

ILLUSIONS OF LINE AND COLOR IN MY PAINTINGS WITH
REFERENCES TO SOME OF THEIR SOURCES

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CONTENTS

	Page
INTRODUCTION	ii
LIST OF FIGURES	iii
Chapter	
1. CULTURAL BACKGROUND	1.
2. THE INFLUENCE OF ELLSWORTH KELLY	8
3. ILLUSIONS OF LINE AND COLOR IN MY PAINTINGS	12
4. CONCLUSION	31
FOOTNOTES	34
BIBLIOGRAPHY	36
APPENDIX	
A. SLIDES OF WORK	37

INTRODUCTION

In this paper I propose to investigate several concerns that can be found in some facets of contemporary art, namely the use of illusion and the use of color as an adjunct to illusion. Further, I intend to develop a meaningful dialogue about my current paintings and discuss the specific concerns of illusion and color as they apply to the paintings.

I believe it is necessary to describe my own growing awareness of, and subsequent involvement with, illusions to portray accurately my use of them in my current body of paintings. Therefore I will develop this paper through the following steps:

1. A brief description of my cultural background, because it has a direct bearing on both the form of my paintings and the choices of color for them.
2. A discussion about specific works by Ellsworth Kelly and the reasons why they are of interest to me.
3. A description of several of my own paintings and the concerns inherent in them.
4. Concluding remarks.

LIST OF FIGURES

Figure

- 1 Technical Illustration
- 2 Technical Illustration
- 3 Bus Stop
- 4 Moon Crater, Yellow to Red
- 5 Moon Crater, Blue to Yellow
- 6 Triptych
- 7 Triptych
- 8 Rebound
- 9 Red, Yellow, Blue V
- 10 Number 7/1977
- 11 Number 3/1978
- 12 Number 5/1978
- 13 Number 6/1978
- 14 Number 7/1978
- 15 Number 1/1978
- 16 Number 11/1978
- 17 Overlapping Diamonds, Number 1/1979

Chapter I

CULTURAL BACKGROUND

Art is an act of creation and the entire universe is its province. It can grow out of relationships between humans; it can be drawn from visible sights of the earth, the sky and the sea; . . . Moreover, no culture is precisely the same as any other culture, and no individual artist is precisely the same as other individual artists.¹

The present format of my art relates directly to my cultural background and interests developed then. The attitudes and perceptions formulated from a lengthy exposure to the ever changing visual appearances of the ocean and the atmosphere above it, led eventually to a distinct and subjective approach when transcribing my experiences to art.

The first sixteen years of my life were spent in relative isolation on an island off the Nova Scotia coast where my father operated a light station. There were only two families on the island; therefore, attitudes and values were developed largely free from those shaped by peer values found in more populated communities.

Of the natural phenomena observed on the island, one formative one for me was the almost constant presence of thick fog in the spring and summer months. This gave a definite feeling of living in a world of gray. Often objects seen through the fog would be altered quite dramatically in appearance with changes in the filtered light brought about by variations in the amount of cloud cover above the fog. On days when it was overcast above the fog, silhouettes of buildings or rocks would appear strangely ominous. However, when sunlight was

falling on the fog the whole aspect of the buildings and rocks would change and their ominous quality would disappear. Even the air itself would seem different because the scattered sunlight would be everywhere. Years later when first exposed to the paintings of Turner I was amazed at how accurately he had recorded those very subtleties of atmosphere which were so familiar to me. His later watercolors and some of his oils, such as Norman Castle, Sunrise, seemed to capture the diaphanous quality of objects plus the subtlety of color that made them ring true in my own experience.

On those occasions when the prevailing wind direction would change, the fog would disappear for a few hours and the then exposed blue of the sky, the green of the grass, and the intense blue of the Atlantic would be rich in color. Even the white lighthouse with its bright red top would be dramatic in the sunlight against the clear blue sky on those brief occasions. This positive response to large areas of intense color has been maintained to the present and manifests itself in most of my current art.

Often during the late summer and fall a very interesting illusion could be seen from the island. It was especially noticeable on overcast days and would be enhanced by the ocean reflecting the general tone of the sky and taking on its general grayness, especially as it approached the horizon. The sky would, because of varying thicknesses of cloud cover, become varied in its value of light and dark within the range of gray. In other words, in one part of the sky above the horizon it would be slightly lighter than the ocean and in another part it would be darker than the ocean, often to a considerable degree.

Between these two zones the horizon would disappear. Ships passing along the horizon through this zone were interesting objects because their placement would become ambiguous and they would literally seem to float in space.

On some overcast days the atmosphere would distort the appearance of passing ships and low islands several miles away. Often they would appear suspended upside down about three degrees above the horizon. Frequently this would occur with ships when they were below the horizon and thus normally invisible from the ground. This phenomenon is due to a temperature inversion and is a fairly common illusion in the more northern regions of the Atlantic. At the time though, no such explanation was available and the sight was a complete mystery and marvel to me, particularly in the way in which it took things out of context and presented them in a new and surprising way. Also it was of interest for the way in which it permitted one to see something on the surface of the ocean many miles further away than was otherwise possible.

The illusions observed influence the shape of my paintings since they have given me a heightened awareness of distance. The paintings are designed to reflect that awareness by physically describing an object as it would correctly appear in space according to the dictates of three-point perspective. Also they permit one, by the implication of their perspective lines, to see beyond them and into deep space. The arrangement of these paintings permits me, at least vicariously, to extend my reach to involve great distances, something my perceptions on the island were keenly alert

to, but because of geographic circumstances, these distances were physically unattainable.

Another dramatic experience on the island was an encounter with the visual effects of refraction of sunlight through prisms. The lens of the lighthouse was constructed so that the light was concentrated into four beams. This was accomplished by means of four central magnifying lenses with an arrangement of twelve concentric rings of glass with cross-sectional shapes of prisms arranged around each of them. During the daylight hours with normal sunlight falling on the lenses, a multitude of prismatic light patterns would fall on every part of the lantern deck in which the mechanism stood. Everything, including the faces of people present, would be illuminated in the colors of the spectrum. (Fauve portraits by Matisse are wonderfully real because of this.) Any slight movement of the delicately balanced lens mechanism would change the angle of the prisms to the sunlight and set up a whole new pattern of colored light on everything. This helped to stimulate an interest in and love for color at an early age. This interest has been maintained and expanded in recent years by readings about color theory and colored light.

The next significant cultural influence on the form of my present paintings occurred during my employment as a technical illustrator, which consisted of making accurate and detailed line illustrations of components designed and manufactured for military use. The items usually were radio transmitters and receivers plus ancillary equipment, and it was required that they be depicted as they would appear when they were installed in location on naval ships or military

aircraft. It was necessary to show them in three-point perspective for the convenience of technicians who would be using the illustrations when they appeared in technical handbooks as a guide for operational procedures and for maintenance purposes (see Figures 1 and 2).

The illusionary and somewhat ambiguous nature of drawing in such a fashion was a concern because there was only one viewing point from which such a drawing would be accurate. Viewed from any other angle than at right angles to the center of the drawing, and from any distance more or less than approximately three feet away, the accuracy of the drawing would be diminished. This was a real concern and precautions were taken to make sure that the printer of the technical handbook photographed the drawing for his plate from the correct distance and viewing angle.

Concurrent with my illustrative concerns, attempts were being made to visualize my interest in the appearances of natural phenomena through painting. A general gray tonality was frequently used with key objects being controlled by the use of warm or cool color which permitted them to advance or recede as required within the context of the paintings. This was a natural extension of my experiences, on the island, of observing the various changes in appearance of objects with subtle changes in fog conditions. The problems in perspective encountered in my work plus a concern for design, began to influence my approach to my paintings. This led to a serious examination of the great works of the past by painters who had confronted those concerns. As a result, an appreciation was developed for the paintings of Nicolas Poussin (1594-1665) and Piero della Francesca (1416?-1492). The latter was especially helpful to me and led to an application of some of his design techniques to my own formal paintings

to the point of trying to establish illusionistic space by perspective lines, particularly through the use of floor tiling and the careful overlapping of figures and objects. A study of his art encouraged the use of the golden section as a design principle in both my paintings and my technical illustrations.

This study permitted a certain improvement in my illustrations but was of a limited nature because of the restrictions imposed by governmental standards for text-book design. The improvements these principles brought to my paintings, however, were many and almost immediately resulted in competent paintings on a much larger format and containing an inner structure that gave them a stability and clarity frequently lacking in previous works.

The painting Bus Stop (Figure 3) was derived from the figure of the rising Christ in Piero della Francesca's Resurrection in the Palazzo Comunale, Borgo S. Sepolcro. In his book Italian Painters of the Renaissance, Bernard Berenson, in reference to Piero della Francesca, said that "judged as an Illustrator, it may be questioned whether another painter has ever presented a world more complete and convincing, has ever had an ideal more majestic, or ever endowed things with more heroic significance."² These were the very qualities sought in the painting Bus Stop, and his design contributed to the painting's strengths.

The reading of art books in a quest for new approaches to my painting continued while experiments with the ideas of Piero della Francesca were being carried out. The resulting exposure to new art and ideas left me with a great sense of inadequacy because of the

obvious gulf that existed between my own paintings and those encountered through my readings. It was also obvious that much of that new art was foreign to me because it was based on an art language of values and considerations unknown to me.

Since I wanted above all for my art to be relevant and reflect the life of today, it became clear that enrollment in a university fine art program would be the best course to follow. Accordingly, I enrolled in the Fine Art program at Mount Allison University.

Chapter II

THE INFLUENCE OF ELLSWORTH KELLY

After having tried several approaches to reconcile my art with what was contemporary, I had a series of conversations with the Canadian painter Guido Molinari. From those meetings a systematic study began of contemporary painters whose concerns were primarily coloristic.

Those readings led to a discovery of the paintings of Ellsworth Kelly. His paintings often deal with illusions and the function of color as an agent for controlling surface tensions. The shaping of canvases in some instances, suggested a fresh way for me to approach my own art. The concept of shaped canvases led to a reconsideration of my former illustration techniques of drawing forms in space in a three dimensional format and Kelly's use of color to control space encouraged me to consider how such a three-dimensional drawing could be controlled by color. Accordingly, I began a series of paintings dealing with concave and convex forms which were designed to investigate pure form and color in a new and nonrepresentational way (Figures 4 & 5). These were continued with elaborations and were followed by a series of triptych paintings the next year (Figures 6 & 7). The triptych paintings were followed by an extensive series of paintings of box-like forms in space.

The reason why Kelly's work has been such a revelation for me can best be indicated by giving a brief description of his background and a description of a few of his major works. Between 1943 and 1945 Kelly served in the U.S. Army as a camouflage artist.

One of the most important things that had happened to Kelly during these two and a half years of war was his exposure to military camouflage, which is, after all, a visual art. This involvement with form and shadow, with the construction and destruction of the visible, was a basic part of his education as an artist.³

Another important part of his background was an exposure to Romanesque and Byzantine Art⁴ through a study of their use of solid areas of color and sensuous line, found in manuscripts at the Byzantine Institute in Paris.

He also studied at first hand the Isenheim Altarpiece by Grünewald and saw many more altarpieces painted on joined panels in Romanesque churches in rural France. These studies led eventually to several paintings consisting of joined panels of solid color.

Since Kelly stayed in France until 1954, his artistic vision was developed largely isolated from the abstract expressionist ideas that were sweeping the United States.

The painting Rebound (Figure 8) of 1959, collection of D. Franklin Konigberg, Los Angeles, is relevant to this paper because of its illusionary references to the placement of objects in space and also because of its references to an optimum viewing position. The consideration of optimum viewing position was used in my paintings Number 5/1978 (Figure 12) and Number 6/1978 (Figure 13). When viewing Rebound, one's initial reaction is to try to decide which is figure and which is ground. This paradox is the result of Kelly's persistent habit of relying on directly observed phenomena for inspiration in many of his paintings, particularly during the 50's and early

60's. After some time the painting is perceived as white figures on a black ground. The illusion is heightened for me in three ways. One is the possible overlap of two white figures implied by the failure of the two black projections to meet in the middle. Another is that the profile of the left white object is straighter, which can be interpreted as a rounded object nearer to the viewer. Also, the area of black extending along the bottom to the right seems to move the implied white object on the right further away from the viewer. With the many possibilities the surface becomes charged and expectant.

In the September 1976 issue of Arts Magazine, Kenneth Baker wrote:

I see Rebound as an affirmative work because it seems to me to be contrived to evoke an antidote to the skepticism that haunts all our experiences and thoughts. By incorporating in abstract terms the sense of a singular perspective typical of figurative paintings, Rebound intimates that the position one already occupies in looking at it is an optimum position. By providing the feeling of seeing something in its essence, the painting makes one's literal mobility before it seem an expression of uncertainty and the inability to choose a vantage point or commit oneself to a perception as an accurate one. But since the painting, being an object, can make no real recognition of one's movement relative to it, what IS the position, or the sense of 'position' it characterizes as optimum? Or to put it another way, where is it that one 'already' stands when one looks at the painting? The answer must be something like 'within one's body', for Rebound, I think, is a painting that means to resurrect a confidence in sense experience that modern forms of life have insistently degraded.⁵

In 1968 Kelly painted the large canvas Red, Yellow, Blue V, (Figure 9). This painting should be mentioned because of the perception that brought it into being and because its shape provided

the necessary breakthrough for my own series of shaped canvases. He was looking at an installation photo of an exhibition of his works and was struck by the appearance of one of the paintings consisting of three equally sized panels joined together. Because the photo was not taken from in front of the painting it gave him an opportunity to see it in perspective objectively and with a fresh eye. The result was a re-examination of the painting within the laws of perspective. Curiously, though, despite the insistence of the lines of perspective the painting does not seem to recede ambiguously into the wall but remains flat against it. Goossen attributes this to the careful balance of colors and to the fact that the colors are obviously on a separate panel which invites the viewer to consider them individually.⁶ Red, Yellow, Blue V, made me realize that it was possible to deal directly with the problem of perspective as it describes illusionary space by actually constructing a painting that took the form of an object as it would appear according to the laws of three-point perspective. It now was possible to combine, in one expression, my formal concerns in painting and my illustrative techniques, to create a body of paintings with originality and power.

Chapter III

ILLUSIONS OF LINE AND COLOR IN MY PAINTINGS

The surfaces of my paintings are areas on which an examination of several concerns can take place. One of these is to explore the way in which the use of perspective lines give an object a specific placement in space. Since the paintings are carefully designed to conform to the laws of three-point perspective, all of the edges of the various joined panels, both inside and outside the work, participate in the creation of the illusion of depth. Each shaped panel represents an area that would be seen as a rectangle if viewed at right angles to one's line of sight but has its configuration altered to conform to its apparent shape when seen at a given angle. At any given angle each panel has two of its sides converging on one vanishing point and the other two converging on another vanishing point.

Related to this there is an exploitation of the fact that the paintings are a documentation of one viewing point chosen carefully to permit the best possible angle for an examination of the interrelationship of the various facets that make up the total painting. With any change whatever in the viewing position the apparent shape of the facets will be altered as will the amount of exposure in those panels that are partially hidden. The optimum position is that one which best provides available space on which to orchestrate color. Since we tend to read color spatially, a careful placement of color will either make that colored area be perceived as closer or further away and the color will

itself in turn be given a spatial reading by the reciprocal action of the already existing color. It is also true that with the addition or alteration of any one color on the painting surface, the visual effect of the whole painting is changed.

Each color is also chosen bearing in mind the fact adjacent or background colors will often alter their reading. For example, "an object appearing blue-green on a white background may appear to be light blue when placed on a black background. On a greenish-yellow background it will tend toward a purplish blue. If the background is grayish purple, the object will be brilliant blue."⁷

One commonly observed example of a background color altering a given color occurs with car headlights on those occasions when the sky is brilliant red at sunset. Normally yellowish white headlights on cars are then clearly perceived as green.

The idea of one viewing position only to observe a given object for illusionary effects is certainly not new to art and has been exploited by many artists past and present. The great Italian Baroque painter Guercino (1591-1666) frequently exploited this phenomenon. His ceiling fresco Aurora, in the Villa Ludovisi, Rome is an outstanding example. When the painting is viewed from directly below, the illusion is convincing and involves the entire ceiling and the walls as well. In illusionistically extending the walls upward into part of the ceiling area and then presenting the remainder of the ceiling as an open vault of sky, Guercino has succeeded in unifying illusion and reality. The same device of unifying illusion and reality was used by Pietro da Cortona (1596-1669) in the fresco The Glorification of the Reign of

Urban VIII, in the Barberini Palace, Rome. In it the walls and ceiling are both involved in a grand heroic concept that is as majestic as it is illusionistically convincing. The same device, with variations and refinements, was used often in the later Baroque and Rococo churches throughout northern and central Europe, especially in Austria and Bavaria.

In our own time the device of one viewing position is still used by some artists, not to glorify a particular ruling family such as the Barberini, but as a means of understanding better the phenomenon of illusion itself. One artist who is carrying on such a research is Adelbert Ames, Jr.

Gombrich, in his book Art and Illusion, describes one research project by Ames. A situation is established by Ames so that in looking through three separate peep-holes into rooms, one sees, and accepts without question, the presence of a similar chair in each room. After having seen the three separate chairs, the viewer is permitted to examine the image seen from another angle and there finds that in fact only one was a real chair, the others being an assemblage of parts of varying sizes so arranged that, when observed from one viewing point only, they are perceived as chairs.

Gombrich says that the illusion consists "in the conviction that there is only one way of interpreting the visual pattern in front of us. We are blind to the other possible configurations because we literally 'cannot imagine' those unlikely objects. They have no name and no habitation in the universe of our experience."⁸

Ames is trying to indicate by his demonstration that "percep-

tions are not disclosures." The peep-holes do not in fact reveal what is there, but permit us to guess only, "and our guess will be influenced by our expectations."⁹

One other experiment by Adelbert Ames is described in Psychological Monographs in the form of a paper presented by Ames entitled "Visual Perception and the Rotating Trapezoidal Window." Ames has devised an ingenious arrangement which consists of a rectangular window-shape with a cube extended from one end and a cylindrical rod extended through one window-shaped aperture at 45° . Below this hangs a trapezoidal shape approximating a rectangular window as it would appear at an angle from the observer's line of sight. It also has a cube extended from one end, in this case the narrower end, and a cylindrical rod extended through it at 45° . Both are on a fixed rod and suspended below an electric motor. Their relative angles to each other can be altered by set screws on the fixed rod. When the electric motor causes the apparatus to rotate through 360° at a speed of from three to six R.P.M. a remarkable illusion takes place. The best viewing distances are ten feet, using one eye, and twenty-five feet, using both eyes. In the illusion, the rectangular window is clearly perceived as rotating regularly through 360° at the frequency determined by the motor. The cube attached to one end is also accepted without difficulty as rotating around the window at the same speed. The rod extended through it also is seen as rotating through 360° at the same frequency.

However, the trapezoidal window suspended below and also rotating through 360° , in pace with the rectangular window, presents a surprisingly different aspect to the observer. If at the start both

window shapes are placed edge on, by the time the rectangular window has advanced 90° the trapezoidal window will appear to have advanced only 50° . As the rectangular window continues on in its rotation to 270° the trapezoidal window will seem to have returned to 50° the other side of zero or 310° . As the rectangular window continues on to 360° the trapezoidal window will also return to zero again. Thus the trapezoidal window presents the illusion of swinging back and forth between positions 50° either side of zero with the narrower end always further away from the observer.

While this illusion is taking place, the cube attached to the narrower end will be seen to swing through 360° and appear to become separated from the trapezoidal window. The rod extended through the trapezoidal window will clearly have to be bent to be consistent with the apparent forward and backward swing of the trapezoidal window since, when the apparatus has advanced in reality through 90° , the ends of the rods will present different aspects to the observer. At the point at which this happens, the trapezoidal window through which the rod is extended will appear to have only advanced 50° . Most observers can clearly see the illusionistic bend in the rod taking place.

Ames, in attempting to explain why the illusion takes place, asks the pertinent question, "Why, when we look at the rectangular window, do we see a rectangular window, when the characteristics of its images formed on our retina are trapezoidal?"¹⁰ He sees this question of double significance because the trapezoidal window is also seen as rectangular, thus indicating that the perceived rectangular form does not come from either the object or stimulus pattern.

Ames states that the observer in his normal daily functions constantly confronts situations in which rectangular forms are seen at other than right angles, and thus in reality present an image that is actually trapezoidal. Such situations occur when we approach a building at an angle. We know that the objects are rectangular and the habit becomes deeply ingrained to ignore the trapezoidal image the building, door, or any other rectangular surface under similar circumstances presents to the eye. Ames says the observer also learns to interpret the particular degree of trapezoidal distortion according to the amount of departure from the rectangular his particular viewing angle provides. He then says, "These interpretations do not occur at the conscious level; rather, they are unconscious and may be characterized as assumptions as to the probable significance of indications received from the environment."¹¹

In trying to explain why the trapezoidal window appears to reverse direction, Ames attributes the cause to two things. First, since the narrower end does not appear as large as the larger end, even when it is closer to the observer, it is easily interpreted as still farther away. As the apparatus swings more than 90° or the position at right angles to the viewer where the greatest horizontal dimension exists, the trapezoidal window is perceived on the observer's retina as once again occupying less horizontal space. Since the observer, through habit, learns to interpret trapezoidal versions of rectangular objects as being rectangular at an unconscious level, this, coupled with the fact that one end remains constantly shorter, provides the illusion of a rectangular window frame swinging back and forth 50° on either side

of an edge-on position.

The observation made by Ames that we have formed the habit of seeing rectangular shapes observed at an angle as still rectangular despite the actual trapezoidal image they present, applies to some of the panels in my paintings. In every instance the various panels making up my paintings represent either a square or rectangular area. As they are seen in perspective the ones not partially hidden do in fact present a trapezoidal image. Since most observers can interpret them as rectangular areas seen at a given angle, the remarks made by Ames are essentially correct.

Several of my paintings have been constructed of joined panels with each panel consisting of one solid color. Although the borders of every panel are part of the shaping lines forming the total image of an object in perspective, the panels tend to read as flat areas of color. This is because the line created where they are joined to adjacent panels is a clear demarcation area and perceived less as facets making up a total image than would be the case if the separation were not physical but established by different colored paint meeting on one piece of canvas. Since their color is solid and since Ames has pointed out that we interpret trapezoidal areas as rectangular through habit, the panels are perceived by observers as more flat than would be the case if they were not separate. Their greater acceptance as flat areas provides a better opportunity to permit color to function spatially on them. This is because the colors have less opposition spatially from the volumetric implications provided by the perspective lines.

Several of the paintings are designed to give the appearance

of looking into an object that is open at both ends. This is to give a placement of the painting in space, in relation to the wall, which is ambiguous. The viewer should also ask himself if the painting exists somewhere in front of the wall or does it in fact seem to project ambiguously through the wall. He should also ask where the wall, seen through the center of the painting, is in relation to the painting itself. In order for those paintings to be read as objects in space it is also necessary for the viewer to project mentally some of the panels beyond their existing dimensions and make linkages. These linkages must occur imaginatively behind other existing panels, thus aiding the illusion of three-dimensionality. Such mental projections of given shapes are the result of our expectations. Gombrich, in his book Art and Illusion, describes just such a situation¹² when he writes about charts used by oculists to test our eyesight. The letters used are completely random, otherwise our expectations would prevent us from disentangling our seeing from our knowing or expecting. He concludes that it is the power of expectation, rather than the power of conceptual knowledge, which moulds what we see in life, no less than what we see in art.

Gombrich states further that a few clues¹³ presented with sufficient boldness and clarity will make us find the solution to the puzzle which the image presents to us. In some of my paintings clues are offered to the observer which are ambiguous, and a quick reading of them will lead to the wrong interpretation. The observer must re-examine the clues within the total context of the design, which will then lead to the intended interpretation of the painting.

The concept of holes through paintings, used in my art, already

has a precedent in some of the works of Frank Stella during the 1960's and in the slashed and punctured canvases by Lucio Fontana. The concept can also be seen in some sculptures, especially those by Henry Moore and Barbara Hepworth.

Rudolf Arnheim wrote an essay on the function of the holes in Moore's sculpture, and some of his observations are applicable to the function of holes in my paintings, particularly when he says that the holes through Moore's works permit the space or air around and beyond the sculpture, and the sculpture itself, to become involved in a two-way relationship, thus establishing an interchange of forces between the two partners. "The sculptural body ceases to be a self-contained, neatly circumscribed universe. Its boundary has become penetrable. It has been inserted into a larger context."¹⁴

In the painting entitled No. 7/1977 (Figure 10) the perspective is carefully arranged to give the illusion of an object in space with two open surfaces in the shape of isosceles triangles. The painting is arranged so that one can see through both of the missing surfaces and see part of the wall beyond. Since the painting can be read logically as a flat projection, on the wall, of a three dimensional object as it would be perceived from one particular viewing point, it follows that the blue panel would therefore represent the part of the object that is closest to the viewer.

Choices for panel colors were made taking into consideration theories put forth regarding the psychological reactions of people to the alleged spatial aspects of color perception. In his book Interaction of Color, Josef Albers¹⁵ describes such a theory. The theory claims

warm colors are seen as near and cool colors are seen as more distant. The phenomenon is seen as dependent on the mechanical aspects of the light frequencies involved. Since the warm colors are of longer and cool colors of a shorter wavelength, they optically register in different ways. In order to present a reading in opposition to the clues given by the perspective lines, bright red and yellow were chosen for the remaining two panels of the painting, which by the implications of the perspective lines, can be read as the bottom or floor of the object and the far wall. Warm colors tend to be figure and cool colors tend to be ground. Warm tones are "advancing" colors, while cool colors are "receding."¹⁶ Thus, the advancing colors are figure, the receding colors are ground. Therefore, the blue panel reads as a ground for the red and yellow panels. This is in direct opposition to the reading that can be made by the perspective lines, thus placing the two perceptions involved in interpreting the painting into direct opposition and creating an ambiguous situation. This is the intent in most of my paintings consisting of joined panels with an aperture in the center. The shapes of the yellow and red panels are such that the viewer must eventually make a linkage of them with the top and bottom of the blue panel by mentally projecting them behind the blue panel. That linkage is a very tenuous one, however, because of the strong tendency to read the blue as ground. Because of the clearly seen separations between the panels at their points of juncture and because each panel is of one clear unmodulated color, there is also a tendency to read each one as a flat surface. This deliberately compromises both the illusion of three-dimensionality brought about by the perspective and the figure ground perception

induced by the use of color and serves as a buffer between the two perceptions, resulting in the painting being accepted as a flat entity against the wall.

The painting Number 3/1978 (Figure 11) was designed to deal with illusions by the use of transparencies. The painting is designed to represent the appearance of three equally sized and shaped rectangles as they would appear in a given space. They are shown as they would appear in perspective if parallel and equally spaced. To deal better with color in the transparencies, the primaries of red, yellow and blue were chosen. Where the red panel has disappeared behind the yellow, both the red and yellow paint were mixed to illustrate the projection of the red panel as it would appear from the chosen viewing point and as it would appear in color with the yellow transparent and permitting an equal mixture of yellow and red. The same procedure was followed where the yellow disappeared behind the blue: it is represented by a green area that is a mixture of equal parts of the given blue and yellow. The carefully mixed green and orange areas lie exactly between the blue and yellow and the yellow and red which are their color parents; thus the suggestion of three-dimensionality given by the perspective lines is opposed. This is because the green and orange areas read as lying on the surface and not behind the yellow and blue areas as would normally be the case in true transparencies. Thus an ambiguous situation was established because of the two readings. Had oranges and greens been chosen which were closer to the yellow and blue areas that surround them, the illusion of three-dimensionality would have been supported and the perceptual reading of the painting

would have been more consistent and would have resulted in the painting having a briefer hold on the viewer. In his book Interaction of Color, Josef Albers gives several examples of perceptual reading of transparencies depending on the relative strength of the two parent colors involved in the mixtures. In each instance the parent color that dominated the mixture resulted in that color appearing to lie on top of the other color. However, when the relative strengths of the two parent colors were equal in the mixture, the result was an ambiguous situation where the "middle mixture appears frontal, as a color by itself."¹⁷

With Albers' findings clearly in mind, a painting was designed which performed spatially exactly what was asked of it beforehand.

In the painting Number 5/1978 (Figure 12) two cubes appear as they would if they existed in space and the left edge of the one on the right were just touching the right edge of the one on the left. They are arranged to represent two cubes of equal dimensions as they would appear in space if they were separated by a distance equal to the dimensions of a missing third cube. As Ellsworth Kelly did in his painting Rebound, I chose a viewing position which is most favourable for the working of the intended illusion. Any move to the left from the optimum position would result in a separation of the two cubes and any movement to the right from the chosen viewing position would result in the partial overlapping of the left cube by the cube on the right. The perspective lines convey the illusion of the cube on the right being closer to the viewer. To oppose this, the cool colors blue, green and purple were chosen for the cube on the right and the warm

colors red, orange and yellow for the cube on the left, which results in the latter being read coloristically as object against the former cube's reading of ground. Because of this color arrangement, the viewer's attention is held by the cube on the left and it is perceived coloristically as closer to the viewer. Actually, the two panels are joined where the red and blue facets touch and the painting lies flat against the wall. In choosing various ways in which to arrange the placement of color on each of the two illusionary cubes, I found that the contrast between object and ground was greatest when yellow lay next to the blue. However, this made the colors appear strident: in order to present the painting to the best advantage it was necessary to use an arrangement that placed red next to the blue. This choice had the additional advantage of each colored facet having its complementary color in the corresponding facet in the adjacent cube.

The design of the painting also contributes to an awareness of a sense of illusionistic space between the two cubes because of the optimum viewing position. The arrow-shaped wall-spaces, that exist both above and below the meeting point of the red and blue, point to this space and help to increase the awareness of it.

In the painting Number 6/1978 (Figure 13) there is a reversal of the situation established in Number 5/1978. The dimensions and the perspective are the same, but whereas the cool colors were on the right and the warm colors were on the left in Number 5/1978, they are now reversed. This results in the cube on the right being perceived as closer to the viewer both by means of the perspective lines and the

figure/ground reading of color. When the two paintings are shown at the same time they afford an excellent opportunity to compare the illusionary aspects of color as it alters the spatial readings of two otherwise similar paintings.

In the painting Number 7/1978 (Figure 14) there is an expansion of the dimensions of the paintings Number 5/1978 and Number 6/1978, yet the same optimum viewing point is maintained. The result is an opportunity to control larger areas of color and examine not only how they compromise the reading of the perspective lines, but also how each color functions in relation to the two adjacent colors on the same panel.

In a later painting of the same size and format the cube on the left was assigned the same color as the cube on the right in Number 7/1978 and the right hand cube was painted in three shades of pale blue gray. The dark brown cube on the left was now slightly warmer than the light bluish-gray cube on the right, and now read slightly as figure, whereas the same color was formerly perceived slightly as ground. Thus, a given color in both paintings performs differently in each painting because of the action of colors adjacent to it.

In the painting Number 11/1978 (Figure 16) a design was made to deal, in graphic form, with some of the arguments advanced by Rudolf Arnheim and J. J. Gibson concerning the basic ways of perceiving and interpreting form. Before describing my intentions in the painting it will be helpful to refer to writings by Arnheim and Gibson and some observations that bear directly on the painting. In

his book Towards a Psychology of Art, Arnheim discusses the way in which certain forms are interpreted. Basic to his argument is his own involvement with Gestalt psychology.¹⁸ By applying Gestalt principles to interpretations of art, he sees contemporary art as a turning away from the traditional assigned task of depicting objects and a returning to an involvement in the psychology of spontaneous observation. Such art can be described as an exercise in the principles of basic perception and has been central to my own art since my discussions with Guido Molinari while at Mount Allison University. As a result, many of my paintings are responses to perceptions of basic form as perceived in certain "just right" situations. The term "just right" is used to describe those situations where an illusion will work the best. One example is the way in which the concept for the painting Number 5/1978 was formulated. The idea originated when noticing the sudden disappearance of blue sky seen between two buildings when a certain "just right" position was reached which caused a visual meeting of their adjacent edges.

Arnheim states that "any picture that presents objects by means of such perceptual qualities as wedge shapes, oblique directions, shaped surfaces, will give the impression of movement, while the same objects will look stiff in pictures that do not fulfill the perceptual conditions."¹⁹

Any wedge-shaped form in abstract art, be it sculpture or painting, is dramatic even if it does not relate to any recognizable object. It is a basic human percept to interpret such forms as movement in a direction towards the narrowest point of the wedge form. If not movement, at least a definite thrust is felt in that direction.

J. J. Gibson's influence has increased in the field of fine art because several artists are beginning to produce works specifically with his theories in mind. A number of such artists have combined their endeavours and have formed a group in New York called Anonima. Each year they have a group exhibition showing their paintings of the previous year in which they all have been dealing with one particular aspect of perception discussed by Gibson. Each year a different perceptual problem is examined by the group.

Gibson's theory seems to differ from those advanced by Arnheim and other writers on perception because he is writing about how we see the three-dimensional world around us. He deals far less with aspects of human behaviour as it modifies our perceptions, considerations which are important to Arnheim and other writers involved in Gestalt psychology.

The space Gibson is concerned with is the real visual space of the world, and not one based on two-dimensional forms involving flat projections of geometrical or abstract shapes on paper that one often encounters in other theories.

"Gibson's theory is based on the proposition that abstract points, lines and planes are a poor basis for analyzing how we see because no one has ever seen them; hence, points and lines drawn on a sheet of paper to represent surfaces are poor material to use in form-perception studies."²⁰ He believes that the historical tendency to think of form as two-dimensional only is

a major obstacle to the correct understanding of visual perception. The main historical reason is that two-dimensional vision has always been thought of as the

more primitive sort of vision and that some higher process or processes were required to make three dimensions out of the two only given in the retinal image. How the flat retinal image becomes a three-dimensional percept has always been something of a mystery.²¹

Gibson contends that the ability to perceive in three-dimensional form is a natural and primitive state and, on the contrary, the ability to see in two dimensions, in the way that would be necessary to perceive and respond to Gestalt psychology tests, requires a special attitude learned in more recent times: hence those tests do not reflect findings that are basic to mankind's response to his world.

These observations were interesting to me because of my experience with linear representations of objects in space while I was employed as an illustrator. The drawings had always conveyed to me the illusion of an actual object in a given space and, more important, the technicians who made use of them would appear never to have been confused by them or to have interpreted them incorrectly.

After reading the observations of both Arnheim and Gibson, I designed the painting entitled Number 1/1978 (Figure 15) to examine their ideas. In retrospect the painting seemed to fall a bit short of confronting their ideas directly, so a new painting was made based on the same design, entitled Number 11, 1978 (Figure 16). The illusion of a pentagon in space was chosen because it was the most efficient format for presenting an arrow shape. The blue and green panels together suggest an arrow shape and present a strong suggestion of motion up and to the left. The exercise was to counter this strong

thrust by the choice of color for the other three panels, in other words, to fulfill Arnheim's perceptual conditions for implied motion, yet oppose them by the use of color.

My response to Gibson was motivated by his statement that points and lines drawn on a sheet of paper to represent surfaces are poor material to use in form-perception studies. My illustrations could be described as lines drawn on paper to represent surfaces and the technicians who used them found that they represented the form that was intended. My present paintings are extensions of my illustrations, and it can be argued that they are lines drawn on a surface, namely the wall, to represent the various facets of objects in space. If Gibson was correct, they would be poor vehicles for conveying the illusion of form. It is my contention that once the viewer has made the necessary linkages of the various panels that must occur, the perception of the form will be powerful, and indeed must be countered by the use of color to compromise the illusion. One way of opposing the implied motion created by the blue and green panels was to concentrate the viewer's attention on the lip of the pink panel next to the aperture in the center. Initially, the pink panel was cadmium yellow, and one concentrated on the very center of the panel. The yellow was also a disturbing element because it upset the harmonic relation that exists among the other four panels. It was also powerful enough to overpower completely the thrust provided by the blue and green. After careful consideration, pink was chosen to replace the yellow, which produced a more harmonious interrelationship of colors. However, within that relationship the pink, scarlet, and rose retain just enough

strength to balance the thrust of the blue and green panels. Thus the painting is self-contained, yet retains enough tension to be active spatially and involve the wall around it.

The painting, therefore, justifies the observations of Arnheim and refutes, at least in part, the arguments put forth by Gibson. It opposes Gibson's contention that a drawing consisting of lines on a flat surface is a poor vehicle for interpreting form. His argument brought back to mind my own concerns as an illustrator to have my drawings photographed from just the right viewing distance for best effect. The painting, however, because of its size and greater viewing distance, involves the viewer in the illusion of three-dimensional form in space with very little difficulty. However, in broader terms, Gibson's argument is essentially correct. If the painting was in fact reinterpreted into a sculpture and placed in a setting where the viewer could walk around it and examine the form from many angles, there would be no hesitation whatever in accepting the sculpture as an entity existing in a real space.

Chapter IV

CONCLUSION

All of my paintings were designed to examine a particular illusionistic problem. Some of them were successful in resolving the perceptual tasks, yet were failures as works of art when examined with different criteria. The painting Number 3/1978 (Figure 11) is an example. Although the color mixtures on each of the panels do succeed in lying flat on the surface, the actual visual appearance of the painting is considerably less than pleasing. The most serious failure is a result of the sharp projections formed by the larger ends of the three panels. Their shapes hold the viewer's attention, thus compromising the areas of illusionistic overlapping. Gestalt theory holds that the simpler the shape of an object, the more pleasing the object will be to our perceptions. Another serious shortcoming is a result of the figure-ground phenomenon. The attention received by the red and yellow panels is much greater than the attention received by the blue panel, which acts as ground for the warmer colors. The painting could have been helped by selecting colors, for the separate panels, of a closer range, but the shape would still have the same detrimental effect mentioned earlier.

The painting Overlapping Diamonds, Number 1/79 (Figure 17) was designed to address the same problem as Number 3/78 but with a different approach. Since the two implied diamonds are the same

size and shape and each have three chevrons of the same size, there is very little conflict between them. The colors chosen are much more harmonious than in Number 3/78 and are closer in intensity. Although all the chevrons point left, thus presenting the danger of too strong a thrust in that direction, they are balanced by the smaller red diamond on the right.

However, there is a flaw in the painting. It is difficult to determine what is happening where the overlapping takes place. A light gray diamond is involved in the color transparency, but its presence is dominated by the three chevrons continuing through it. Since the light gray is the only color not also appearing elsewhere, it is considerably weakened.

The painting Number 1/78 (Figure 15) was designed to explore the ideas of Arnheim and J. J. Gibson discussed in the previous chapter. The results failed to address the ideas directly because of the colors chosen. The two yellow panels held the viewer's attention because of their colors. This permits the arrow shape they form to be too dominant. A second painting, Number 11/78 (Figure 16), was later made from the same design to examine the same ideas but with different colors. The second painting was able to contain the implied motion created by the arrow shape because of the greater strength of the pink panel in combination with the red and scarlet panels.

When I compare the two paintings I find the first one much more pleasing visually. This realization makes me question my motives. Should I paint to address particular perceptual problems or is it wiser to fulfill one's own criteria for beauty, especially

in the use of color?

Ellsworth Kelly's painting Rebound (Figure 8) confronts a perceptual problem, yet it has no color at all, only black and white. His painting Red, Yellow, Blue V (Figure 9), although it confronts a perceptual situation, the seeing of a previous painting out of context and in perspective, is essentially a reaffirmation of the same joy of color already manifest in many of his previous paintings. Which painting is better? The question is academic because each painting has merit within different given criteria.

Which paintings of my own are better, those made to be visually pleasing both in color and design, or those made to confront a perceptual problem? The question is not academic and must be answered.

In my own paintings it would be best to continue exploring perceptual problems created by the use of lines of perspective and by the special aspects of color. A strong color sense has always been with me since my formative years on the island, and will remain. By continuing to investigate perceptual problems my own art can only continue to grow. This is because each new perceptual problem examined will further broaden the range of my own understanding, ultimately enriching my art.

FOOTNOTES

- 1 Gerald Berreman et al, Editors, Anthropology Today (Del Mar: California, Communications Research Machines, 1971), p.421.
- 2 Bernard Berenson, Italian Painters of the Renaissance (London: Phaidon Press Ltd., 1952), p. 109.
- 3 E. C. Goossen, Ellsworth Kelly (New York: The Museum of Modern Art, 1973), p. 14.
- 4 Ibid., p. 18.
- 5 Kenneth Baker, Arts Magazine (New York: 51:1,September 1976) p. 111.
- 6 E. C. Goossen, Ellsworth Kelly (New York: The Museum of Modern Art, 1973), p. 80.
- 7 Howard Bartley, Principles of Perception (New York: Harper and Row, 2nd edition, 1969), p. 113.
- 8 E. H. Gombrich, Art and Illusion (New York: Pantheon Books Inc., 1960), p. 249.
- 9 Ibid., p. 249
- 10 Adelbert Ames, Jr., "Visual Perception and the Rotating Trapezoidal Window," Psychological Monographs (Washington: The American Psychological Association, Volume 65, No. 7, 1951), p. 14.
- 11 Ibid., p. 14.
- 12 E. H. Gombrich, Art and Illusion (New York: Pantheon Books, 1960), pp. 223-225.
- 13 Ibid., p. 234
- 14 Rudolf Arnheim, Towards a Psychology of Art (London: Faber and Faber, 1966), p. 253.
- 15 Josef Albers, Interaction of Color (New Haven: Yale University Press, 1963), p. 63.

- 16 Deborah T. Sharpe, The Psychology of Color and Design (Chicago: Nelson-Hall, 1974), p. 107.
- 17 Josef Albers, Interaction of Color (New Haven: Yale University Press, 1963), p. 38.
- 18 Rudolf Arnheim, Towards a Psychology of Art (London: Faber and Faber, 1966), p. 346.
- 19 Ibid., p. 75.
- 20 Leonard Zusne, Visual Perception of Form (New York: Academic Press, 1970), p. 144.
- 21 Ibid., p. 145.

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