COLOR IN THE CONSTRUCTED RELIEF

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INTRODUCTION/ABSTRACT

The colored constructed relief is a relatively new invention in the history of art. Inventions such as this one come into being as a result of syntheses of various, sometimes disparate, currents, ideas or mediums -- in this case, the separate mediums of painting and sculpture, once thought to be mutually exclusive. A discussion of how the element of color developed in the relief medium from the turn of the century to the present comprises a large section of this paper. The works of various artists who made significant contributions to this development are cited. The artists were and are from many different countries in Europe and the Americas. Virtually all of them were aware of, and frequently acknowledged, the influence of the art works and artistic ideas of their predecessors and contemporaries.

Relatively rapid dissemination of artistic ideas has occurred over a wide geographic area in the 20th century for a number of reasons: Because of certain influential artists who travelled widely carrying their ideas with them, because of travelling international exhibitions,and especially because of art books, journals and periodicals.

Another section of this paper deals with my own approach to working with color in the relief medium known as the structurist relief, from the personal, practical

viewpoint of working methods and also from the perspective of sources or ideas behind the work.

This paper also speculates on new directions or new syntheses of materials and ideas which might be incorporated in the future of this medium, with emphasis on the use of colored transparent material.

DEVELOPMENT OF COLOR IN THE CONSTRUCTED RELIEF

Definition of relief (Webster's):

> (6.a) A mode of sculpture in which forms and figures are distinguished [as by modelling of soft material, hammering of thin, malleable material, or cutting away the surface in a hard material] from a surrounding plane surface.

The relief medium is at least as old as painting and sculpture, and the use of applied color in this medium goes back to the low reliefs carved in wood and stone by Neolithic man. Forms of relief art decorating palaces and temples were developed to very high stages of refinement in most cultures on earth; and full color was most often an integral element in these reliefs. The Assyrians, Greeks, Egyptians, Central Americans, Polynesians, East Indians and Chinese all had highly developed styles of relief carving with elaborate color that was sometimes naturalistic and sometimes more decorative or expressionistic. In the western world, it is difficult for us to imagine well known reliefs from antiquity such as those on the frieze of the

fig.2

Parthenon in Athens, Greece, as being originally decorated in full, naturalistic color, but they were, as was all Greek sculpture. Time and the elements have erased most traces of this, unfortunately, giving us a very limited appreciation of Greek sculpture in general. The story is very different in the case of some of the Egyptian reliefs dating back some 4000 years. Those reliefs found sealed

within the pyramids have had their color perfectly pre-
fig.1 served. Many of the European Medieval and Gothic religious
fig.3 relief narratives and icons have much of their color intact, also.

It was during the Renaissance that the use of color was discontinued in the relief medium, and in sculpture as well, and this tendency continued more or less until the twentieth century. However, at least one artist we know of,
fig.4 Paul Gauguin, just before the turn of the century, made carved wooden polychrome reliefs influenced by traditional Oceanic art forms.

In Europe, there was widespread artistic experimentation and overturning of established values after 1900, reflecting new scientific, political and technological revolutions. One area that this led to was the development of a new concept in relief art -- the constructed relief. Constructed simply meaning assembled or built up out of various elements or units as opposed to the traditional idea of being carved or modelled, an innovation reflecting the availability of new building tools and methods, as much as fresh aesthetic concepts.

The development of the type of colored constructed relief known as the structurist relief had much of its inspiration in painters and groups of painters such as Cezanne and the Impressionists, the Cubists, the de Stijl group and the Suprematists; and its immediate physical

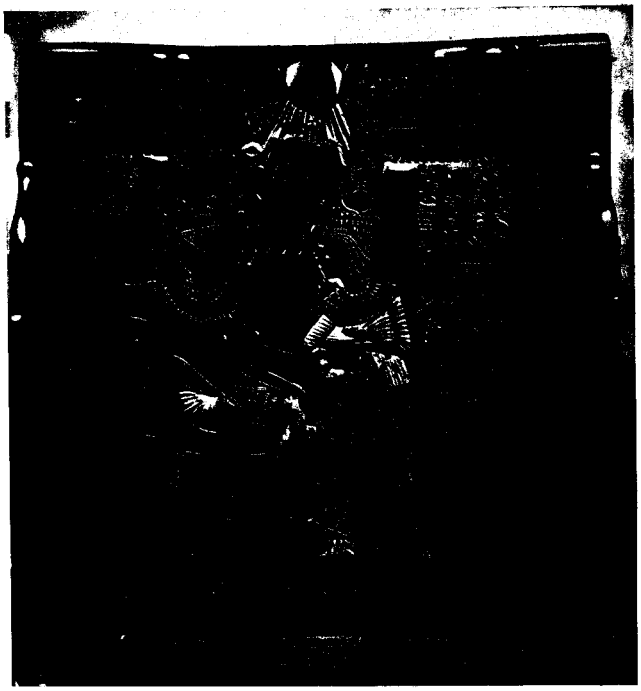

Fig 1: Egyptian Relief,ca 1350 B.C.

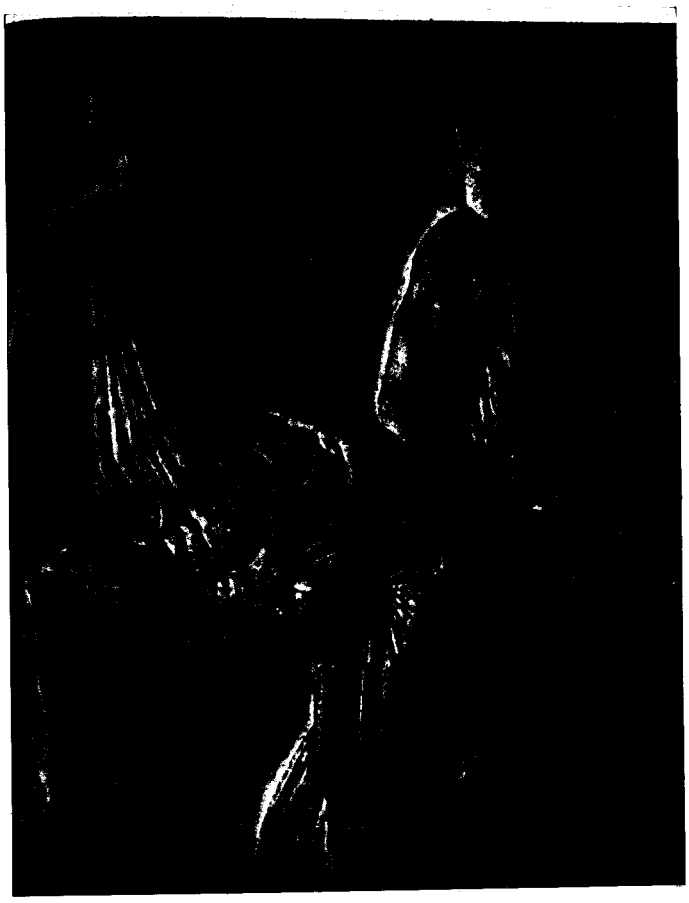

Fig 2: Relief, Parthenon,ca 448 B.C.

Fig 3: Relief. Amiens (Gothic), ca 1220

Fig 4: Gauguin, ca 1889-90

roots in collage and assemblage art of the Cubists and Constructivists. Therefore, structurist reliefs owe more to the world of painting, perhaps, than to sculpture as had been the case traditionally with many forms of carved reliefs. Further, traditionally, relief had been tied to architecture. This has changed too, as most types of reliefs today are more independent from architecture.

The development of color in this new constructed relief medium, as with all developments in art, is not a neat and tidy chronology, but with the perspective of approximately eighty years, certain tendencies make themselves evident and either an overall devolution, or stasis, or evolutionary refinement can be sensed. A key aspect of evolution is specialization and the constructive medium known as structurist relief art has evolved in that it has become more specific and more refined in its configuration and use of color and materials.

Following are brief comments on several of the artists whose works represent significant developments in this evolution.

Turn-of-the-century architects such as Adolph Loos, Frank Lloyd Wright, and Josef Hoffmann devised their own geometric and angular decorative designs, windows, and ornaments to adorn their own buildings. This was a deliberate shift away from the twisted and curved forms of the

International Art Nouveau style of the time. Hoffmann, in fact, is credited with making the first totally abstract decorative reliefs in white stucco at the
fig.5 Beethoven Exhibition Sezession building, Vienna, in 1902. He referred to these as "crystallized ornament".[1]

In 1912 Pablo Picasso made a wire and sheet metal
fig.6 assemblage called Guitar on the wall of his studio. This and other assemblages of his during the same period were lighthearted, casual and modest experiments in Cubist form projected into real three-dimensional space. The color was minimal, often being just the intrinsic color of the found materials he used in these first few assemblages. These assemblages were an extension of the idea of using bits of found printed paper materials in his Cubist paintings and were probably inspired by the vernacular collage joke post-cards, weather charms and greeting cards of the period. Picasso never took his early relief constructions seriously and so never refined this idea himself (in fact he never attempted to achieve elegance of craftsmanship) although he did inspire many other artists to explore the relief medium with a Cubist approach and in an abstract way.

Some of the Cubists worked in the relief medium and then only for part of their artistic life. It is curious there weren't more, for it seems a natural extension of the Cubist idea of a painting implying simultaneous viewpoints and so, three dimensions. The best known of the Cubist

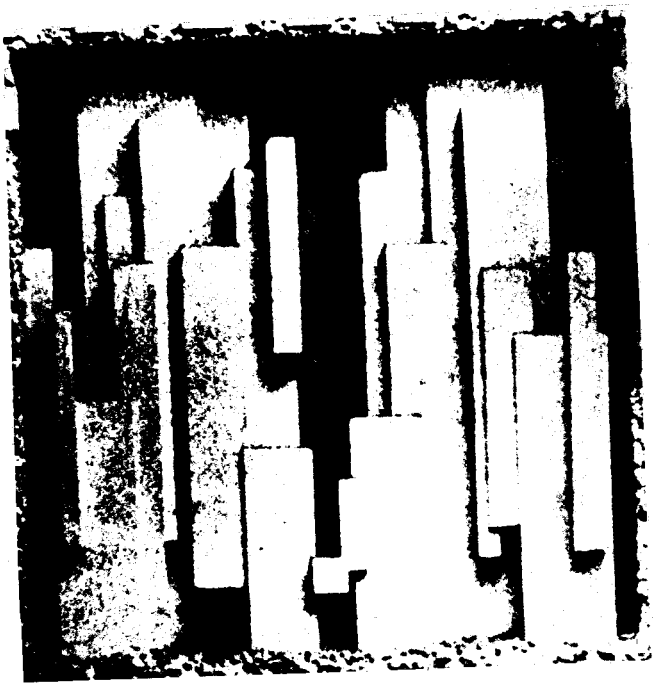

Fig 5: Hoffmann, 1902

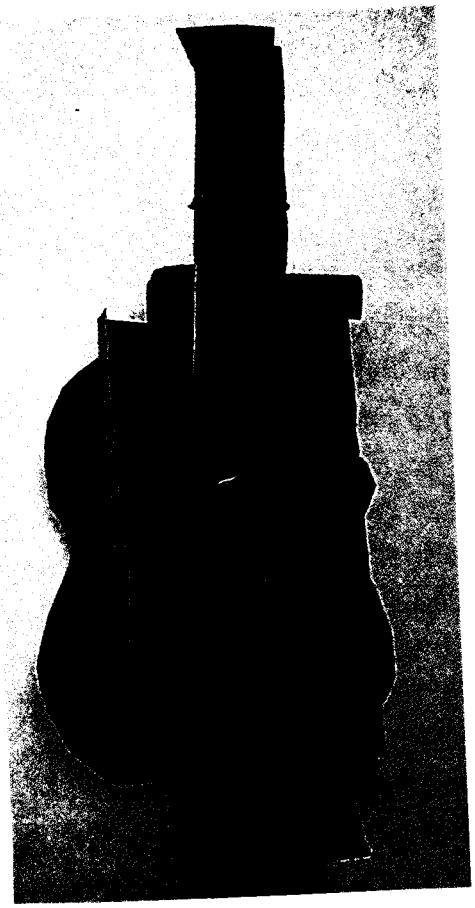

Fig 6: Picasso, 1912

Fig 7: Lipchitz, 1918

Fig 8:, Laurens, 1920

fig.7 relief artists were Jacques Lipchitz and Henri Laurens,
the latter being the most interested in the element of
fig.8 color. In Laurens' stone polychrome reliefs and constructions
in wood from 1915 to 1918, color was applied as in a painting
and ranged from being simple and muted in the stone reliefs
to very rich and elaborate in the wooden assemblages.
To illustrate how much these reliefs were an outgrowth from
the world of painting and not sculpture, we note that the
subject matter of the reliefs of Laurens and Lipchitz was
often traditional painting subject matter, ie., still life.

Alexander Archipenko, too, could be considered a Cubist for at least part of his career. He, like the other Cubist relief artists, did a number of colored free-standing or self-supporting table and corner reliefs. He coined the term "sculpto-painting" to describe these.

fig.9 Medrano II.(1914-15) is a good example of one. Assembled of gaily painted tin, glass, wood and oilcloth, it is thought to be inspired, like other Archipenko pieces, by some famous painted wooden circus marionettes which were receiving much acclaim in Paris at the time.

Archipenko wrote Polychrome Manifesto in 1912 in which he urged artists to return to making colored 3-D art. In this he states:

> Polychrome sculpture, like nature, produces an infinite variety of effects . . . since the reality of forms produces natural light and shadow in which the patterns of colors automatically change their nuances.

In spite of this statement, Archipenko's ebullient color was more decorative than sculptural, as was that of the other Cubist relief-makers. For the Cubists, color remained primarily a pictorial element tacked onto three-dimensional constructions.

Russian Constructivist Vladimir Tatlin, credited with building the first non-representational relief independent of architecture, in 1913, was another who claimed to be inspired by Picasso's Guitar of 1912. From 1913 to 1920 he
fig.10 made several reliefs,deliberately unrefined, for he considered them researches for future artworks. He, in turn, inspired many other Russians to work in a totally abstract direction. As far as can be determined, most of them, like Tatlin, did not exploit color as an integral part of their conceptions, using either the color of the found material or partially modelling painted elements of the relief with paint as if they were paintings (as in the few reliefs made by Liubov
fig.11 Popova from 1915 to 1917) -- a redundant measure, it seems, since if the shapes are actually three-dimensional, real light serves as the modelling agent. It should be noted that in Russia the historical and widespread presence of the sculptural home icon, often a corner icon, with added bits of colored clothing and other colored materials, was as much of an influence on Tatlin and others as was Picasso and Cubism in general.

Naum Gabo, another Russian, had a period of relief-

Fig 9: Archipenko, 1914

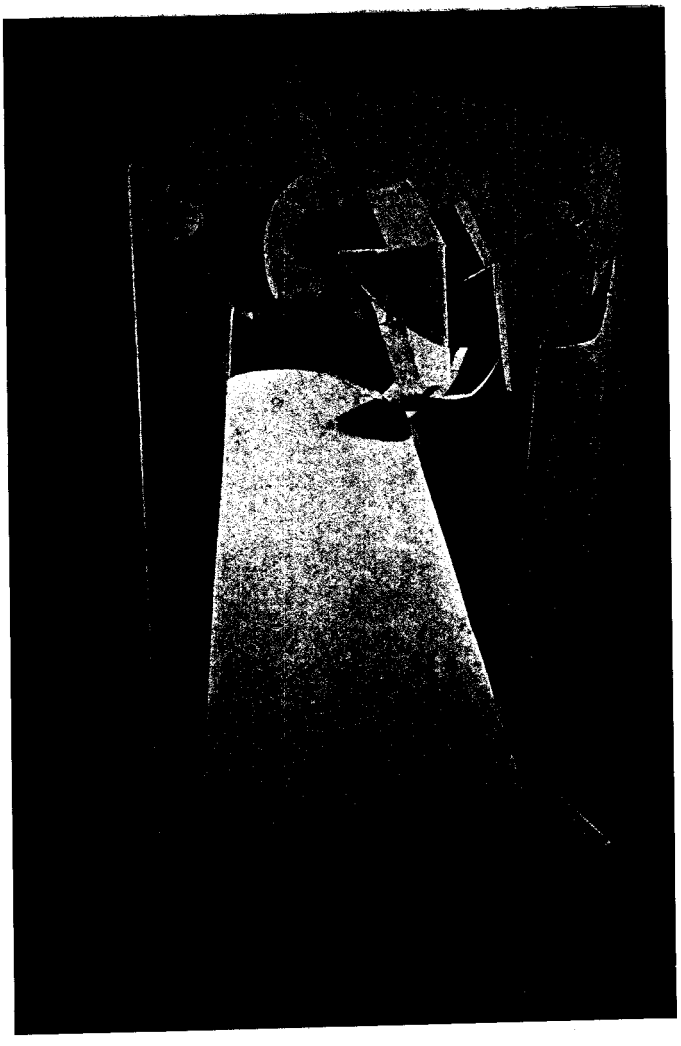

Fig 10: Tatlin, 1917

Fig 11: Popova, 1917

Fig 12: Gabo, 1917

making early in his sculptural career beginning with his
fig.12 corner-relief, Head of a Woman (1916-17) made of yellow-ochre celluloid and metal. It was inspired by Picasso's Cubist sculpture, perhaps Boccioni's Head (1912), and certainly Archipenko's Head (1913), for he visited Paris and saw Archipenko's work in 1913. Significantly, Gabo exhibited more technical skill and refinement here than anyone else working in this direction, although this stylized planar representation of a head was still tied to the Cubist figurative idea. Perhaps more interesting than this head, then, are some reliefs he did in the 1920's,
fig.13 notably Construction in Relief (1920) made of plastic, and Construction en Creux (1921) made of plastic and wood, for in these he transfigured Cubist forms into totally non-representational ones, so there is no recognizable subject matter.Significantly, Gabo thought it important to refine these ideas, carefully working the smooth wood and transparent plexiglas planes which he felt would truly represent the basic Cubist and Futurist viewpoints of multiple perspectives and implied transparent reality. It is commonly thought that Gabo avoided all use of color in his constructions, but he did occasionally make under-stated, although effective use of black, white, grays, ochres, or reds in these early constructions.

Somewhat related to Gabo and other constructivists stylistically, certainly familiar with and influenced by their work was the group of artists known as the Russian Suprematists. Led by the painter Kazimir Malevich, of the 'teens and 20s,it

Fig 13: Gabo, 1920

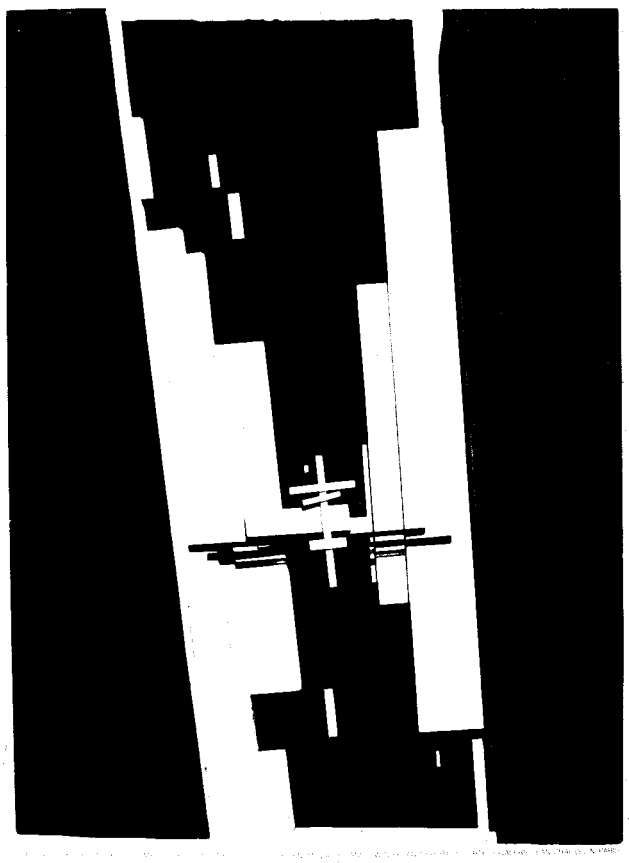

Fig 14: Chashnik,ca 1920-25

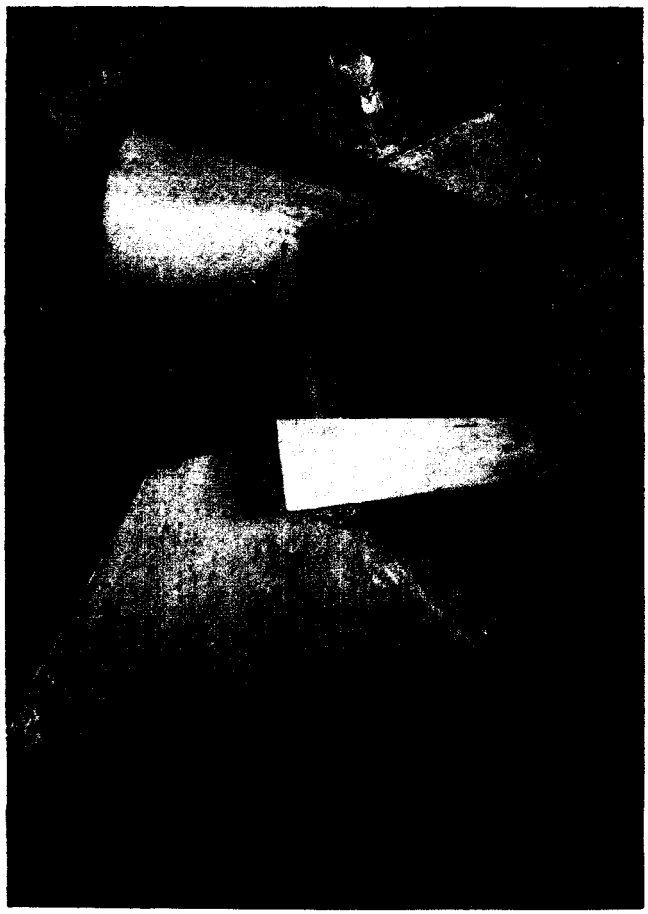

Fig 15: Puni, 1915

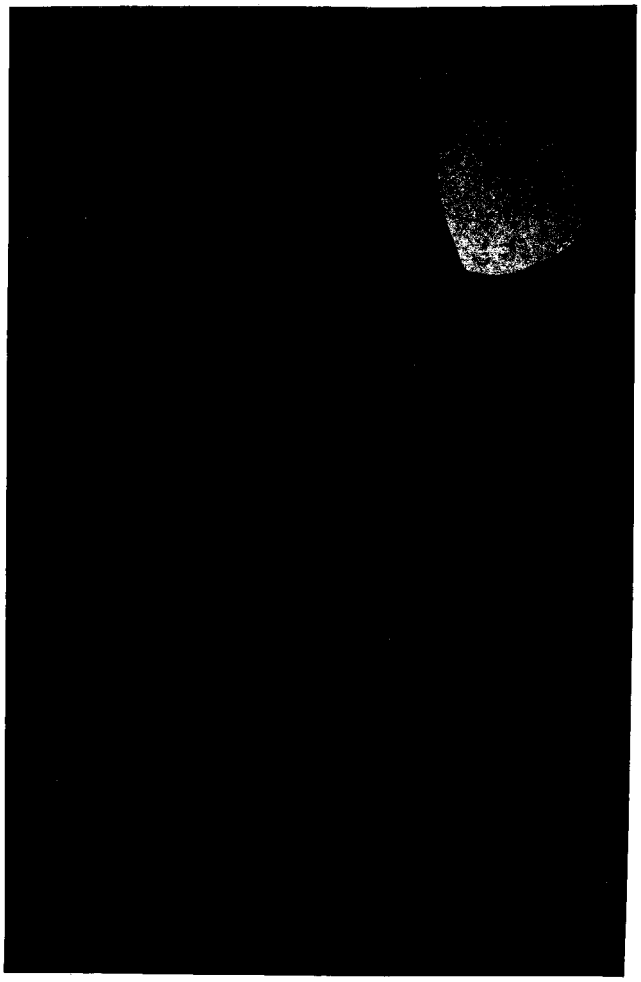

Fig 16: Arp, 1917

included a few relief makers, although this aspect of the movement didn't develop as it might have, due to certain social and political obstacles in Russia at the time. Malevich, an accomplished colorist in his early Cubo-Futurist paintings, limited color usage in his later abstract compositions, because the forms were simple geometric shapes. This limitation carried over into his followers' reliefs. Color was limited in the few works
fig.14 which have survived. Ilya Chashnik did a number of reliefs
fig.15 around 1915-1925 as did Ivan Puni. Black, white, gray, green and red are used. The color is expressive, in its limited palette, not naturalistic.

fig.16 Jean Arp's reliefs of the period from 1917 onwards, unlike the others discussed here, consist of amalgams of platelike free or biomorphic shapes, tenuously related to natural forms and organized according to what Arp calls "the laws of chance," reflecting his Dadaist bent. But the color element is more controlled. His color is elaborate, expressive and attractive, applied for pure sensation, not to be naturalistic or symbolic. These reliefs are soundly constructed, having a smooth finish and, significantly, color areas are very flat and uniform, with no reference to brush strokes. Arp never merged colors, always keeping them distinct, an approach to color application that other relief artists were later to incorporate, to accentuate color relationships by de-emphasizing textural elements.

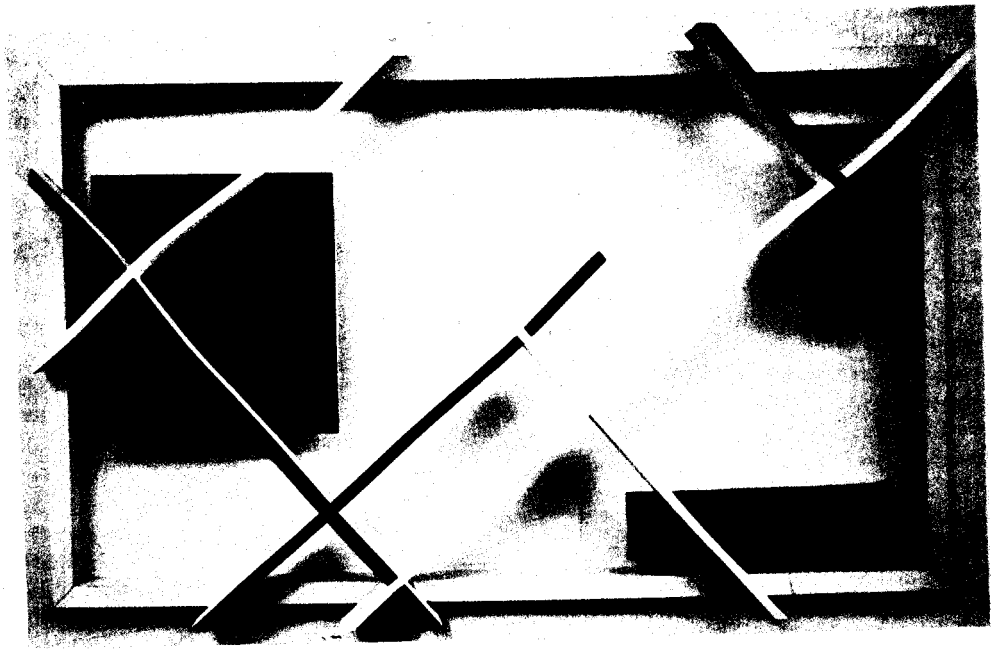

Fig 17 Gorin, 1948

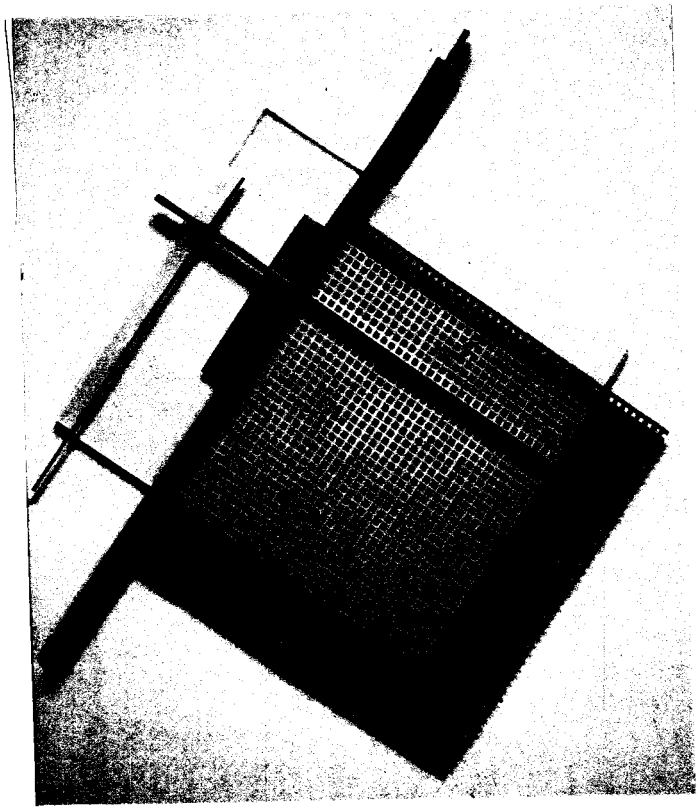

Fig 18: Domela, 1929

Two European artists who took the ideas of de Stijl painters Mondrian and Van Doesburg, and more or less translated them into three-dimensional and generally right-angled reliefs, are the French Jean Gorin and Dutch Cesar Domela. Like other members of the movement they are associated with, they wished to simplify elements to get rid of all sentimental values and psychological associations of shapes and colors. To this end, use of color was limited much of the time to the primaries (as per Mondrian's example)red, yellow, blue, fig.17 with black, white and gray. Gorin experimented with coloring fig.18 various facets of one plane different colors and Domela exploited the textures of mixed materials and graded tones. He, at times, utilized circular and curved elements in his reliefs,often made of glass and metal which added texture to the element of color.

fig.19 An American, Burgoyne Diller, following this example in the 1930's, did similar relief work, along with paintings and in-the-round sculpture. Again, the color in his wooden low-reliefs was painted in the primaries, in a flat, decorative, de Stijl painting style, almost harkening back to Mondrian's late paintings.

These three artists and many others, notably in their constructed reliefs, all used carefully worked and tooled shapes with flat, even paint application, to accentuate color and form relationships. There was no deliberate modelling or brush strokes, which served to separate their works certainly from the worlds of painting and collage,and also

from much of the found-object Constructivist reliefs of previous years, as well as from the colored assemblage reliefs of the Dadaists like Kurt Schwitters and Max Ernst.

Another American, Charles Biederman, carried this idea further. Taking the ideas of the Constructivists and the de Stijlists, in 1938, starting to make very refined reliefs out of more finely machined material, ie., smooth wood, plexiglas and painted aluminum, he came eventually to want to explore and to exploit the use
fig.20 of a full spectrum of color in higher reliefs with more delicate space planes. His aim was to use color sensation as the composer uses notes -- to create rhythms, arrangements and relationships of colors that could evoke pure sensations or feelings in the viewer much like music can do -- sensations apart from symbolic or cultural color associations. The relationships of the planes themselves, like relationships of musical notes in a composition, were based on rhythms (in this case visual rhythms) found at the structural process level of nature. Biederman realized that Impressionist painters had done this to a degree, as had Cezanne with his painted color planes. He based a theory on this idea of the color module or colored space plane being the basis of a whole new art of the future with much potential for visual expression. He coined the term, "structurism", referring to the structural process level of reality to describe

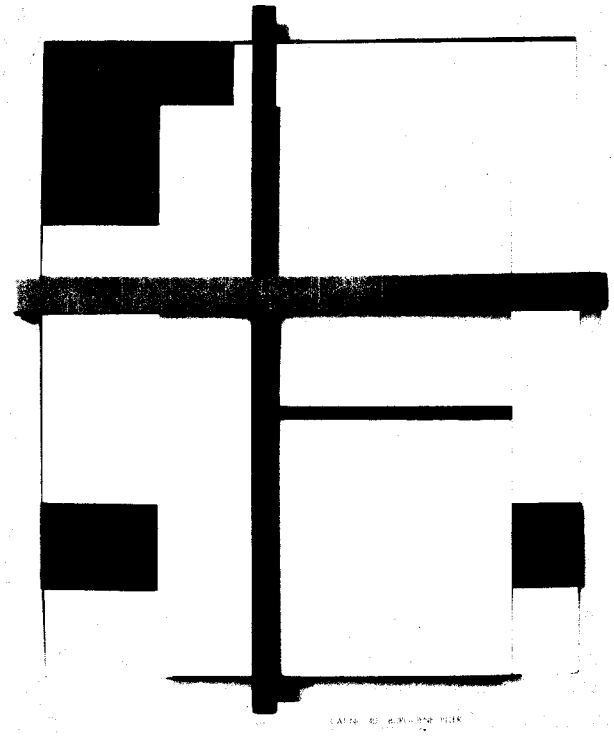

Fig 19: Diller, 1938

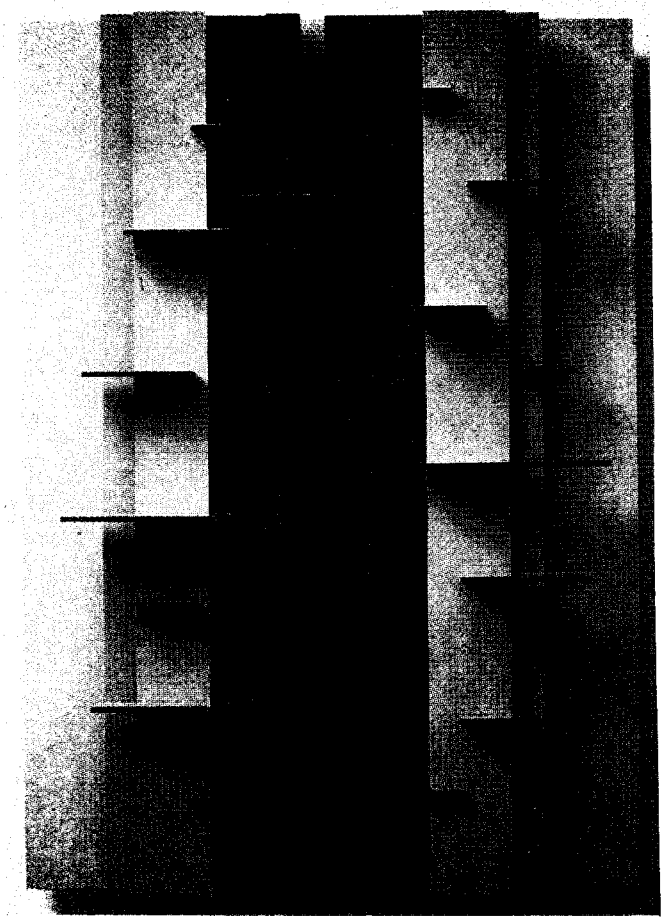

Fig 20: Biederman,1953-68

this school of artistic thought (a term he later dropped).

The structural process level of reality referred to by Biederman is an organic view perhaps more familiar to biologists or naturalists than to many artists who are his contemporaries. This process refers to the building blocks, the systems and symmetries with which visible nature is constructed.

Natural scientists have determined that, so far as they know, the natural world is composed of variations and combinations of six basic modules and configurations: the sphere, hexagon, spiral, helix, branch and meander. Nature has arrived at these shapes because they are the most efficient for their particular purposes. In Biederman's case, he settled on the machined module of the orthogonal color plane because of its neutral but efficient shape -- efficient, both for the actual construction process and for maximizing color reflection and interplay.

Biederman combined this type of organic/scientific/technological perspective with his view of the history of art as an evolutionary refinement. With his emphasis on the physical characteristics that are unique to machine-made art objects, he put together these factors to create the particular look of the structurist relief. He has experimented with artificially illuminated planes, opaquely colored planes and transparent color planes in his reliefs to the present. Others have since developed the structurist

idea, adding variations and other dimensions, and further altering the course of its development.

fig.21 Joost Baljeu in Holland, from the 50's onward, has constructed interesting multi-layered reliefs and in-the-round constructions related to these developments, although (typical of the European approach) with perhaps less color involvement than North American artists who work in this area.

fig.22 Eli Bornstein in Canada, also from the 50's onward, has developed elaborate multi-planed configurations in his reliefs that present very involved and subtle color effects and are strongly evocative of organic forms. Bornstein is also the founder and editor of The Structurist, an art journal which discusses various aspects of the medium as well as other related areas of interest.

Color in the Cubist relief and in the Constructed relief has, over the past years, had various approaches and intents, sources and syntheses, often being associated with the symbolism and expressionism that is peculiar to the world of painting. But the type of colored constructed relief as envisioned by Biederman, Bornstein and others who have been influenced by all these developments certainly seems to let the viewer react to pure color sensations in three-dimensional light and space in a most direct way. And for any artist working in this area, a unique set of challenges and possibilities present themselves.

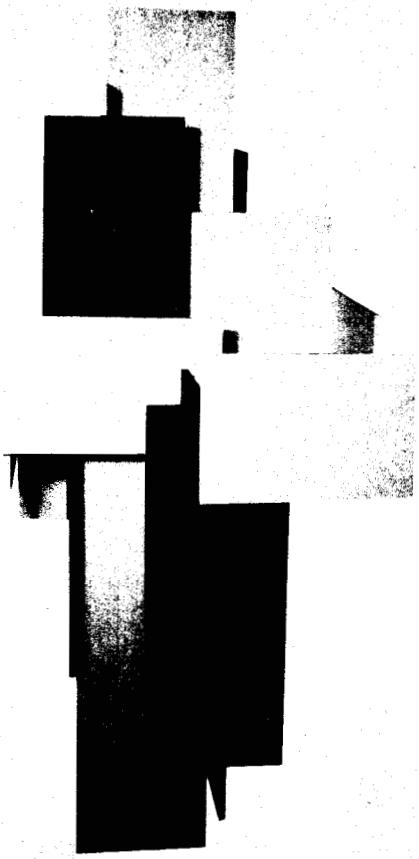

Fig 21: Baljeu, 1964-66

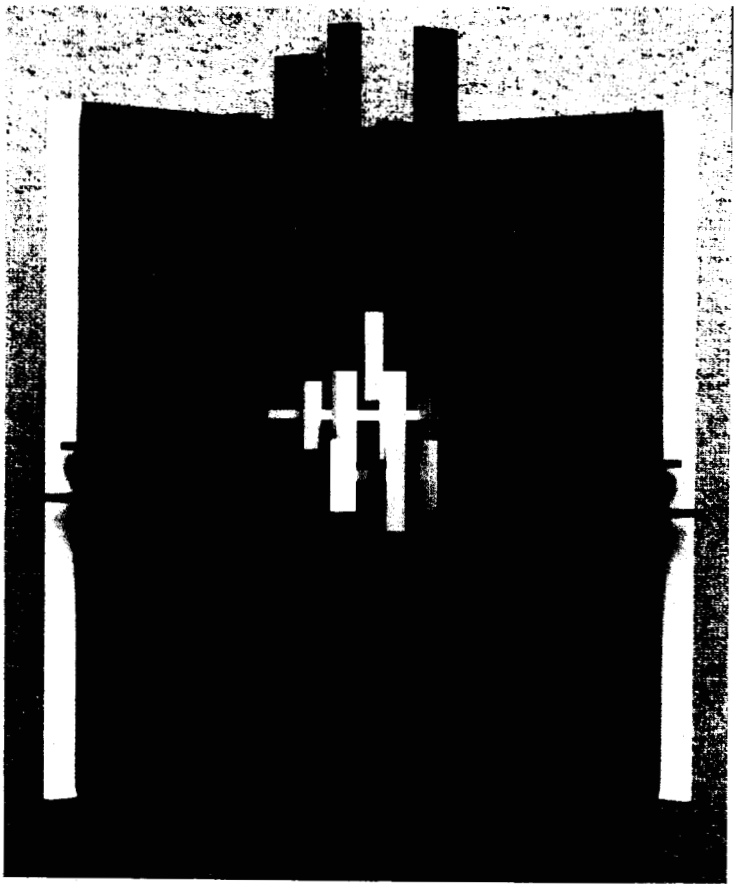

Fig 22: Bornstein, 1970-72

WORKING IN COLOR IN THREE-DIMENSIONAL SPACE

The colored constructed relief medium poses quite different problems for the colorist than painting, polychromed carved reliefs or colored sculpture. Modelling, chiaroscuro, gradations and subtleties of tone and color are an important aspect of both figurative and abstract painting. In relief art, the real light does the modelling and creates the graduations and tonal nuances so it is unnecessary or redundant to do this with paint. In painting, there is just one physical plane to contend with, the actual rectangle of canvas; so the painter naturally does everything he can to enliven that one plane (the picture surface). In a structurist relief, there might be dozens of individual planes, or even hundreds of planes when we include each facet or edge of each individual space plane, but either natural or artificial light, by its nature, differentiates each of these planes from the others. However, just as in painting, a colored relief artist must be aware of how colors affect each other. He should be aware, intuitively or otherwise, that color has "three dimensions" as Munsell pointed out -- hue, value and intensity. He should know there are warm colors that advance, cool ones that recede, that there are primaries, secondaries and tertiaries and complementary after-images, and that the appearance of a given color is altered by surrounding colors. But unlike working in two-dimensional

mediums, he soon finds out there are fundamental differences in color effects when using three dimensions. An illustration to demonstrate the difference between color use in two-dimensional mediums and in the three-dimensional structurist relief medium is as follows:

First, to represent the world of painting, we could imagine three two-dimensional flat squares -- one of red, one of yellow and one of blue -- pasted beside each other and illuminated on a sheet of white. We can see that the colors interact with and balance each other and advance and recede.

Next, imagine the same colors in three-dimensional cubes sitting on a white table in close proximity against the white background. This represents color in relief. First of all, each visible facet of each cube would appear to be a different value, from light red to dark red, for example. Next, we'd see shadows and we may notice that those shadows are the complementaries of the cubes' colors, an optical phenomenon that the Impressionists exploited. Further, we would notice that when facets of two cubes are in close proximity, light reflecting between these facets will cause these two colors to mix so we would probably see some facets orange or green or purple (secondary colors). In other words, light has become an active agent causing color mixing, shadows, and values with the three colored cubes, whereas with the three colored squares

all the light could do was illuminate them.

In the relief medium, sometimes different finishes are used, like a matte finish, which, curiously, reflects more color than a glossy finish, although not necessarily more light. If super glossy transparent color material is used, or transparent color and opaque colors combined, we can imagine further complexities because the light will pass through forms and have a slight mirroring effect at the same time because of the shiny surfaces.

Perhaps this simple example can give an indication of the possibilities and complexities that have to be dealt with, even in a relief, with a relatively simple configuration. There are many variables. Light is most important. If the object is in natural light, we can imagine the arrangement changing during the day with changing shadows, reflections and color temperatures. Then if an artificial light is put over it, it will change again, depending on the temperature and placement of that light.

Sculptural shapes are painted often either to accentuate their configurations in space, or for a variety of other considerations. The structurist relief is much more like a painting, then, compared to most colored sculpture -- like an Impressionist painting, perhaps, for it deals with a multitude of space planes or "color molecules", a term used by structurist artist Eli Bornstein

to describe the unit of construction and to show the strong link with the ideas of Cezanne and the Impressionist painters who dealt with some of the same optical concerns.[2]

The French Impressionists used broken color, ie., daubs of pure colors in close proximity that mixed optically from a distance. This perceptual and physically sensuous use of color was a most unique contribution to the history of painting. Sometimes it was applied very thickly, the paint daubs or "molecules" being somewhat analogous to the space planes in strucurist reliefs.

A painting using different colors of one middle value tends to flatten a picture considerably. In a relief, this would not necessarily happen as light would create shadows and a range of tones. In fact in the relief medium it is difficult to use light valued colors and dark valued colors. It is best to stay in the lighter mid-range because of the modelling action of real light on the forms.

Similarly, unlike painting, pure, intensive, or rich colors are very difficult to work with in 3-D for they tend to appear darker. For example, in a painting, Prussian blue can be a very effective and dramatic color but in a 3-D space plane it can appear almost black. Black, for that matter, being the absence of color, is extremely difficult to use in three-dimensions. Therefore, many relief artists, including myself, avoid using it altogether, finding it better to let the shadows, that are a by-product

of the light upon the planes, be the dark accents of a piece rather than using pigments for that purpose. It is sometimes effective to mix white with colors to maximize reflection. This has become a kind of personal working rule of thumb.

figs. 23-30 In fact, working in this medium over the past several years, I have arrived at a number of color rules of thumb that seem to work for me. They are not hard and fast rules, merely working rules of thumb or tools that seem helpful much of the time. These follow:

. First of all, over the years, without consciously planning to, I have gradually settled on a palette that parallels the twelve colors of Munsell's color wheel -- blue, blue-violet, violet, red-violet, red, red-orange, orange, yellow-orange, yellow, yellow-green, green, blue-green. Mixing one's own pigment often creates dull or muddy colors, and I find these primaries, secondaries and tertiaries are enough colors to use at this time, certainly given the further modulating effects of light in this work. And there are certain brands of these colors that are especially bright, clean and clear.

. Much of the time colors aren't mixed together, but, as mentioned, these straight colors are mixed with at least some white, to maximize light play once the piece is on the wall. Flat paint is used for the same reason, to maximize light play.

. If using different values of one basic color, the darker plane is most often used on top of the lighter.

. Reliefs are often predominently one or two colors and those colors usually end up being cool, recessive ones -- blues or greens, with smaller accents of complementaries or whites. This is admittedly a personal preference at this juncture, but large areas of yellow, red or orange seem too active or intense by their particular physical nature and tend to dominate a piece too much.

. Colors or values in the same piece that are very close to each other are generally avoided. Each color unit should be clearly independent in this sense, to avoid ambiguity.

. Complementary color schemes are used and a very limited number of colors is used in a given piece -- maybe five or six. Again, this is because the light creates more colors and shades.

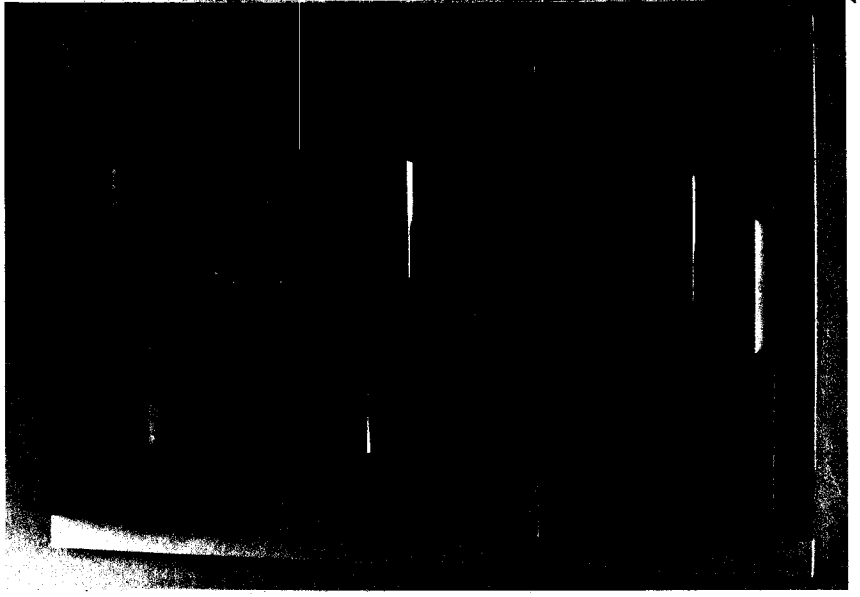

Fig. 23 Geary,1983-85

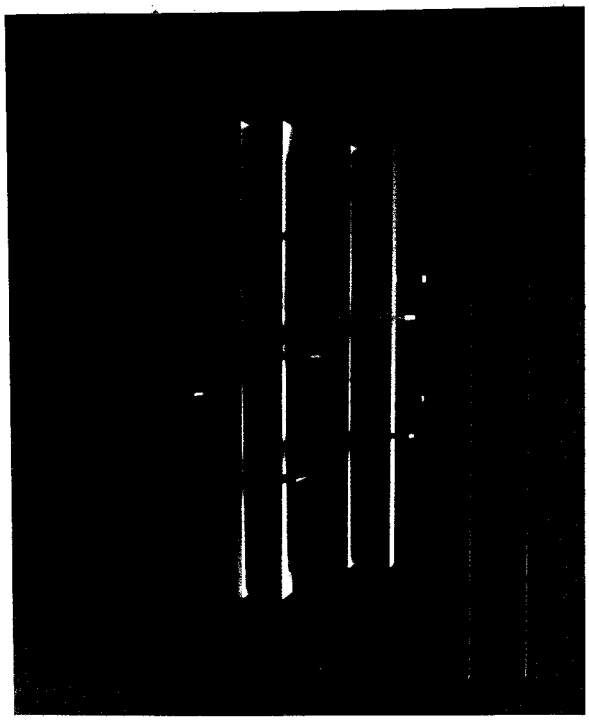

Fig. 24 Geary,1983-85

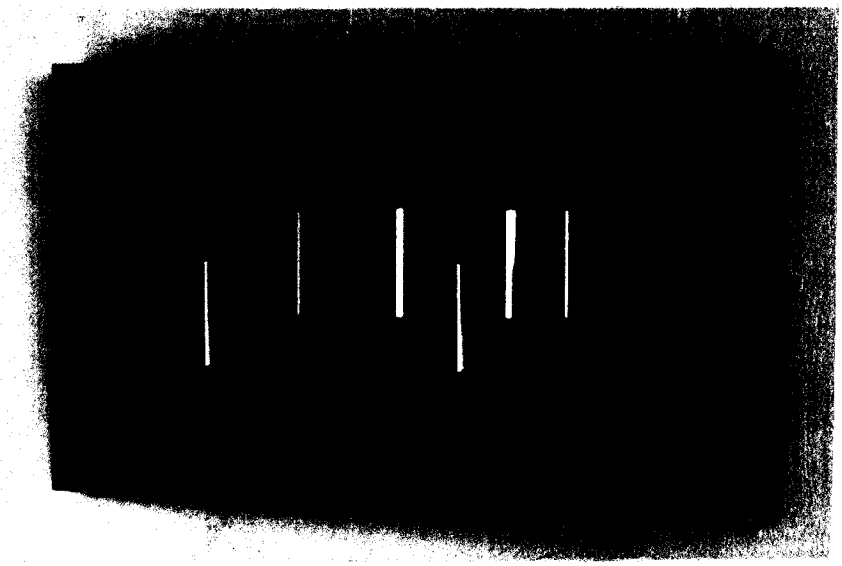

Fig. 25 Geary,1983-85

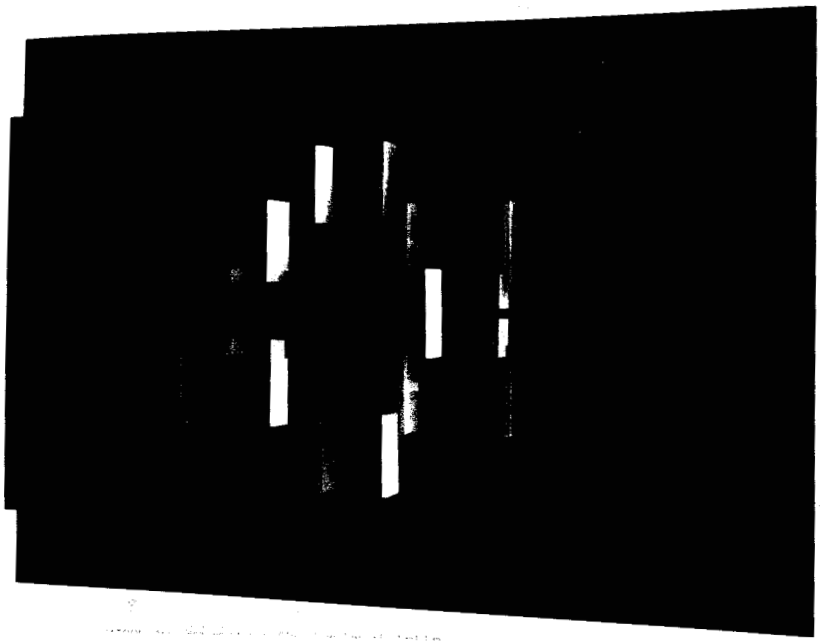

Fig. 26 Geary,1983

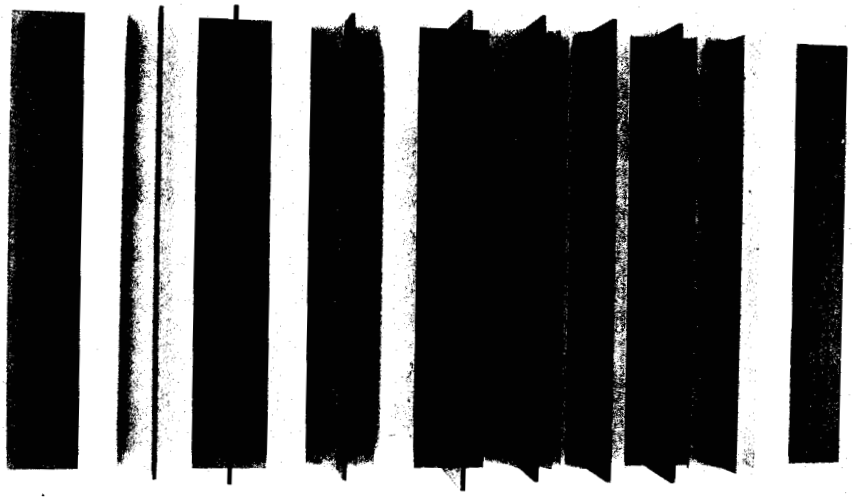

Fig.27 Geary,1984

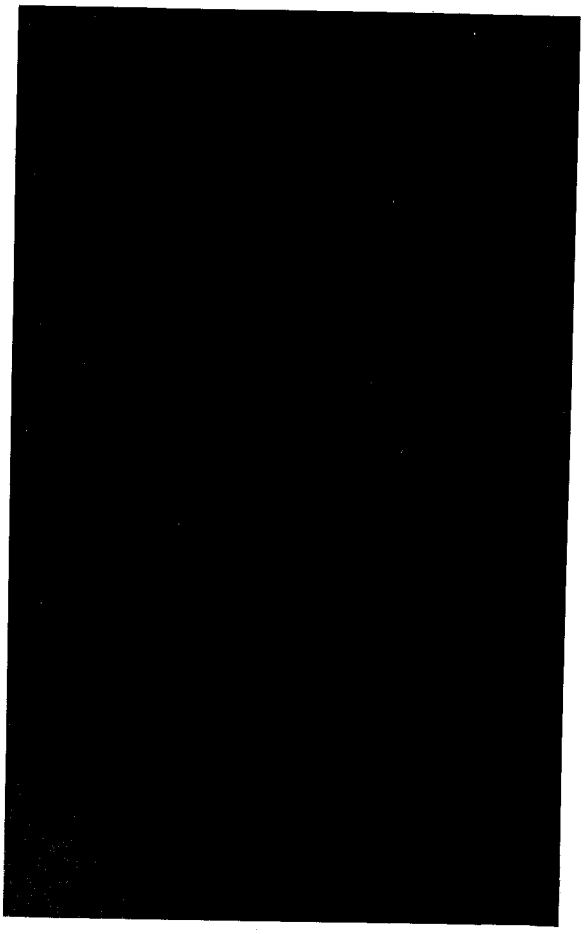

Fig. 28 Geary,1983

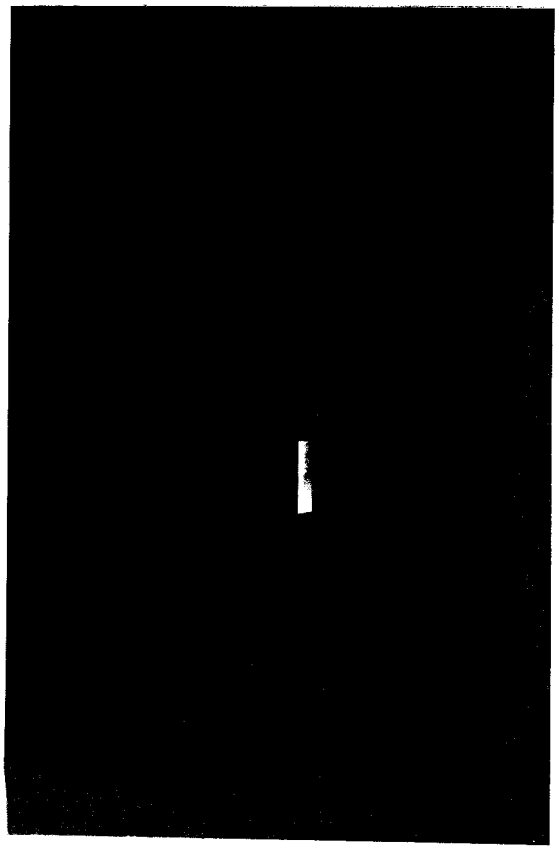

Fig. 29 Geary,1983

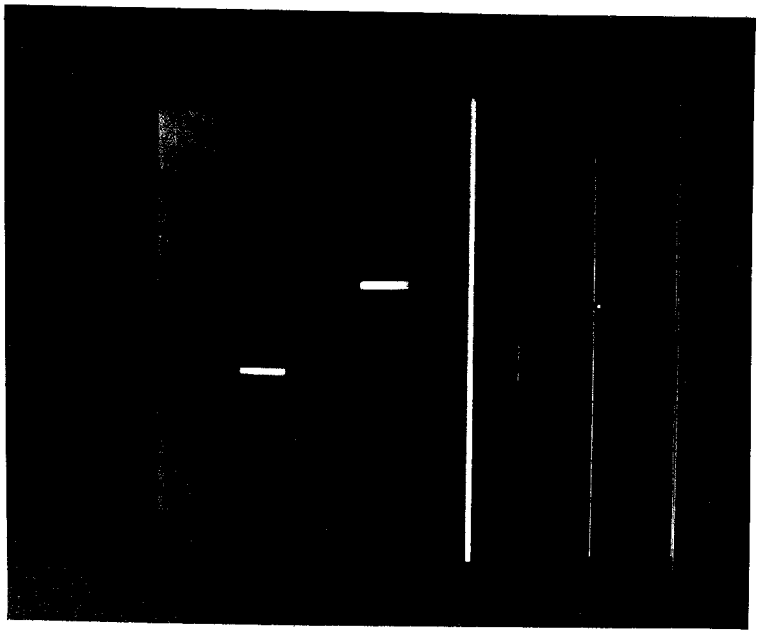

Fig. 30 Geary,1983

COLOR IN NATURE - COLOR IN ART

I first worked in the medium of the constructed relief under Professor Bornstein in the late 1960's. The approach was to begin with low white relief configurations and slowly build complexities of color along with complexities of space planes -- to begin by using white and primaries only and slowly add more color.

My palette is still limited, but deliberately so, due to the nature of the medium itself, because color effects are increased due to light and shadow play. Another important consideration is that reliefs are not flat -- they are physical multi-dimensional inventions of light and space, so the inspiration from nature is from what Biederman and others call the "structural process level of nature" (those three-dimensional constructions and symmetries of color modules we see in nature's engineering marvels) in the spiral plane arrangements of galaxies or in a nautilus shell; in the trunk/branch/capillary networks of our own arterial system, of a river delta or of branches of a tree; in the delicately colored regular hexagonal facets of a beehive or a rose quartz crystal.

We look to nature for more impressionistic constructions or arrangements, too. For example, the eye might be drawn to a spray of yellow and red and purple leaves on a branch in fall (and note how it changes as one moves around it), or to an irregular cluster of purple flowers in a green

field or an irregular cluster of blue, white and red stars in a blue violet sky. The biologist, astronomer, physicist and mathematician will tell you that there is always a system, a structure, underneath the sometimes seemingly chaotic appearance of things, even if it isn't immediately apparent. As a constructive artist, I see these systems tied inexorably with the element of color and light -- color and light and structure are inseparable elements in this view of the world.

The color in my own reliefs certainly isn't a direct translation of these reactions and interpretatons of colors in nature I have just described, although these things are a part of it. The nature of the materials, developments from previous artworks (works are often in series), formats (eg. the triptych), influences from other artists, and many more factors come into play, to eventually make the artwork (which is a constructed invention unto itself) an object that, while not directly resembling anything in the natural world, can evoke some of the feeling of nature's colored constructions. An example will illustrate: Some years ago, my interest in nature photography and color led me to do a series of color photographs one fall of a shallow ravine close to my home. I was taken by the still, clear blue-green water with different colors of leaves -- yellow, brown, green -- floating on the water, under the water and lying on the bottom of the ravine. The reflection of the sky, clouds, and leaves from trees overhead made

this scene even more intriguing to me. I was taken with the bright colors and equally with the spatial quality or levels of reality evident -- ie., the bottom level of the ravine, the surface level of the water itself, and the level of the sky reflected on that surface -- and the colored leaves acting as an element tying the levels together. It appealed to me as a fascinating subject for large color photographs.

One day a few years later, while toying with a piece of transparent blue plexiglas, I happened to look at these photos again. It occurred to me to somehow use these photographic impressions as a basis for some colored constructions, and I realized that the clear, water-like blue plexiglas in conjunction with opaquely colored planes, would be the best way to realize this. I had used transparent material only once before, and then in a limited way, but now the material seemed appropriate to express the idea of little yellow, red and green elements on top of and behind a transparent blue substance.

fig. 31 This concept was built as a free-standing structurist construction (the idea needed more depth than a relief could offer). The finished work, being a vaguely rectangular, symmetrical construction, certainly didn't resemble water and leaves, but I felt it did evoke the idea of bright, floating units in an opaque blue and transparent blue field. Since that time I have developed this general idea much

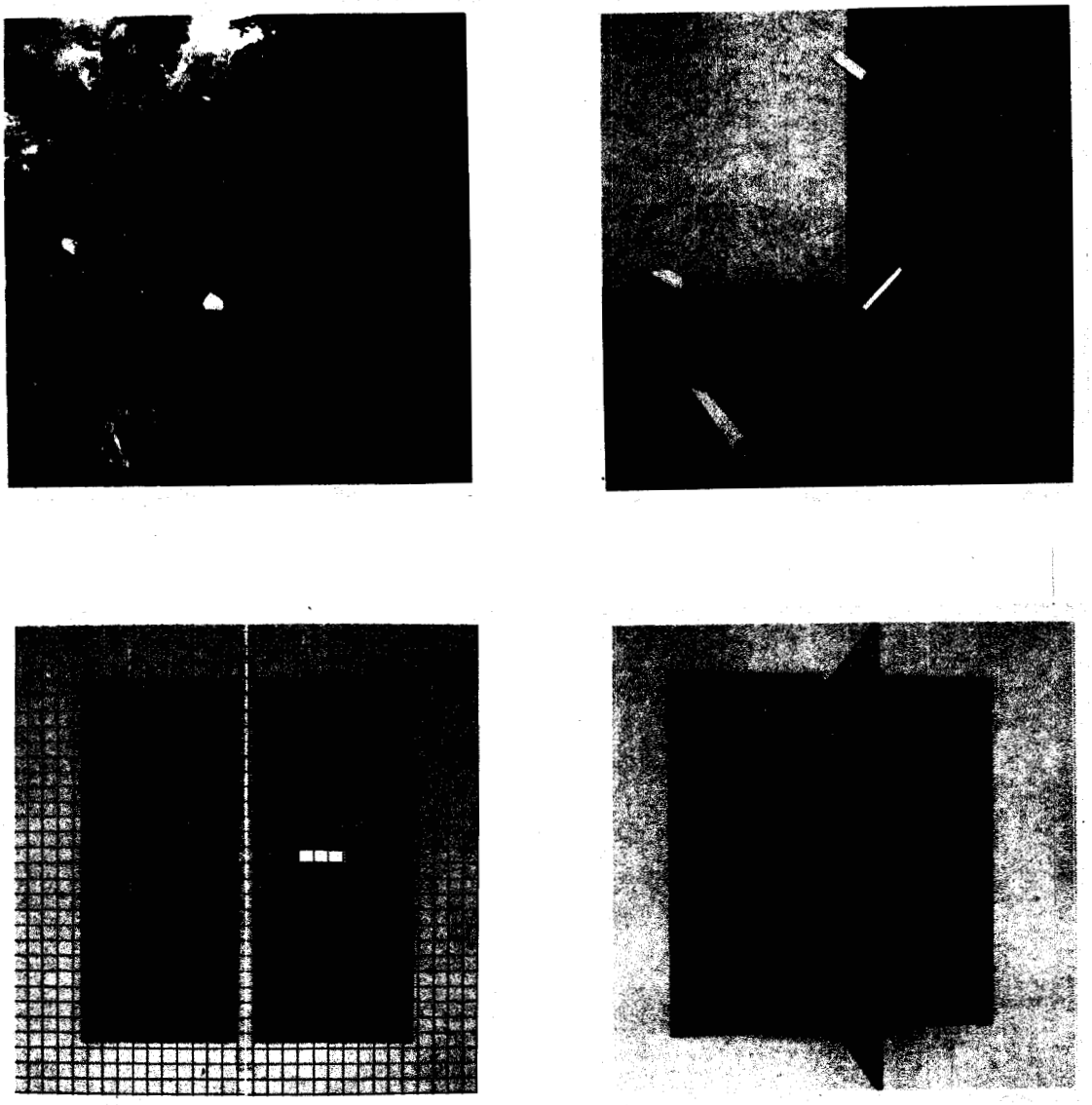

Fig. 31

D. Geary: (1) Photograph; (2) Collage; (3) Collage with Grid; (4) Structurist Construction 1978.

Detail sequence from The Structurist No.17/18.

further with different kinds of configurations and different color schemes in both reliefs and free-standing constructions. In fact, I have since developed a strong interest in combining colored transparent, transluscent and colored opaque forms in this medium, and accordingly have done some research into the problems and prospects of using transparent materials in colored relief constructions.

DEVELOPMENT AND USE OF TRANSPARENT MATERIAL: ITS RELATION TO THE CONSTRUCTED RELIEF

Through the ages, ever since man discovered natural transparent material like amber and gemstones or fabricated it, like glass, he has been compelled to produce art with it, due to its sensual and mystical attraction, its inherent brilliant, fire-like reflections, dazzling highlights, and pure, water-clear quality.

Working in these materials has always posed technical difficulties and physical limitations. For example, rock crystal is extremely hard and difficult to carve except in planes, and glass is a brittle and fragile material. Even so, artists have used these substances to create objects of great beauty and artistic merit.

The Chinese have always done carvings in colored and clear semi-precious stone, in green jade, rose quartz, carnelian and rock crystal.

Apart from small works by artisans in the so-called minor arts, transparency as a quality in Western art reached its zenith perhaps with the breathtaking, brightly colored stained glass Rose windows of France and Germany of the period between 1170 and 1270 A.D. The Rose windows
fig. 32 of Chartres Cathedral are a good example of the pinnacle of this art form.

Artists have worked throughout the centuries to the

present in stained glass windows and in glass sculpture in-the-round; the latter on a relatively small scale because of limitations involved in the heating, casting and blowing processes. Colored glass was a popular artistic medium in the Art Nouveau and Art Deco periods.

It was not until the early part of the twentieth century when new industrial transparent materials were invented, that artists were capable of exploring fully many new possibilities. This new material, plastic, was the most significant invention for artists working in transparency since the invention of glass over 1000 years ago. On a historical time scale, our century is merely the beginning of this plastics technology applied to art.

Shortly after this material became available, sculptors began to work with it. As mentioned previously, Naum Gabo (along with his brother Antoine Pevsner) made excellent use of this plastic, both clear and colored, in relief constructions. Their work in this material, starting about 1917, had great significance for future artists, for they not only pioneered the manipulation of this material, but they reflected the new scientific-industrial aesthetic which was coming to the fore, parallelling and reflecting an emerging new world view of man in general based on new 20th century perceptions of reality, reflected in Cubist and Futurist ideas of art -- namely, a simultaneously perceived, multi-faceted perception of the world.

Umberto Boccioni, the Futurist painter and sculptor, said in his Technical Manifesto of 1910:

> Who can still believe in the opacity of bodies, since our sharpened and multiplied sensitiveness has already penetrated the obscure manifestations of the medium? Why should we forget in our creations the doubled power of our sight, capable of giving results analagous to those of X-rays?

This also implied the notion that all is fleeting; there is no concreteness and there is a loss of solidity. Previously, Cubist painting had hinted at this in a two-dimensional, illusionistic way, representing several views of an object at one time, but Pevsner and Gabo added a third dimension -- real space.

Two artists must be mentioned here, although they were not constructed relief artists per se. These are the Hungarian Laszlo Moholy-Nagy and the American Irene Rice-Pereira, both of whom made rather ingenious and unique transparent colored wall constructions from the 1920's to the early 1950's in America -- constructions that have some pertinence to our discussion and much relevance to persons (like myself) who work with clear and colored plexiglas in the constructed relief medium and in-the-round constructions. These two people could be called light artists, as they were manipulating colored light effects more than any other element in their works. Their transparent wall pieces are thus perhaps closer

to the spirit of stained glass window art than to either painting or sculpture. But if the color constructed relief had its roots in the synthesis of certain kinds of painting and sculpture, it can be further developed with other syntheses or borrowings from other media, incorporating new technologies. One of these mediums is the transparent medium which Rice-Periera called "glass painting" or "glass construction" and which Moholy called "space modulators" or "light modulators".

Moholy was a prolific pioneering artist in the new materials who also did a great deal of writing on the physical and aesthetic aspects of transparency and light-art that typify the thoughts of many contemporary artists who work in these materials. One of Moholy's many
fig.33 artistic inventions, his "light modulators", were clear plastic sheets painted on both surfaces that threw colored shadows when mounted slightly above a white backboard. He has said of these:

> The new plastics allow a new type of visual expression to develop. Glass-like sheets, pliable, can be curved, convex and concave. They can be perforated so that light and pigment will be fused into a new unity. Artificial light sources (spotlights,moving lamps) can continuously

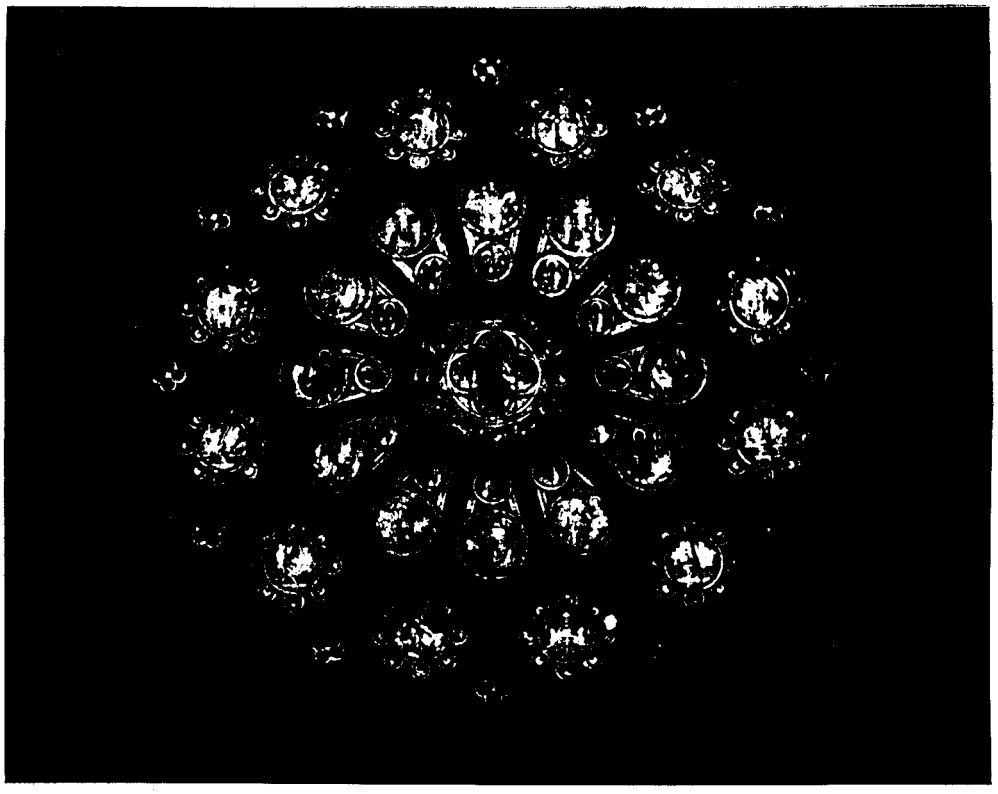

Fig. 32 Rose Window, 13th Century

Fig. 33 Moholy-Nagy, 1940

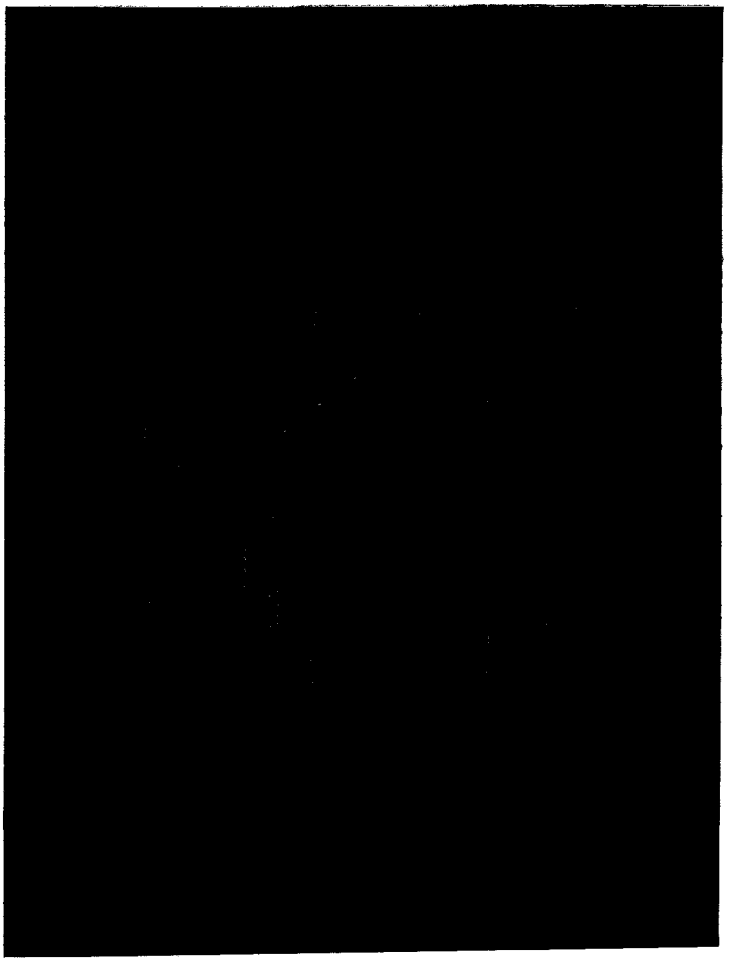

Fig. 34 Rice-Pereira, 1952

> change the composition. This kind of picture is most probably the passage between easel painting and light display, a new type of moving pictures.
>
> My 'transparent' pictures around 1921 became completely freed of elements reminiscent of nature. The liberation from the necessity to record was their genesis. I wanted to eliminate all factors which might disturb their clarity. My desire was to work with the peculiar characteristics of colors, with their pure relationships. I chose simple geometrical forms as a step towards such objectivity. I see today that this step was the logical continuation of the cubist paintings that I had admiringly studied.[3]

Moholy might also seem to have been playing with possibilities suggested by Malevich, whose work he greatly admired along with Mondrian's, but where Malevich's Suprematist elements would hover ambiguously in an illusionistic white space, Moholy's colored elements are made flat in real space, casting real shadows.

In an essay entitled, "Directness of the Mind; Detours of Technology", (1926), Moholy proclaimed that technology lags behind its potential because of the persistence of thought categories based on older technologies. In other words, the history of western painting was a technological detour, and pigment was a poor substitute for the direct use of colored light. He later predicted that the art schools of the future would, by the same token, be Academies of Light. In 1944 he stated:

> I believe that light painting executed on transparent plastics is at a revolu-

> tionary stage in technique and attitude. It paves the way towards the projection of color, light and shadow on a screen instead of merely pigmenting a surface.[4]

Similar in some ways to the transparent paintings of Moholy but more complex are the glass paintings of Irene Rice-Pereira. She used up to three layers of plastic or glass over a painted backboard and since she utilized industrial materials, the glass layers were combinations of flat, corrugated and pebbled textures which added to the interplay of light and color. Great care went into the application of paint on the glass. She used special colors devised by craftspersons who worked in glass. Many had to be imported from Europe -- porcelain cement, laboratory ceramic fluid and glyptol resin. She managed to achieve vibrant transparent colors with these oil and plastic paints. According to some, Pereira achieved great poetry with these constructions because of the incorporation of real light. The light source was literally in the depth of the painting and seemed to radiate outwards.

Her works grew out of the late '30s and '40s belief, inherited from the Russian Constructivists, that science and new materials could bring about a better world, and that artists could contribute to that enterprise by using such technological developments in their work.

Like Moholy, she was greatly influenced by the Constructivists and Mondrian, but she stayed with neither and developed her own expression out of these influences.

fig. 34 "Rose Flux" is typical of her glass paintings. A reviewer in Art News, September, 1952, said of it:

> . . . and the glass constructions have one quality in which they are not equalled by the paintings on canvas: their ability to refract light in continuous movement. Rose Flux is one of the most radiant in this respect, producing an effect of continuous light and interweaving space which changes at every movement of the spectator. Its triple layers trap and amplify light in mobile sequences. A ruby red that was carried toward fiery warmth by an orange on a lower level, strikes blue and becomes an ally of a host of violets. Blue swims into a field of amber and plunges to emerald depths.

Aesthetics are largely a measure of cultural preconceptions and associations. Every day we see translucent and transparent colored plastics used in such common mass-produced items as cheap dinnerware, children's toys, trinkets, souvenirs or joke items. These associations might lead some to think (consciously or subconsciously) that transparent material in general can have no intrinsic quality or aesthetic value, that it represents cheapness, worthlessness or impermanence. Of course, this isn't true at all, for some of the new plastics have striking optical properties and are as durable (or more durable being inert) as many metals. But cultural associations die hard.

Historical evidence points to the emergence of a changed aesthetic when a new medium is introduced; but it takes time to shift one's aesthetic outlook. Concepts of color and texture belonging to opaque and solid mediums are not appropriate to transparent materials. A new sense of

color and light is required.

Perhaps, working in relatively traditional opaque media, we can get some sort of notion of how to regard new transparent art objects by borrowing or adapting a definition of beauty from another era -- from a group of people who have worked with transparent and translucent materials for centuries -- gem stone workers. The whole basis of the gemologist's aesthetic is categorizing the different effects of light passing <u>through</u> a material, as opposed to just falling on a material.

This can perhaps explain why many descriptions and discussions of transparent art works, like the one of Rice-Pereira's "Rose Flux", above, tend to be reminiscent of descriptions of gems; for they are descriptions of light rather than descriptions of surface activity.

This is a whole different set of considerations than we apply to most painting and sculpture and relief art, as color in traditional media is tempered and altered with such properties as surface texture, two and three dimensional rhythms, opaque form, shadow play, and form in space. The question of how one uses these transparent materials gets to be an important one when the material is "captivating", "novel", and "pretty", as some describe plastics.

Moholy wrote in the 40's about this aspect of "prettiness" in transparent art. His advice is still appropriate today:

> Results . . . bring some danger with them, the smooth perfection of the plastics, their light-flooded,

sparkling planes could lure one into an effective but decorative performance. . .

Though plastics are new materials, not thoroughly tested, I had the feeling that one has to work with them, in spite of the danger of pretty effects. It may take decades until we will really know the material, and before we can develop a genuine technique to handle them. . .

These new effects with their emotional content and spiritual aspirations can only be grasped, however, after their 'novelty' aspect has been overcome by serious consideration of the problems involved.[5]

SUMMARY/CONCLUSION

The colored constructed relief, or the structurist relief has evolved into a medium unto itself and is at a stage in its development where it can express positive and constructive color/light sensations, impressions, and moods that are almost analagous to what music can express aurally. It has much potential, for, as is the case with other mediums, once an artist becomes deeply involved in this area, he/she can sense that it is rife with possibilities as yet unexplored and unexploited.

Working within this medium, I personally feel part of a continuum. A strong appreciation and a certain empathy is felt with the precursors mentioned who worked in various types of relief art. As well, there's a feeling of association with artists currently working in this area, and a certain excitement anticipating further developments and discoveries relating to this work, to expand its scope and expression, for there undoubtedly will be new borrowings from other areas of endeavor.

The structurist relief, growing as it did out of the worlds of painting and collage, has relied to a large measure, though certainly not completely, on the opaque color plane as its unit of construction. Artists with differing approaches have taken it in various directions and often into complex, involved and delicate configurations.

As the work has come into its own over the years, it has grown further away from the wall, as it were, and become more spatial, implying more movement, as sculpture does. That is, a viewer is enticed to walk around the work. The more of this type of spatial involvement, the more the various facets of the space planes themselves seem to change hues and values -- a reaction of the combination of real light involvement and the viewer's movement. Because of this interaction, the elements in a structurist relief can assume an ethereal, weightless or floating quality.

This might lead to the question, "Why couldn't the units themselves have real movement -- that is, move by mechanisms or by natural forces, like air? Why couldn't they actually float by use of an anti-magnetic force as in a zero-gravity environment?" The modules could have various shapes. As well, the modules could be made truly ethereal looking by using transparent materials like plexiglas, new plastics or even some kind of colored or irridescent (polaroid) film that would have no real substance, no edges, just serve as a plane in space. Or one could incorporate light sources or produce the whole work with prisms or nothing but controlled pulses of light. Of course, by this point the medium would have transformed itself into another area entirely, as unlike its current form as the constructed relief is unlike the carved or

modelled relief of ages past. At any rate, all these possibilities are close at hand for use in this medium -- as soon as the technical difficulties and limitations are overcome. These materials and elements can and will be used to expand this medium to express "color music" as Biederman would put it, in an organic way.

Much of this kind of research or work has already been done in various mediums in the past twenty-five years or so by several individuals (for example, Eric Olson's use of polarized film in transparent sculpture, Georgy Kepes' use of pure light in the KLM wall mural) and especially by a number of groups of artists, mostly in Europe. Perhaps the best known of these groups is le Group Recherche d'Art Visuels (GRAV) formed in Paris in 1960 by an international gathering of artists, many South Americans among them. Their aim was to break down the conventions of aestheticism, to create new categories of art besides painting and sculpture, to create an art that was more accessible to society at large and less elitist and personalized. Their use of industrial materials and methods supported these views. GRAV constructions drew away from the classical forms and laws of composition. One device frequently used was systems of repeated modules (a device often used in modern electronic musical compositions), a system that seemed, to many reviewers, rather cold and intellectual. In a given work this element could seem predictable and repetitious.

Fig. 35

Fig. 36

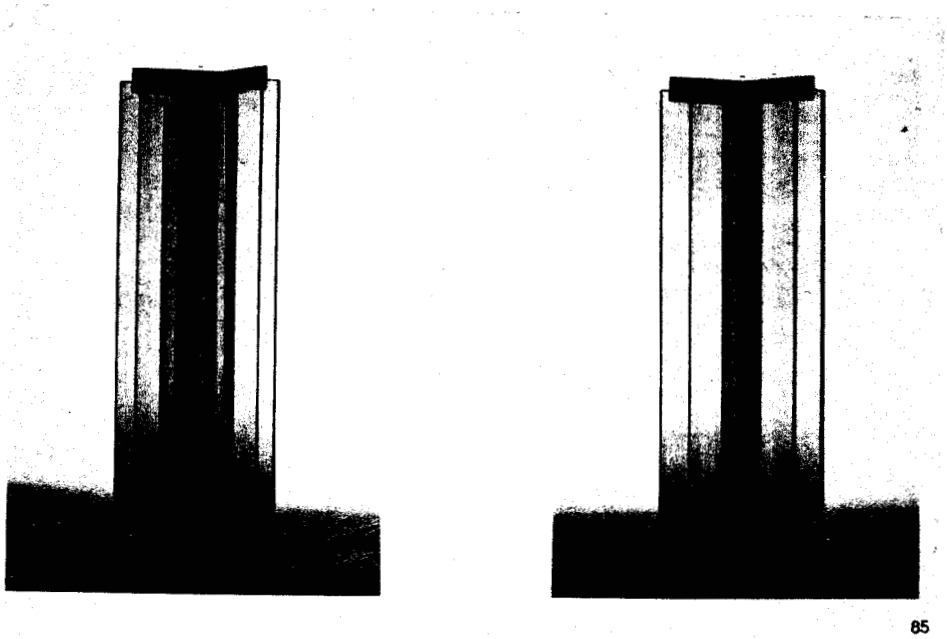

Fig. 35 Olson, 1973

Fig. 36 Kepes, 1959

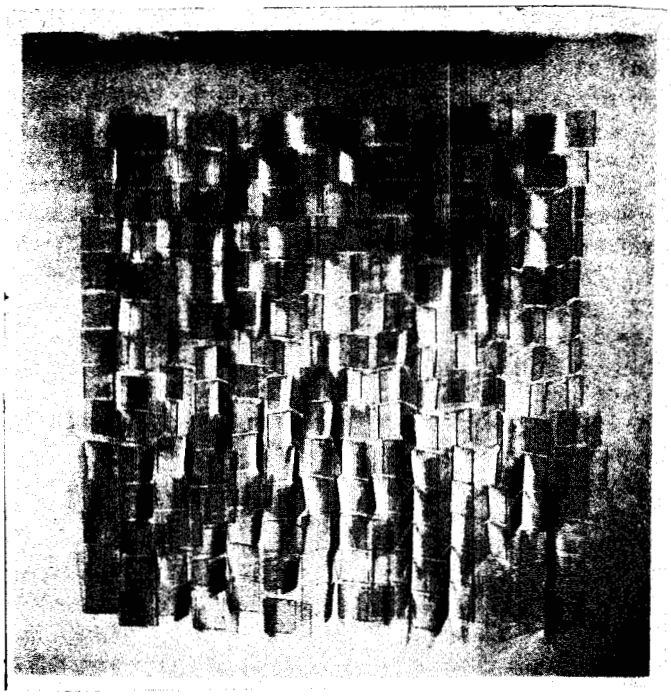

Fig. 37 Le Parc, 1968-69

Many of the GRAV artists worked in a kind of relief medium, as well as in-the-round, using lights and reflective surfaces. But perhaps the inventive work of founding mem-
fig. 37 ber Julio le Parc would be the most interesting to look at for our purposes. As well as light boxes and metallic constructions, he made a series of colorless, transluscent and transparent mobile reliefs -- multiple threaded planes of plexiglas that hung in front of a white backboard that would move slightly with air currents. This is certainly different from our concern for an organic colored conception, but is related from the point of view of materials, and interesting for the possibilities it suggests, (one possibility might be light-weight mobile color reliefs that could make delicate sounds like wind chimes).

GRAV artists reflect another important concern that has been expressed in the writings of many avant-garde artists of this century mentioned in this paper -- the desire to get back to a communal art that is more accessible to people and is less elitist. In fact, many of the radical shifts in approach by everyone from the Cubist Picasso to the Dadaist Arp, to some of the Russian Constructivists, have been motivated to a large degree by anti-bourgeois feeling, a desire to shock or just to poke fun at bourgeois sensibilities, by deliberately turning existing artistic values upside down -- for example, by using found colored objects in artworks. Others, like Malevich, Gabo, Biederman,

GRAV artists and others, are motivated similarly but with a more positive, almost utopian viewpoint, at least according to their writings, if not their actions.

Perhaps what all these artists were trying to put across was that the artist, besides conveying his point of view and personality, be in the service of art rather than art being strictly in service to him. In fact, the color constructed relief is a medium that could especially lend itself to this point of view for a number of reasons: It is a relatively new medium; free from regional, sentimental or symbolic associations; and it is dynamic -- dynamic meaning open-ended enough for increasingly more possibilities and approaches.

Some of the new possibilities in the structurist medium (apart from new clear plastics already cited and new technologies such as laser cutting and welding devices, new chemical super-adhesives and color computer graphic designing systems) are new color materials. For example, there are materials with their own kinds of light and color properties -- materials with built-in luminescence. There are new ceramics and plastics with a very wide variety of colors and degrees of transparency and opacity, which may do away with the necessity of applying color altogether. Some plastics have different densities and surface textures which further affect their intrinsic color. There are new paints, too, with different textures such as super high

gloss or pearlescent. There are even (relatively) new colors such as day-glo or metallic ones that challenge our existing theories about color systems.

Although working in the structurist medium in its present state seems to have endless possibilities, with these new elements and tools and means who knows what could be expressed? It is exciting to speculate about the use of these new colors and materials in three dimensions. It is the aspiration of many who work in this medium that it evolve further into a very refined art, capable of using pure color/light sensation in three dimensions for profound expressions as yet unknown, capable of moving large numbers of people emotionally as a spectacular sunset can, or as the works of the great musical composers can.

I believe the medium is at an early, perhaps "primitive" stage of that evolution at the moment, though, like all so-called primitive art, it is even now capable of great color/light expression and has much to express in our time. I am working towards being a part of that process.

NOTES

[1] Santomasso, Eugene, The Structurist No. 21/11, 1981-82, Josef Hoffmann's Reliefs at the Beethoven Exhibition of "The Vienna Secession".

[2] Bornstein, Eli, The Structurist No. 13/14, 1973-74, "The Color Molecule in Art".

[3] Moholy-Nagy, Laszlo, The New Vision and Abstract of an Artist, Wittenborn, Shultz, Inc., New York, 1947.

[4] Ibid.

[5] Ibid.

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