

THE DEVELOPMENT OF MY SPATIAL CONSCIOUSNESS
BEYOND PAINTING AND TWO-DIMENSIONAL SPACE
TO THE CONSTRUCTED RELIEF
AND ARCHITECTONIC SPACE

A Thesis

Submitted to the College of Graduate Studies and Research
in Partial Fulfilment of the Requirements

For the Degree of

Master of Arts

in the

Department of Art

by

James Crawford Kloes

Saskatoon, Saskatchewan

August, 1983

The author claims copyright. Use shall not be made of the material contained herein without proper acknowledgement, as indicated on the following page.

The author has agreed that the Library, University of Saskatchewan, may make this thesis freely available for inspection. Permission may also be granted by Professor Eli Bornstein who supervised the thesis work reorded herein or, in his absence, by the Head of the Department of Art or the Dean of the College of Arts and Sciences. It is understood that due recognition will be given to the author of this thesis and to the University of Saskatchewan in any use of the material in this thesis. Copying or publication or any other use of the thesis without approval by the University of Saskatchewan and the author's written permission is prohibited.

Requests for permission to copy or to make other use of material in this thesis, in whole or in part, should be addressed to:

Head of the Department of Art
University of Saskatchewan
Saskatoon, Saskatchewan, S7N 0W0
Canada.

DEDICATION

this thesis is dedicated to
my father and mother,
John William and Grace Virginia Kloes.

ACKNOWLEDGEMENTS

I wish to express my sincere thanks and gratitude to Professor Eli Bornstein, whose assistance and critical judgement were invaluable to the development and completion of this thesis.

Also, I express sincere thanks to the faculty members and staff of the Art Department who helped me with their knowledge and friendship for the past two years.

Finally, I would like thank the Division of Extension and Community Relations, the College of Graduate Studies and Research, University of Saskatchewan, and the Saskatchewan Arts Board for their financial assistance.

TABLE OF CONTENTS

	Page
Introduction	1
Autobiography and Ideals	3
Historical Background: Constructivist Art	6
Limitations of Photographic Representation and Illusionistic Space.	10
The Sense of Architectonic Space and El Lissitzky's Model	12
The Constructed Relief and Architectonic Space	20
Conclusion: My Own Structurist Reliefs	29

ILLUSTRATIONS

	Page
Figure 1. Liquid Space - Architectonic 'Painting'	13
Figure 2. Suprematist Painting	14
Figure 3. Proun 12E	16
Figure 4. Maison Particulière	26
Figure 5. Vertical, Horizontal and Diagonal visual paths seen in a structurist relief	27
Figure 6. Yellow and White Planar Reliefs	31
Figure 7. White, Green Planar Relief, with Blue, Orange and White Elements	32

INTRODUCTION

The constructed relief involves the manipulation of three-dimensional space. Its evolution includes a variety of relationships to the traditional medias of painting, sculpture and architecture. I shall discuss my own artistic growth, the historical background of the constructed relief, and its spatial problems.

In the last seventy years the renewal of painting that began with Cubism has involved a simplification of the visual language, and the movements which followed Cubism proclaimed a liberation from subject and verisimilitude, which heralded the advent of abstract Constructive art. The term "architectonic" refers to the three-dimensional constructive qualities of architecture. Yet architecture and its internal space is more than a reflection of stylistic tendencies in painting and sculpture. The specific property of architecture that distinguishes it from all other arts is its inherent use of three-dimensional interpenetrating space through which man moves. Traditionally, painting functions in two dimensions, although it can suggest three or four (motion), sculpture works in three dimensions, which are observed from the outside only.

Plans, elevations and cross-sections are traditional means of representing architectural volume. Our illiteracy

regarding space derives mainly from the limitations of these modes of representation, which break down volume into vertical and horizontal planes. Architectural space does not consist of the sum of the width, length and height of the structural elements which enclose a space, but in the void itself. Internal space, the essence of architecture, cannot be adequately represented in any form, but can only be grasped through direct experience. Until we have learned not only to understand space theoretically, but also to apply this understanding as a central factor in our aesthetic experience, we shall continue to describe buildings in pictorial rather than spatial terms. The constructed relief has some qualities similar to that of architecture.

Autobiography and Ideals

Architectonics, the dynamics of space, has been one of the greater interests in my life. Looking back I have recognized that it has not been the functional nature of architecture that has intrigued me, but the kinesthetic interaction of space and light that was evident in various buildings. I was fascinated by the interaction of rhythmic masses, proportions, scale changes, repetitions, voids and volumes, all articulated in real space/time to form a harmonious unity within a single structure. This awareness shaped my consciousness towards a rational and analytical sense of artistic creativity and vision. From an early age, at home, I enjoyed the exploration of precision-built mechanical objects. By experiencing the uses of micrometers, vernier calipers and other measuring instruments, in conjunction with illustrated technical manuals on engines and transmissions, I learned the mechanics of machinery and other constructions. My father, a machinist, demonstrated how to scrutinize things from a rational and technical point of view, in increments of thousandths of an inch. I learned to look at things beyond mere specifications, to see why certain components were created using particular principles in design. By learning early in life how to visualize objects in three-dimensions, and how to understand the relationships of components to a

whole, I was later able to perceive the need for unity in my own artistic work. I began to look beyond the surface of objects, such as buildings and machines, started to see the interior and exterior forms as equally important factors, and began to understand their interaction and relationship to one another. This constructive perception was a form of reaching out and concentrating on the operation and function of various objects. This attitude continued into the development of my art.

Also, my father received a subscription to "American Machinist" and within its pages I learned to appreciate new manufacturing processes and the development of new technologies in the production of industrial machines and product design. I mention my interest in this only because many young Russian Constructivist-Productivist artists had a similar interest in mechanical processes. Their vision of industry, however, was a utopian vision of modern Western industrial procedures moving Russia into a social and economic development, beyond the old feudal system of the Czarist régime.

Thus for the Russian, the machine came as a liberating force, liberating man from the tyranny of nature and giving him the possibility to create an entirely man-made world, of which he will finally be the master. This vision of the machine as a liberating force was one of the reasons for the joyful welcome given to the Bolshevik régime a few years later--a régime which promised

a new world, a new society transformed by the machine, by industrialization. This romanticization of the machine lies at the basis of all these 'isms' in art and literature which identified themselves with the Revolution, and in particular the aesthetic of Constructivism.¹

The Revolution gave relevance to the artist's activities and long sought direction for their energies. Camilla Gray writes that "As Futurists they could not but respond to the appeal of such a régime which announced the advent not only of a communal way of life in which the artist would be an integrated member of society, but one which was based on industrialization."² The artist and his art was involved in common life, art was given a practical task, and the artist was considered as a responsible member of society. I empathize with the ideals and goals of the earlier Russian Constructivist artists of this century. Gray suggests that "The theory of Constructivism was not only an aesthetic but a philosophy of life. It affected not only man's environment but man himself. Man was to be the king of this new world, but a robot-king. This Utopia envisages a world, in which art was no longer a dream-world to which the working man retired for relaxation and to regain his balance, but became the very stuff of his life".³ The visual arts moved beyond the art gallery, and became part of everyday life. Termed "laboratory art", this work

was constructed with industrial materials, and attempted to replicate industrial ideals.⁴

Historical Background: Constructive Art

The Russian Constructive artists became part of the Revolution that idealized the machine and technology from Western industrial centres of the twentieth century. Industrialization was to liberate society and enable man to control nature. As radical elements of our modern intelligentsia they were permeated by the positivism of the natural sciences.

The Constructivists emphasized the rational and analytical aspects of creativity, and sought to determine the relationship of art to its spatial as well as social environment. Moreover, this manipulation of space was of paramount importance to their experiments. The metal, wire, glass and plastic constructions of Naum Gabo and Antoine Pevsner became a fusion of space, form and motion.⁵

Russian Constructivist art deals fundamentally with architectural relationships: an environment is created with structure and design utilizing mechanistic forms and plastic volumetric conceptions. The evolution of Russian Constructivist, Dutch Neo-Plastic and to some extent Italian Futurist experiments, and research in the simultaneity, juxtaposition, and interpenetration of volumes and planes, provides us with the elements necessary for the development of

this type of design. These models and experiments are very useful in understanding architectural space and spatial relationships, and are only limited in impact by their lack of scale.

The new movement began when artists, still not discarding representation, began to present in their pictures not the external appearance of the world but the constructive forms that lie at the basis of visual reality. (Cézanne considered the cylinder, the sphere, and the cone such forms)⁶. Painting adopted its own kind of architectural constructions. Cubism and Futurism revealed the inner world of visible things and made manifest that which the visual eye⁷ did not perceive and did not apprehend. Cubism represented remembered images of multiple views simultaneously. By breaking and displaying invisible sides of objects the Cubists strove towards the most intensive manifestations of life, towards dynamic motion in all directions.⁸ The Cubists replicated this dynamic motion by painting various viewpoints simultaneously on a flat plane, implying motion in all directions. The Cubist summarized vision and motion in a single moment in the painting. They were not content with the representation of multiple views of the exterior of an object. Their passion for discovery, for grasping the total reality of the object, led them to the following thought: in every physical structure there is internal as well as external form. Thus in their paintings they show, simultaneously, not only the external aspects of

an object, but also that object in plan, exploded and fractured.

The most important factor to note is that the artist began to regard the picture plane not merely as space for the illusional representation of objects but as a tangible element in itself. The negative space or background of the picture plane was no longer a passive element in which to place figures. It became an active element that moved outwards beyond the surface. Pictorial space became a dynamic malleable element, activating figure elements on the painted surface. The Constructivist artist went beyond visual composition to construction, using composition as a surface concept, distributing material on a surface yet moving beyond to construction of actual volumes and planes. Slowly the Constructivist, Neo-Plastic and, to a limited extent, Futurist artists developed an architectonic consciousness; they began to articulate volumes and planes in space.

In the early decades of the twentieth century the Constructivist-Productivist Vladimir Tatlin, after seeing Pablo Picasso's paper and metal guitar reliefs and other constructions, was one of the first to create abstract constructed reliefs. It became an autonomous form through his innovative use of materials and its open construction that pierced and enclosed space.

In his corner compositions of 1915-16, Tatlin did away with the 'frame' or 'background' which had restricted his

earlier works, limiting them in space and time. For the frame does much to isolate a 'work of art', to hallow a selected moment, lifting it to the plane of the 'eternal': cordoning off a perfect, private, ideal world. It was this separation of the reality of art from the reality of life that Tatlin sought to destroy in these counter-reliefs. 'Real materials in real space' was his cry.⁹

Tatlin, and the other Russian Constructivists seemed to confirm Appolinaire's observation that "a structure becomes architecture, and not sculpture, when its elements no longer have their justification in nature".¹⁰ The early Russian Constructivist's works were non-referential, yet utilized architectonic spatial ideas. Naum Gabo and Antoine Pevsner upheld the Constructivist ideal of non-objective sculpture; the only connecting link between the "new" sculpture and architecture was their common use of interpenetrating space¹¹. In the twentieth century the difference between painting and sculpture diminished and sometimes disappeared as space was increasingly utilized as an integral part of contemporary Constructivist works. Space itself became a physical element of painting and sculpture. It was no longer looked upon as background to be enclosed under and within sculpted form. Only the media of motion photography remained to push illusionistic pictorial space to its limit. The two-dimensional plane itself was the only physical

restriction to the experience of space and motion. The limited illusion of two and three dimensional space, reproduced on a flat surface is best created by the medium of photography.

Limitations of Photographic Representation and Illusionistic Space

Photography faithfully reproduces the appearance of two and three-dimensional elements in architecture; everything, that is, but the physicality and movement experienced in actual space. However, as suggested above, the value of an architectural work consists in the perception of its internal space from successive points of view, and it is evident that no number of photographs can ever constitute a complete spatial rendition of a building. A single photograph records a building as seen from a single frozen standpoint, and excludes the multiple succession of points of view experienced by the observer who walks through that building. Each photograph is like a single phrase or note taken out of the context of its symphony, a single frozen gesture of an intricate ballet where the essential value must be sought in the movement and totality of the work. Whatever the number of still photographs, there is no physical sense of dynamic motion. It suffers from the disadvantage, even in the case of aerial views, of being unable to give a sense of the complete structure.

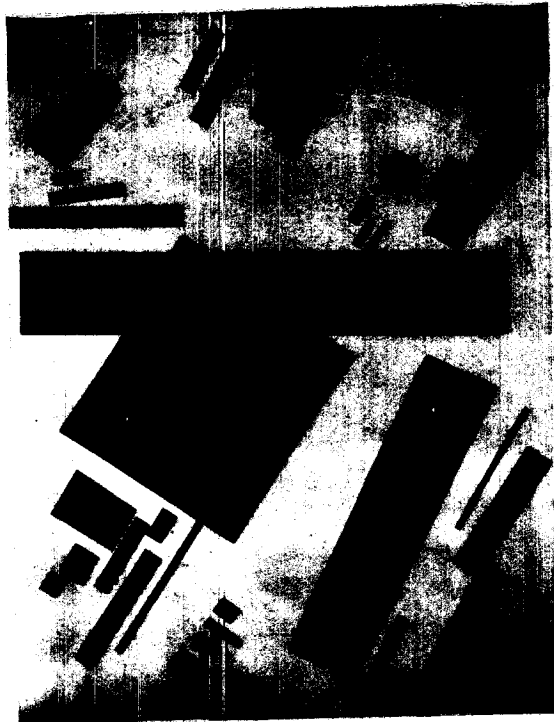
(Figure 1)
LIQUID SPACE 1980
James Kloes Architectonic Painting



THE PATH 1980
James Kloes Architectonic Painting



(Figure 2)
SUPREMATIST PAINTING 1916
Kazimir Malevich

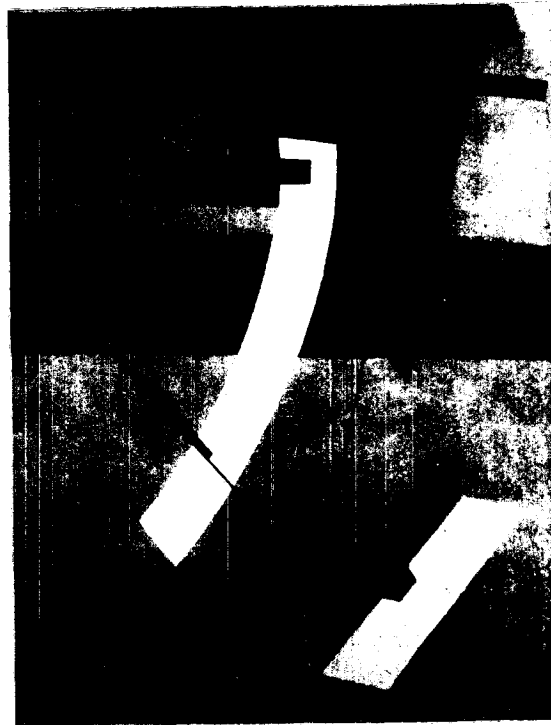


and this movement is fundamentally similar to the movement in film viewed from a single point. Such paintings idealize the experience of multiple paths possible in an architectural environment. The PROUN paintings created by Malevich's student El Lissitzky are also "architectonic", though limited to one surface dimension.¹³

El Lissitzky's architectonic PROUN paintings were created as an "interchange station between painting and architecture".¹⁴ The compositions are not only the result of El Lissitzky's technical and engineering abilities and intelligence, but are balanced with a creative gift that combines science with imagination and intuition. In his compositions of form, the relationship between colour, light, matter, space, and time plays a decisive role in his art. Within the borders of the picture frame is cosmic space, in which floating geometric forms are held counterposed by tremendous invisible tensile forces, giving one the illusion of three-dimensions. The original principles of Malevich gave an impetus to the architectural experiments of El Lissitzky. El Lissitzky does not stick to the conception of the "surface", but introduces into the picture the impression of an endless spatial continuum.¹⁵ The architect Lissitzky differs from the painter Malevich, in that he further develops the theory of his teacher, allowing Suprematism to advance the earlier finite pyramid of perspective into an infinite spatial continuum (Figure 3).

Geometrical, three-dimensional shapes float, like debris from the earth, in the infinite space of Lissitzky's picture.

(Figure 3)
PROUN 12E 1920
EL Lissitzky



The "PROUNS" functioned as bridges between Malevich's Suprematism and Tatlin's Constructivism.

The work of the Russian suprematists consists of paintings of surfaces, without representational significance, without perspective effects. The suprematist is satisfied with the consciousness of the material restrictions of his picture and of his own spiritual contrast to the natural world of appearances, formed by homogenous shades in two dimensions. But in the scattered squares, circles, and straight lines of the suprematists there lies the possibility of a creative conjunction. The suprematists held in their hands the bricks for a new building. This was brought about by Lissitzky's Proun.¹⁶

"The elements which make up PROUN, whether lines, planes or volumes, not only move from left to right, from the bottom to the top and vice-versa in the unlimited space suggested by the picture surface, but they also move towards and away from the onlooker"¹⁷ With Malevich, the formal elements within this space always remain parallel to the surface, while Lissitzky's approach shows unmistakably that he was trained as an architect and thinks of space architecturally. Lissitzky is not trying to represent bodies at rest (static) but rather presents a dynamic interplay of movements in different spaces. Lissitzky's

conception of space entails more than three-dimensions, so that the surface which he paints or constructs is transformed and becomes plastic. Every physical element is to be considered as space, caught between several surfaces, not as a static mass. Within each enclosed space are axial systems which enter into a relationship with the axial system in the next spatial element, usually by one or more changes in direction. Every Proun is a treatise on space and spatial relationships; it is an environmental experience of space and, as such, is without an object. Thus it replicates a sense of architectural space through its choice of multiple paths, although limited to the picture plane.

For El-Lissitzky the picture is a fragment of infinite space, in which movement occupies three or more dimensions. He was thinking in the Relativist mode of thought where time and space are a single component, not only in relation to the onlooker (forwards and backwards), but in all possible directions in space and time, in relation to each other.¹⁸ From this ground plan the axes move outwards, inwards in depth, diagonally, vertically and horizontally, to determine the position of the surface elements, from which the formal structure of the object must justify itself in every direction and area of the space as an independent, significant reality. Its construction must appear meaningful and alive from all sides. Floating unsupported in the middle of limitless open space, the painting is stripped of all its limitations, and all the traditional

methods of architectonic adjustment are overthrown. Now we approach the heart of what a PROUN is trying to portray: a collection of related axial systems. It is preparation for a new synthesis of real and illusionistic methods of CREATING SPACE, the realization of which will go hand in hand with the articulation of modern architectonic space, a dynamic movement through implied pictorial space partly suggested by the use of diagonal and axial systems. These paintings attempt to recreate the experience of walking through various spaces in buildings.

It is the reproduction of this spatial-physical experience that was the goal in my paintings. In my paintings I designed architectonic constructs utilizing space as a plastic element, not as a passive background. In these paintings I achieved dynamic relationships by the placement of figures along a diagonal axis. This forced the viewer to look into the painting as into an endless tunnel. The normal foreground, background and middle ground perceptual expectations are stymied by these compositions which do not rely on perspective. The viewer becomes a part of the paintings space and feels he is floating in equilibrium with the figures in the painting. This experience is only limited by the scale of the painting. The viewer interacts with the work and, through the use of a diagonal axial system in the placement of figures, the viewer essentially falls into the space of the work. This axiomatic projection, which I learned in drafting and then

utilized later in my paintings, is a very effective means to visualize three-dimensional figures on a two-dimensional plane. Also, the "figure and ground" relationship becomes a very strong element in these works. One cannot dominate the other or the work loses its sense of space and movement. By using extreme variations in scale on similar figures the picture plane expands forwards and backwards and, by utilizing a limited variation in scale on similar figures, the space becomes shallower. Unfortunately the viewer cannot interact with the work beyond the dimension of this window no matter what 'dynamic' elements are used by the artist. Whether diagonal-axial systems or extreme scale changes are utilized between the figure and ground relationship, the perception of space is still limited to a flat surface.¹⁹ Lissitzky's work seemed to confirm my own experience in painting and bring me to a further awareness of the limitations of this medium.

The Constructed Relief and Architectural Space

Space is central to the constructed relief, as form was to painting. It is a synthesis of some aspects of painting, sculpture and architecture. Colour, space, light and time are its components. In the relief, as in an actual building, darkness contracts sensory response, lightness

expands it. Architectural space is continuously self-creating through user interaction, as is the constructed relief, on a smaller scale. Both deal with actual space and/or kinesthetic space, as the observer changes his position. The constructed relief, through three-dimensional planes of colour, brings light and space into the work as a living, active ingredient, rather than as a passive one.

The space-light relationship is directly affected by the environment. Neither are illusionistic as in past art; both are interactive with the viewer and his environment. The constructed relief consists of coloured volumes emerging from a plane, that itself emerges from a wall. The forms displace and articulate actual space, organizing the work in a visual field that is immersed in light. The image is not created in the limited dimensions of illusion, (as in painting) but creates an image with some of the full dimensional characteristics of life.

The constructed relief avoids the dichotomy of the figure-ground by creating in a wider space-ground, a light field that is several inches in depth.²⁰ In the constructed relief the forms displace space, as all three-dimensional figures do. Yet, at a more complex level of perception, through the cube, space is included in the "figure", and thus defines space. In addition, the use of the ground plane provides a foundation on which to build, and enables

the artist to draw together a number of form and colour variables.

The blank ground plane of the work, like the white background of a Chinese watercolour, avoids the figure-ground dichotomy in its use of space, for both figure and ground are of equal significance.²¹ The nature of human vision means that the void behind any figure is seen as vacant space. The artist, therefore, articulates these two kinds of space, actual space and the secondary ground plane, both of which combine two and three-dimensional spatial characteristics within the composition, instead of only displacing space, as in traditional sculpture.²² Within the 180° visual field of the constructed relief, elements alternate in becoming the figure and form, and from the multiple viewpoints create a visual whole, as everything is seen at some point as both figure and ground.

To conclude this paper I will discuss the constructed relief as an ideal medium for the exploration of space-form relationships. The previous sections have dealt with the limitations of two-dimensional media, from painting to photography, and their dependence on illusion to create a dynamic form in space. The constructed relief attempts to offer an extended alternative.

The birth of the constructed relief as a new medium has occurred only during this century.

Cubism, Constructivism, Suprematism and De Stijl can be seen as transitions which all evolved through some contact, directly or indirectly with Cézanne. One can see in the later Cézanne and the early stages of Cubism an almost tactile agitation of the picture surface, a crisp collision of moving and overlapping planes in pictorial space, all somehow suggesting imminent movement outward. One can see in such works the impending break-up of the picture plane and the bursting forth of certain elemental forces of painting into the actual world of sculpture--tangible space and revealing light.²³

After the invention of Cubism the relief, though still hybrid, took a different turn. Cubist paintings suggested objects set out in a shallow box displacing the space of a shallow box. Collage desanctified the painted surface; the next step was the gluing of solid objects onto the picture plane, thereby realizing the previously implied shallow space. "Cubism was in its origins essentially spatial and constructive, and offered a logical avenue through which early Cubist reliefs emerged. The Cubist collage was the mediator between paintings and sculpture, and the Cubist relief was in essence the natural extension of the collage into space".²⁴ Picasso's sculptures in 1913, soon after his early collaboration with Braque, gave the initial push to Tatlin and became the basis for Russian constructive art.

The reliefs of Tatlin moved beyond the Cubist collage/reliefs into more abstract or non-objective constructions and subsequently into 'Corner Counter-Reliefs'. Puni and others created a variety of 'Suprematist Constructions', and the constructed relief appeared under numerous labels.²⁵

This development of abstract, non-objective art and the use of constructive elements released the relief from strictly illusionistic space.

By introducing the element of construction or building, the traditional ties to volumetric materials and forming methods could give way to new spatial involvement. Construction, utilizing twentieth century technology, provided a new means through which the forces of gravity and immobility could be further overcome and through which structure itself - the structure of Art and the structure of Nature--could become the central core of future exploration and development.²⁶

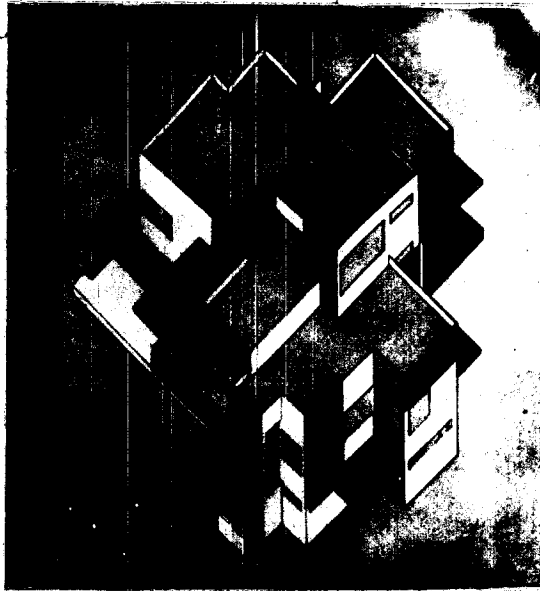
The De Stijl artist Theo van Doesburg built three-dimensional table constructions or architectonic models in collaboration with the architects V. P. Oud, Jan Wils, and Cornelius van Esteran. The relief evolved as an abstract medium of art through what preceded it in painting. In Russia it grew in the first decade of this century, while

in France it was anticipated by the Cubists and, later, in Holland by the abstract cubists - De Stijl (Figure 4).

The relief has no privileged face; it affords every angle of vision a varied and different aspect, even from below or from above. The vertical, diagonal or horizontal succession of perceptual paths, composed on a work with right angled elements, makes it possible to visualize alternate directions of movement within the work (See figure 5). On a two-dimensional surface the angles and curves do not vary, having no relations in depth, but within a three-dimensional structure there is a constant change of relation in depth according to the position of the spectator's angle of vision on the one hand, and the proportional changes in relationships on the other. Rotating axial movement on the vertical plane and on the multiple horizontal planes may be effected with rhythms carefully orchestrated in relation to the harmony of the whole piece.

Thus, the constructed relief constitutes a definite break with traditional and some modern conceptions of solids and voids. While in traditional art the combination of materials, colours, and light represents a subject in itself, the artist considers these components as a means which serves to produce, to determine a spatial structure. Here, the aim is essentially the dynamic, not static, use of light. Light penetrates the constructed relief, and, lighting up the opaque or translucent surfaces of the

(Figure 4)
MAISON PARTICULIERE 1923
Cornelius van Esteran/Theo Van Doesburg
Axiomatic Drawing



(Figure 5)
Vertical, Horizontal and Diagonal visual paths
seen in a structurist relief.
These various paths form alternate directions
of movement throughout the structure.
Structurist Relief 1983
Jim Kloes



structures, gives rise to plastic developments which have a considerable energy and great power of sensory penetration. What Yakov Chernikov noted regarding architectural design applies to the constructed relief.

The melody of light, dynamic constructive combinations bears this title because constructive dynamics in most cases give the impression of lightness to those monoliths, buildings and machines that possess these combinations. This lightness is acquired entirely by means of dynamics. It is essential to establish the fact that a construction of solids, volumes, etc., creates an impression of weight and heaviness that participate in its creation. We see and realize that a construction with a dynamic tendency creates an obvious impression of lightness. The melody evoked by such objects of a constructive type depends on the presence of dynamics in them. We feel at ease, we feel pleasure, invigorating impulses occur as a result of our experience of the melodies of light, dynamic constructions evoke in us.²⁷

This visual melody of self-contained, assertive and constructive articulations is occasionally encountered in buildings and machines. A successfully resolved, self-contained construction, from the first moment of perception, makes an impression through its wholeness; when certain solids in conjunction with others form a coherent composition.

The constructed relief is a relatively new form of art. The optical image is the end goal, the mixture of light and colour in actual space. It attempts to unite a sense of order, a command of means and an uncluttered clarity of purpose. The relief can achieve a precise unity between idea and means, whose conjunction transcends both, leaving the firm conviction of a new and autonomous reality, a new creation. Colour and light are essential ingredients of each work, as is the substance and form of the structure itself. The relief is seen to best advantage in natural light, which is never constant or stable. With light changing intensity, and shifting emphasis of shadow and reflection across the surface, the relief reflects and combines colour into a everchanging myriad of tones and shades in atmospheric space.

Conclusion: My Own Structurist Reliefs

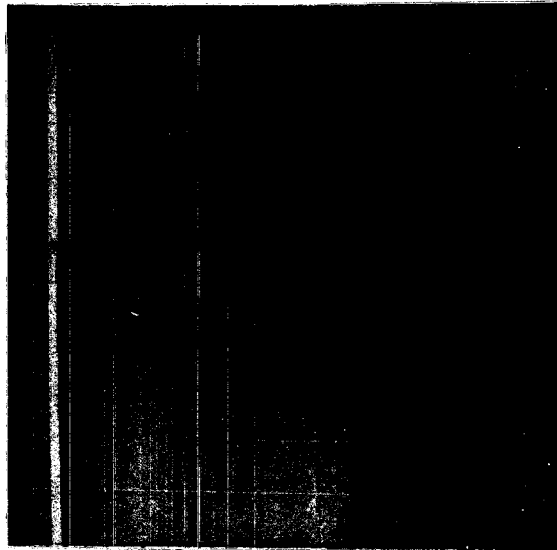
I consider the structurist relief a medium that provides a creative means to deal with the problem of designing spatial-environmental compositions. This medium imitates the complete and voluntary participation, the consciousness of free movement, that is evident in the direct experience of architectural space.

My own structurist reliefs developed from a single module utilizing one colour on a white plane, then moved to

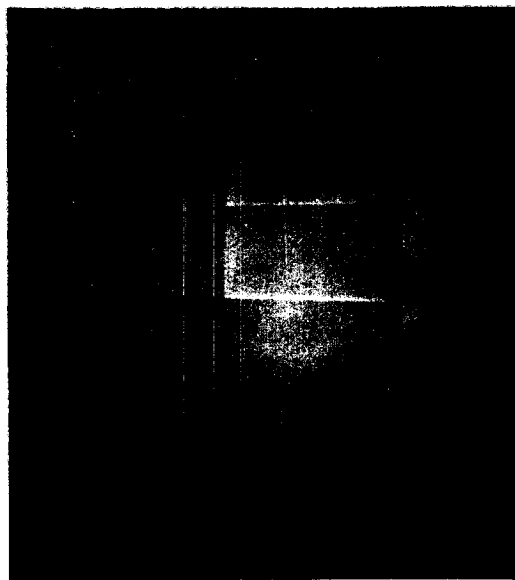
a system utilizing three primary colours (Figures 6 & 7). Working in real space with light and shadow created a variation of tones that I had never worked with before. Learning how to articulate cubic forms became a greater challenge than building forms with tape and a paint brush, simply because I was dealing with many more variables: how shadow and light interacted between forms on the relief surface, and how relationships were created between cubic forms. I had not dealt with these problems in my previous spatial-paintings because I was not dealing with tactile cubic forms and reflected light and shadow. After working with white modules I moved towards the use of a single colour and noted how this single element reacted to the rest of the piece. The coloured pieces must be handled with more sensitivity to the rest of the white plane as they always draw attention to themselves. Slowly these problems have been partially dealt with, but an artist could spend a lifetime merely working on relationships between space, light and one colour.

Gradually I added more colours and elements to the works. These of course, only form more relationships which must be controlled in relation to the whole work. Occasionally I find my earlier works with one colour are more satisfying in their movement and form than my later work, through their quiet and slow displacement of light and space.

(Figure 6)
Yellow and White Planar Relief 1982
Jim Kloes Structurist Relief



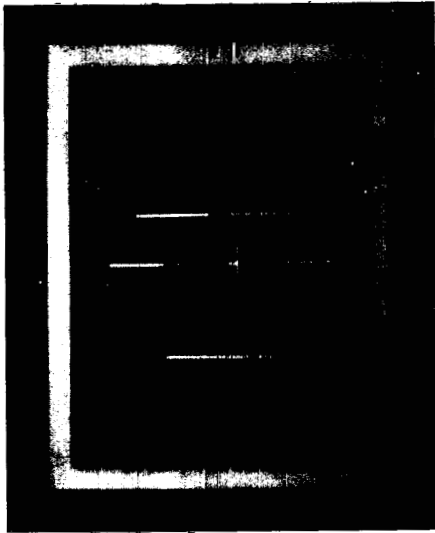
White Planar Relief 1982
Jim Kloes Structurist Relief



(Figure 7)

White, Green Planar Relief with Blue, Orange and White
Elements 1983

Jim Kloes Structurist Relief



This methodology of construction forced me to be more thoughtful and sensitive in the placement of form elements, as a whole structurist relief composition can be disrupted by a single element out of proportion or by a minor error in the use of colour. The relief requires the artist to coordinate three major elements, space, light, and colour to form a whole unit. Unfortunately, if one element takes precedence over the other two, the piece will not function harmoniously. Yet if the artist stays with simple compositions and slowly works out relationships of colour and space, or colour and form, the artist eventually becomes sensitized to the intricacies of these spatial-constructions. The artist must be very patient, as satisfactory results do not occur swiftly. This single problem in the design of the structurist relief, from its conception to its logical end requires, a great deal of time and an increase in creative stamina.

As a painter I was frustrated by the time required to make alterations to elements that did not harmonize. In painting changes are swiftly made. Yet, the relief required only a change in my attitude and a willingness to continue working on a single conception to its end. Instead of repainting areas on a flat plane, I cut and repainted spatial elements until they fit into the total conception of the structurist relief. I took my experience through an aesthetic transformation, re-ordering my experience according to the basic elements of art.

The constructed relief and some of the Constructivist ideals have offered exciting confirmations and challenges in the development of my art.

FOOTNOTES

¹Camilla Gray, The Great Experiment: Russian Art 1863-1922. (New York, Harry N. Abrams, Inc., 1962), p. 190.

²Camilla Gray, The Great Experiment: Russian Art 1863-1922, p. 215.

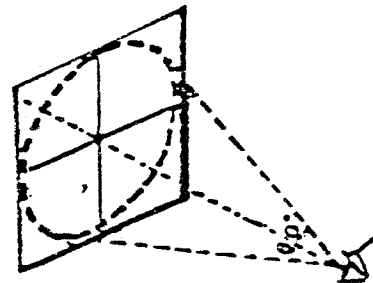
³Ibid, p. 252.

⁴Ibid, p. 246.

⁵Hans M. Wingler, The Bauhaus, (Cambridge, Massachusetts and London, The M.I.T. Press, 1981), p. 276.

⁶Charles Biederman, Art as the Evolution of Visual Knowledge, (Red Wing, Minnesota, Bureau of Engraving, 1948), p. 294.

⁷Sherman Hoyt, Drawing by Seeing, (New York, Hinds, Hayden and Eldridge Inc., 1947), p. 31.



Cone of Vision (Perspective)

- a. To avoid distortions when viewing the resultant perspective the image produced on the picture plane is limited by the Cone of vision.
- b. The Cone of Vision attempts to define the maximum area that can be appreciated from a static viewpoint. This is determined by the distance from the picture plane at which the area can be appreciated as a whole.
- c. The angle of the Cone is often given as nominal 60 with the eye at the apex; the optimum size of the drawing being taken as the surface that is tangential to the Cone - that is to the circular section on the vertical picture plane.

- d. When setting up a perspective, there is often a temptation to add a little more to the edges by increasing the view outside the acceptable Cone of Vision, but in a perspective drawing such an increased view requires a closer viewpoint to avoid the resultant distortions. At so close a distance it may be difficult to view the picture as a whole. It follows that the observer has to move back to a more acceptable viewpoint, and not being the original one used when setting up, the resultant distortions are then apparent. Such distortions are particularly noticeable at the edges of a picture, and not least, they give rise to an exaggeration of the sense of depth.

⁸ Charles Biederman, Art as the Evolution of Visual Knowledge, p. 317.

⁹ Camilla Gray, The Great Experiment: Russian Art 1863-1922, p. 147.

¹⁰ Gregory Battcock, Minimal Art: A Critical Anthology, (New York, E.P. Dutton Publishers, 1968), "Notes on Sculpture", p. 224, by Robert Morris.

¹¹ Gregory Battcock, Minimal Art: A critical Anthology, p. 224.

¹² Charles Biederman, Art as the Evolution of Visual Knowledge, p. 243.

¹³ Sophie Lissitzky Küppers, El Lissitzky, (London, Thames and Hudson Ltd., 1968), p. 7, Herbert Read.

'PROUN' - (an abbreviation of Russian words meaning 'project for the establishment of new art').

¹⁴ Sophie Lissitzky Küppers, El Lissitzky, p. 325.

¹⁵ Ibid., p. 350.

¹⁶ Ibid., p. 375.

¹⁷ Ibid., p. 386.

¹⁸Jess Stein, The Random House Dictionary of English Language, (New York, Random House, 1966) p. 1211.

'Relativist' - Relativity, 2. Physics - a theory, formulated essentially by Albert Einstein, that all motion must be defined relative to a frame of reference and that space and time are relative rather than absolute concepts.

¹⁸Sophie Lissitzky Küppers, El Lissitzky, (London, Thames and Hudson Ltd., 1968), p. 8, Herbert Read.

His 'PROUN' Manifesto begins 'Not world visions, BUT - world reality' but like all the manifestoes of the period, it is full of conceptual rhetoric - words like Space, Energy, Mass, Material, Movement, Configuration.

¹⁹Ernest R. Hilgaard, Richard C. Atkinson and Rita L. Atkinson, Introduction to Psychology (New York, Harcourt, Brace, Janovich, 1971), p. 586.

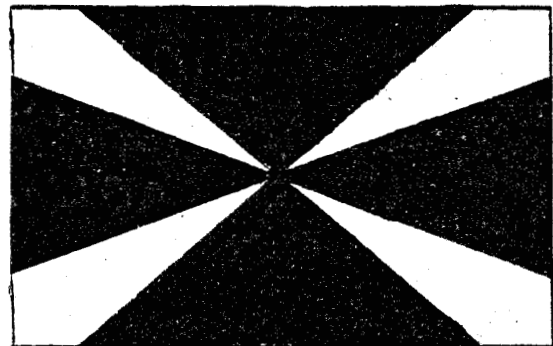


Figure-Ground Perception. Perceiving a pattern as foreground against a background. Patterns are commonly perceived this way when the stimuli are ambiguous and the foreground-background relationships are reversible.

Geometrical patterns are always seen against a background and thus appear to be like objects, with contours and boundaries. Figure-ground organization is basic to stimulus patterning. Patterns do not have to contain identifiable objects to be structured as figure and ground. Patterns of black and white and

many wallpaper designs are perceived as figure-ground relationships, and very often figure and ground are reversible. In the Figure, note that the part that is seen as figure seems more solid and well defined and tends to appear slightly in front of the background, even though you know it is printed on the surface of the page. You seem to look through the spaces in an around the figure to a uniform background behind, whether the background is in white (or a light color) or black (or a dark color).

²⁰Elizabeth Willmott, "Space", The Structurist, 8 (1968), p. 40.

²¹Elizabeth Willmott, The Structurist, p. 41.

²²Ibid., p. 41.

²³Eli Bornstein, "The Constructed Relief as a New Medium", in Structure in Art, 1973, p. 18.

²⁴Eli Bornstein, Structure in Art, p. 18.

²⁵Ibid, p. 19.

²⁶Ibid, p. 20.

²⁷Stevan Bann, The Tradition of Constructivism, (New York, Viking Press, 1974), p. 159.

BIBLIOGRAPHY

- Aitken, Robert. A Zen Wave, John Weather Hill Inc., New York, 1978.
- Baljeu, Joost. Theo Van Doesburg, Macmillan Publishing Co. Inc., New York, 1974.
- Banham, Reyner. Theory and Design in the First Machine Age, The Architectural Press, London, 1960.
- Bann, Steven. The Tradition of Constructivism, Viking Press, New York, 1974.
- Barr, Alfred H. Picasso - Fifty Years of His Art, Arno Press, New York, 1980.
- Battcock, Gregory. Minimal Art: A Critical Anthology, E.P. Dutton Publishers, New York, 1968.
- Biederman, Charles. Art as the Evolution of Visual Knowledge, Minnesota Bureau of Engraving, Red Wing, Minnesota, 1948.
- Bowlit, John E. Russian Art of the Avant-Garde - Theory and Criticism, 1902-1934, Viking Press, New York, 1976.
- Brown, Theodore M. The Work of Gerrit Rietveld, Bruna and Zoon, Utrecht, 1958.
- Comaraswamy, Ananda. The Transformation of Nature in Art, Dover Books, New York, 1956.
- Cook, John and Heinrich Klotz. Conversations with Architects, Lund Humphreys, London, 1973.
- Donner, H.W. Introduction to Utopia, Sedgewick and Jackson, Ltd., London, 1945.
- Friedman, Martin. Charles Sheeler, Watson-Guption, Publications, New York, 1975.
- Friedman, Mildred. De Stijl 1917 - 1931, Visions of Utopia, Abbeville Press, New York, 1982.

- Gray, Camilla. The Great Experiment Russian Art 1863 - 1922, Harry N. Abrams, Inc., New York, 1962.
- Hansot, Elizabeth. Perfection and Progress: Two Modes of Utopian Thought, M. I. T. Press, Cambridge, Mass., 1974.
- Herbert, Robert L. Modern Artists on Art, Prentice-Hall Inc., Englewood Cliffs, N.J., 1964.
- Hertzler, Joyce. The History of Utopian Thought, Macmillan Company, New York, 1924.
- Hess, Thomas and John Ashbury. Avant-Garde Art, Collier-Macmillan, London, 1967.
- Hilgard, R Ernest.
Richard C. Atkinson
Rita L. Atkinson. Introductory to Psychology, Harcourt, Brace, Janovich Inc., New York, 1971.
- Hoffman, Yoel The Sound of the One Hand, Basic Books Publishers, New York, 1975
- Humphreys, Christmas. Zen Buddhism, The Macmillan Company, New York, 1958.
- Humphreys, Christmas. Zen Comes West, George Allen and Unwin Ltd., London, 1960.
- Ivins Jr., William M. A Study in Space Intuitions, Dover Publications, New York, 1964.
- Jaffé, Hans. De-Stijl 1917-1931: The Dutch Contribution to Modern Art, Alec Tirant, Ltd., London, 1953.
- Jaffé, Hans. The De-Stijl Group, J. M. Meulenhoff, Amsterdam, 1969.
- Kant, Immanuel. Kant Selections, Charles Scribner's Sons, New York, 1929.
- Karginov, Germain. Rodchenko, Thames and Hudson Ltd, London, 1968.
- Küppers, Sophie, El Lissitzky, Thames and Hudson Ltd., London, 1968.

- Moholy-Nagy, Sybil. Experiments in Totality, M.I.T. Press, Cambridge, Mass., 1969.
- Moore, Thomas. Zen and the Birds of Appetite, McClelland and Stewart, Toronto, 1968.
- Mumford, Lewis. The Story of Utopias, Boni and Liveright Company, New York, 1962.
- Mondrian, Piet. Plastic Art and Pure Plastic Art, Wittenborn, Schultz, Inc., New York, 1945.
- Nietzsche, Frederich. Nietzsche and Art, Constable and Company Ltd., London, 1960.
- Nietzsche, Frederich. The Portable Nietzsche, Penguin Books, New York, 1968.
- Nietzsche, Frederich. The Birth of Tragedy, The Genealogy of Morals, Doubleday-Anchor Book, New York.
- Ozenfant, Amedée. Foundations of Modern Art, Dover Publications Inc., New York, 1972.
- Panofsky, Erwin. Meaning of the Visual Arts, Doubleday and Company, New York, 1955.
- Pevsner, Nikolaus. Pioneers of Modern Design: From William Morris to Walter Gropius, Penguin Books Ltd., New York, 1979.
- Read, Herbert. A Concise History of Modern Painting, Praeger Publishers, New York, 1966.
- Rosenburg, Harold. The De-Definition of Art, Macmillan Publishing Company, New York, 1972.
- Rotzler, Willy. Constructive Concepts, Rizzoli International Publications Inc., New York, 1977.
- Rucker, V. Rudolf. Geometry, Relativity and the Fourth Dimension, Dover Publications, Inc. New York, 1977.
- Ruskin, John. The Seven Lamps of Architecture, Farrar, Straus and Giroux, New York, 1979.

- Smith, Norris Kelly. Frank Lloyd Wright - A Study in Architectural Content, American Life Foundation and Study Institute, New York, 1979.
- Suntag, Susan. On Photography, Dell publishing Co. Inc., New York, 1977.
- Taylor, John. F.A. Design and Expression in the Visual Arts, Dover Books Inc., New York, 1964.
- Tuveson, Ernest Lee. Millenium and Utopia; a Study in the Background of the Idea of Progress, University of California Press, Berkeley, Los Angeles, 1949
- Van Doesburg, Theo. The Principles of Neo-Plastic Art, New York Graphic Society Ltd., New York, 1966.
- Wingler, Hans M. The Bauhaus, The M.I.T. Press, Cambridge, Massachusetts and London, England, 1981.
- Woodcock, George. Dawn and the Darkest Hour: A Study of Aldous Huxley, Faber Press, London, 1972.
- Wright, Frank Lloyd. The Future of Architecture, Horizon Press Inc., New York, 1953.
- Wright, Frank Lloyd. In the Cause of Architecture, Architectural Record Books, New York, 1975.

PERIODICALS

- The Structurist, Elizabeth Willmott, "space", No. 8, 1968, pp. 40 - 41.
- The Structurist, George Beck, "Movement and Reality: Bergson and Cubism", No. 15/16, 1975-76, p. 112.

EXHIBITION CATALOGUES

Structure in Art, Eli Bornstein, "The Constructed Relief as a
New Medium", Feb./Mar., 1973, pp. 17
- 19.