17 Chevreul, Contrast of Colour, p. 2.

permanent color technically known as its local color, which remains constant regardless of the effects of light. The second outlook stresses change by saying that the color of an object is dependent on the multiple effects of light. The former depends on the manufactured color (the dye, paint, etc.) of the object and not on nature’s or material’s "apparent" effect on this color. The sports car is flame red irrelevant of the reflection of the green trees on its surface or the blue tinge due to the twilight and irrelevant to the hue imposed on it by the spot light in the dealers’ showroom.

13. VARIATION OF LOCAL COLOR: We have defined local color as the basic hue of a particular object, or section of an object in cases of multicolored objects. On the other hand when we look closely at an object, we see many tints and shades, and often even the presence of different hues. There are many variable causes for these "apparent" changes in the local color.

14. INDIRECT LIGHTING: Indirect lighting reflected from another nearby surface is one such cause. A good example is interior illumination. Daylight reflected off a yellow wall casts a yellow tinge over objects which are not directly illuminated by the light coming through the window, and will even serve as a secondary light source for those directly illuminated but situated close to the wall. It
makes no difference whether or not the light arises by way of a reflecting surface. "The point is that all the light illuminating other objects has this source quality. The quality of the light reaching an object is that of the sum of the light qualities reaching it from all the points of its environment, and each of these points may be considered as an independent source."  

15. SURFACE REFLECTING: If an object has a more or less smooth surface, the reflectance of the surface increases rapidly as the angle at which it is viewed decreases. Direct sunlight coming in a window is essentially parallel light (extreme angle $\frac{\pi}{2}$). As such, when it falls on a selective object with a smooth surface, it gives rise to about the maximum selective reflection of which the object is capable.  

We have all probably noticed examples of this in nature. The green water lily pads on a pond appear quite green when viewed from above or at a fairly great angle but they reflect only the light source (the blue of the sky or light of the sun) when viewed from near the surface or at an acute angle. Closely related to indirect lighting being reflected from one surface to another, but a more specific instance for the variation of local color is lighting due to reflections from highly reflective surfaces.

19 Evans, p. 81.

20 Evans, p. 80.
16. HIGHLY REFLECTIVE SURFACES: A highly reflective surface reflects the color of the light source that strikes it instead of transmitting its own local color.21 A mirror is the classical illustration of this. Let us say that the late afternoon sunlight with its red-orange hue streams through a window and strikes a mirror or mirror-like surface such as a silver pitcher. This surface will reflect, in all directions from each point of its surface illuminated by the sunlight, the red-orange hue of the light source onto any objects within a certain distance, this distance being determined by the intensity of the sunlight and its gradual decrease according to the inverse, square of the distance law mentioned earlier.

16. ENERGY ABSORPTION: This law that the intensity varies inversely with the square of the distance is not altogether true, however. Almost all materials absorb at least some of the light which strikes them; they absorb some wave lengths more than others. Therefore the light that leaves the material or has a different energy distribution than the light that falls on it. This change is one of a decrease of the amount of light in some regions of the spectrum. The process can be considered a subtraction of energy from this light.22 Some of the yellow-orange wave lengths will

21Beam, Language of Art, p. 185
22Evans, p. 58
be reflected by a highly polished gold object while the reds and other wave lengths will be to some small degree absorbed. This will effect the overall hue reflected because the light source reflected will be influenced by the hue of the object. Any object's local color on which this object reflects will be influenced both by the hue of the reflected light source and to a degree by the hue of the reflecting object.

18. COLORED LIGHT SOURCES: Another cause of variation in the local color of objects is due directly to the hue of the principle light sources. When the light source is colored "all local colors in the visual image will appear to assume the hue of the general illumination". For instance, during a brilliant sunset all objects will appear to be tinged with red-orange hues. Excellent examples of colored light sources can be found in theatrical lighting where colored spot lights and footlights set the mood and create effects of daylight and night light by their color and its affect on the local colors of the stage set. The hue changes are accomplished by intensity changes as well as to better the effect; but this is not the question. Colored light does color objects.

19. CAST SHADOWS: The last principal course of variations in local color results from cast shadows. "The effect of a
shadow is to lower both the value and intensity of any color in its path by robbing it of its light. Since, however, some light is always reflected into shaded areas by adjacent surfaces and general diffusion, neither cast shadows nor the shadow sides of modeled forms are ever reduced completely to black."23.1 In fact, in one very common instance shadows due to a direct light source striking objects are almost completely illuminated by the reflection of another source. In daylight, shadows created by the sun striking objects are illuminated by the sky which has an illumination intensity of about one-fourth that of the sun. The hue of the illumination is as blue compared with the sun's as the sky's color appears to the eye.23.2

20. NATURE OF THE EYE: Back lighting, that is, light coming directly at the spectator affects the perception of local color. Where the preceding causes have resulted in actual color change, this effect is due to the physiological nature of the eye. When the eye responds to the intense light the lens openings narrow and it loses the ability to distinguish detail, three-dimensionality, and color in adjacent areas. Any objects which are in or near the path of back illumination appear blurred, flat, and shadowy.24 The illumination

23.1 Beam, p. 186.
23.2 Evans, p. 79.
24 Beam, p. 188.
brightness of the objects and the illuminant brightness of the light source are so different that the eye cannot adapt to both simultaneously. If the back light could be blocked off by holding a card with a hole in it up to the eye such that only the object could be seen, and providing that there was another source of light (possibly reflected) falling on the object, the eye would see the object and its color in more detail.

a) Our perception of an object's local color varies with the distance at which we view an object. The changes of local colors as they recede into space are due to several facts. The limitation of eyesight allows us to receive the full impact of colors only when they are fairly near our eyes; we cannot distinguish outlines or colors with any distinctness at a distance. Also the atmosphere. This is due to the many particles of dust and moisture which block, deflect, and scatter the light rays which carry the colors back to us. (As mentioned earlier the short waves are scattered most and that is why the distant objects and the atmosphere appear bluish.) The progressive diminution of color contrasts in proportion to the distance is a principle based on this fact that the colors of distant objects is weaker. 25

21. LIGHT INTO SHADOW: When light strikes an object from a given direction the colors of all three-dimensional forms

are most intense on the sides facing the light source and are least intense on the sides opposite or away from the source. In other words, local colors of three-dimensional objects are modified as they are modeled from light to shadow. The following sketches taken from Philip Beam's *The Language of Art*, will serve to best illustrate what occurs.

Figure one represents a value scale (what some authors term a brightness scale) from white to black as the base for two color triangles. The vertex of each triangle represents full intensity of that hue. For the sake of explanation let us consider the orange triangle. If either black or white pigment were added to this full intensity orange the intensity would decrease. The base of the triangle (the value

---

26 Beam, p. 184.

27 Beam, p. 181, Fig. 92 b and c.
scale is neutral or without hue). The altitude of the triangle (the dotted line) shows the full range from no intensity to full intensity. The "B" tone falls just above half-way across this line indicating that it is about 5/8ths of full intensity. "C" falls about one quarter of the way from neutral to full intensity and is therefore about \( \frac{1}{4} \) full intensity. The modeling of the object in figure two shows these various color variations in value and intensity as they move from light to shadow. The movement of A, B, C, towards neutrality and blackness shows up also on the color triangle by the position up and down relative to the base of each color triangle.\(^{28}\)

22. SHADOWS: At this point we can consider shadows themselves more closely. Probably one of the first optical phenomena to be noted was that the shadow of an object illuminated by a small light source has the same shape as the object and that the edges of the shadow are straight line extensions from the source, tangent to the edges of the object.\(^{29}\) A point source casts a sharply defined shadow which receives no light from the source (Fig.2)


\(^{29}\) Sears and Zemansky, p. 720
a) If the source is larger than a point the shadow consists of two portions. The inner portion is called the umbra. Surrounding the umbra is the penumbra within which the object screens only part of the source. 30 (Fig. 4)

30 Sears and Zemansky, p. 721.
b) The larger the light source relative to the distance the less sharp the edges of the shadow will be. Obviously if no light reached the shadow areas, details in this area would be invisible to the eye. In nature, this is seldom the case as shadows are usually partly transparent at least due to the illumination by other primary sources or secondary sources such as objects reflecting light. "In either case there may be little resemblance between the quality of the light reaching an object and that reaching the shadows." Under conditions where there is both a large source and a small one, the point source forms shadows, but the large source may not, resulting in the shadow area being illuminated entirely by the large source. The shadow illumination may vary from almost nothing to an intensity level just less than the total of the two sources. When the light from the small source is so weak in relation to the large one that no visible shadow is produced, the limit is reached. If an object is visible it is reflecting the same amount of light in every direction. If situated near the shadow of another object it will send that same amount into the shadow providing there is no obstruction.

c) Therefore if there is only one source, all shadow illumination must come from reflecting objects near by, and

31Evans, p. 51.
32Evans, p. 78.
since most objects have, at least to a certain extent, selective surfaces, this light will be colored. If there is more than one object of different colors reflecting into a shadow area, the illumination is the additive mixture of all of them. 33

d) The shadow of an object depends directly on the distance of the light source from the object. The closer the source the larger the shadow in proportion to the size of the object. 34

e) Roland Rood, in Color and Light in Painting, makes three distinctions in attitude which the observer may take toward lighting contrast or light and shadow. He calls these attitudes "looking at", "looking into", and "looking through" the shadow. The observer may "look at" the shadow which means he may see the illumination of a scene as such. In which case the shadow appears a dark area in contrast with the lighted areas in the field of view. He may "look into" the shadow and focus on the objects such that their characteristics are seen in more detail. Or he may "look through" the shadow by approaching the objects and concentrating on them such that he is no longer aware that they are in shadow. 35

33 Evans, p. 78.
34 Evans, p. 55.
35 Evans, p. 162, also Roland Rood, Color and Light in Painting, NY, 1941, Columbia University Press.
The eye will, according to Arnheim, see the simpler relationships first, or in Rood's terms, will "look at" shadows. The broad pattern of areas of light and shadow will strike the eye first. However, the mind and eye can control what it sees by concentrating on a small area in the field view.

23. ADAPTATION: "When the eye is exposed to a given illumination level for a sufficient length of time it comes to accept this level as normal, and all other intensities are seen relative to the given level. At or below a certain fraction of the illumination level, the actual fraction depending on the actual level, black is seen. Intensities near that of the illumination are seen as white. Intensities above this are seen as brighter than white and usually appear as light sources."³⁷

³⁶Arnheim, p. 250.
³⁷Evans, p. 105.
LIST OF WORKS CONSULTED

* Works Cited


*Evans, Ralph M. An Introduction to Color, (N.Y., 1948), John Wiley and Sons, Inc.


Bibliography 3.


*Hale, Philip L. Vermeer*, completed and prepared for the press by Frederick W. Coburn and Ralph T. Hale, (N.Y., 1937), Cushman and Flint.


Bibliography


Pach, Walter. Georges Seurat, (Duffield, 1923)


*Rood, Roland, Color and Light in Painting*, (N.Y.,1941), Columbia University Press.

