Vasarely and the 'Op Art' Phenomenon

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'…here comes Op Art!'[1]
VICTOR VASARELY,
18 April 1964

Robert Doisneau, Vasarely seated at
his desk in Annet-sur-Marne, 1964

When the major exhibition titled *The Responsive Eye* opened at the New York Museum of Modern Art in 1965, it made Optical Art famous almost overnight. The limelight was stolen by two Europeans: Josef Albers, who continued the legacy of the Bauhaus in his art, and Victor Vasarely. Both men were represented at the show with six works each. But whereas Albers, oft neglected by the critics, was turned into the black sheep of the movement by contemporary art history writing,[2] for Vasarely, who was just reaching the peak of his career, the show served as a launch pad to fame.

The Responsive Eye was intended to take stock of the latest endeavours in Optical Art. William C. Seitz, curator of the exhibition, wove his concept not around the spectacle of the artworks, but around the very act of seeing. The discursive space generated between the work and the viewer became the theme of the show. The exhibits Seitz selected were all created in accordance with the so-called 'effective theory', as opposed to works driven by the 'genetic aesthetic' that conveyed the experiences of the artist in the form of a creative act, such as action painting, which recorded the dialogue between the artwork and the artist. Seitz formulated a new style category for 'effective' works that required the active participation of the viewer, which he called 'perceptual abstraction',[3] borrowing a term coined by the art critic and psychologist Rudolf Arnheim.[4] The exhibition catalogue made it clear that the 'Eye' in the title was not identical with the organ of sight – it meant more than an internal optical device that responds to environmental stimuli. He identified the 'receptive eye' with the visual sensitivity of the 'modern painter', which enabled 'color, tone, line and shape' to be recognised as operating autonomously [fig. 13].[5] Seitz traced the psychological mode of action of the kinetic abstraction
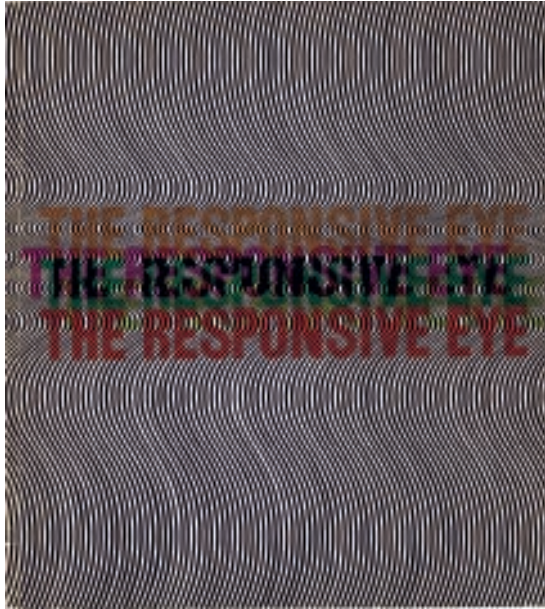
/ fig. 13 /

The Responsive Eye
exhibition catalogue
The Museum of Modern Art,
New York, 1965

named Op Art to the optical-physiological concerns of Impressionist painting. Despite this, the New York exhibition consciously avoided all association with Op Art (for reasons I shall expand upon later), although its most emphatic section consisted of the movement itself, which had hitherto been unknown as a museum object, and which demanded art historical and phenomenological analysis. The scientific definition of Op Art came soon afterwards, with the first attempt made in 1967 by the German art historian, Max Imdahl.[6] Imdahl interpreted the art of Victor Vasarely as deriving from the Orphism of Robert Delaunay, which ascribed meaning to colour, the Neo-Plasticism of Piet Mondrian, which rested on the symmetry of two-dimensional structures, and the Mechano-Faktura of Henryk Berlewi, which borrowed its aesthetic principles from the schematism of mechanical production. Vasarely, meanwhile, preferred to call his own invention Kineticism, and he was fully justified in doing so, because if we accept the contents of his art philosophical writings, published in chronological order under the title of *Notes brutes*, then the artist was the first person to consistently use this name for the movement.[7] He coined the phrase 'kinetic art' in 1953, basing the term on the description of the movement of gases written by Nicolas Sadi Carnot, the nineteenth-century French engineer who developed thermodynamics.[8] In the light of Vasarely's consistency of thought, his wide-ranging knowledge and his enthusiasm for science, it would have been the logical outcome of his principles to classify his works under a style or movement of his own construction.[9] Kineticism, however, was regarded by Vasarely as something more than a simple art movement. He not only referred to it in a formal sense, but also accorded it ethical, economic, social and philosophical functions. He believed it to be of greater significance than Cubism, and he was convinced the Kineticism offered, for the first time since the Renaissance, a synthesis of 'the two creative expressions of man: the arts and the sciences'.[10] The simultaneous representation of movement, space and time had already found expression in Constructivist art in the 1920s, but Vasarely's Op Art was fundamentally different, in that it aimed to generate a spatial effect through the use of a two-dimensional surface by creating the illusion of motion in

macro-time, whereby the image formed on the retina underwent virtual manipulation. Consequently, the name Op Art can be given to any artwork 'that shifts during the spectator's act of perception'.[11]

Perceptual abstraction – as it was represented by *The Responsive Eye* – only partly complied with the typical criteria of Kineticism. The exhibition omitted mobiles and other sculptures that actually moved (such as the works of Alexander Calder or George Rickey), although it did feature the most diverse manifestations of Hard Edge and Post-Painterly Abstraction colour-field painting, of the kind that would later crystallise into Minimal Art. The resultant 'mishmash' prompted one critic to ironically describe the show as suffering from 'acute exhibitionemia', a supposed chronic disease symptomised by confusing and conflating different styles.[12]

Exponents of Kineticism were not completely unknown to the public, for they had already exhibited together on several occasions in Europe,[13] although *The Responsive Eye* ambitiously set about tackling the canonisation of this movement alone. The only contradiction in this was that Seitz, going against the essence and the entire philosophy of Kineticism and Op Art, only presented unique and unrepeatable pieces. He made every effort to eschew works that existed in multiple exemplars, and he also ruled out collaborative creations made by several artists together. He justified his decisions by arguing that even the slightest suspicion that the compositional notions typical of the movement could be equated with mass culture, which exploited the value of marketing for its own ends, would have cast doubt on the scientific significance of the exhibition. It is true that the general opinion about Op Art was, initially at least, swayed by its connection to popular culture and the advertising industry, somewhat similarly to Pop Art. As things turned out, from the very moment the show opened, *The Responsive Eye* was a resounding commercial success. Shops around MoMA began to rearrange their window displays in the spirit of the works in the museum,[14] and the exhibition itself was a massive blockbuster, selling almost a quarter of a million tickets.[15] Negative views of Seitz's work as curator came not from the general public, but from critics and gallery owners, who mostly took exception to the fact that the focus of the exhibition was a distinctly European movement. New York liked to define itself as the centre of contemporary art, and this perceived stain upon the city's hubris could not even be washed away by the last-minute inclusion of a few American artists, who produced works specifically for the exhibition.[16] Although critics acknowledged that the show had restored some of the prestige MoMA had lost by lagging behind in its representation of contemporary art, they could not forgive the unashamedly international nature of the Op Art exhibition.[17] They were wary of the competition this movement posed to the popular appeal of the quintessentially American Pop Art. As one critic perceptively observed, the museum's 'exploitation of Optical Art as an alternative to Pop also has to be considered'.[18] Seitz was badly affected by the mounting pressure, and shortly after the opening of the exhibition, he submitted his resignation.[19]

The majority of assaults on the show resented the fact that New York's greatest shrine to contemporary art had dared to place a fashion trend on such a distinguished pedestal.[20] The noted art historian Professor James Ackerman, of Harvard University, writing on the American reception of Op Art, pointed out that the art world had become increasingly enthralled to change, and that a work was often considered valuable simply by virtue of being novel. In Ackerman's view, this was evident in the recent tendency to use the word 'movement', with its connotations of motion, as a synonym for an artistic 'style', 'as if the very purpose of art were to be kinetic'.[21] Meanwhile, art dealers, who identified with the idea of progress, began to ask themselves the question: 'Is Op the End?; Will the Figure Return?'[22]

In the mid-1960s, the popularity of abstract geometric patterns that generated illusory effects and provoked a kind of visual narcosis[23] spread to almost every area of life, from ladies *haute couture* to common tablecloths. As used at the time, the term Op Art was defined in a way that could have featured in a pattern book on decorations: '[the] strange combination of black and white squares and stripes [,] is a geometric pattern which coalesces, vibrates and gyrates'.[24]

Such patterns not only appeared on textiles [fig. 14], footwear and eye glasses, but also on the bodywork of automobiles and even as extreme body-paint 'tattoos', as in the case of Hollywood actress Kathy Gale, who had herself made up from head to toe in tessellating chessboard squares [fig. 15].[25] It was no surprise, therefore, when exponents of Op Art, who examined the pathology of visual sensory illusions under almost laboratory conditions, were subsequently asked to design the packaging for pills against vertigo and psychotic disorders.[26] Vasarely, who regarded Kineticism as a pan-artistic movement, liked to dress in clothes that matched his pictures, and therefore presaged the Op Art fashion that would eventually infect the world, beginning with his own works. A photograph taken in 1958, for example, shows him posing in his home in Gordes, wearing a shirt whose geometric pattern is echoed in the mural decorating the room behind him.[27]

In the second half of the 1960s it seemed as though Op Art was beginning to fulfil the same function from which Pop Art had derived its name just a decade earlier. A few months after the closing of *The Responsive Eye*, in a move that can be regarded as a witty riposte to the loss of prestige, the Whitney Museum, taking up a suggestion put forward by Ad Reinhardt, purchased a few personal possessions from Pop artists (e.g. a bow tie from Andy Warhol, toothpaste from Jim Dine, and a life-size waxwork of a swimmer from Frank Gallo), and categorised them as Ob Art (short for 'Object Art').[28] Despite these efforts, however, not only did Ob Art prove incapable of breaking the hegemony of Op Art, it

finished up light years away from it, and for want of a more apposite epithet, it became incorporated into the jargon under the term 'Minimal Art'.

However we look at it, *The Responsive Eye* was the first art exhibition in history to have a direct influence on the range of goods available at home design stores, jewellers and fashion boutiques. In its preview of the show, the *New York Times* declared that Op Art was 'the biggest thing since cubism' and predicted that it was 'likely to become the biggest thing since *chemise* in fashion'.[29] The textile designer Julian Tomchin launched new fabric patterns using the compositions of four painters, Vasarely being one of them; meanwhile, at Bergdorf Goodman, the luxury department store on Fifth Avenue, the range of summer evening wear was inspired by Vasarely's compositions of squares sliding over each other.[30] Larry Aldrich, the famous couturier, exclaimed about this glamorous attire: 'When you walk, it is just dazzling!'.[31] The front page of *Vogue* in June 1965 bore witness to the summer craze for Op Art, and its lead article was entitled: 'Pow! Op Goes the Art, Op Goes the Fashion. Now, Op goes the Makeup' [fig. 16].[32] And it was right, for at the same time, the Fabergé chain of jewellery stores launched a range of cosmetics featuring some brand new shades, which they branded 'Make-OP'.[33] The fashion connection was also evident in *Time* magazine, which, in its 23 October 1964 issue, published an article titled 'Op-Art: Pictures that Attack the Eye', with the following direct quote from fashion guru Carl J. Weinhardt Jr: 'Optical art is this year's dress length'.[34] The avalanche set off by the movement

/ fig. 14 /

Lady dressed in Op-Art style in Budapest, about 1966

/ fig. 15 /

Kathy Gale covered from head to toe in body paint in the *Steve Allen Comedy Hour*, 1967

/ fig. 16 /

Vogue magazine cover,
June 1965. Montage from a
photograph by Irving Penn and
serigraphy by Gerald Oster

grew ever more forceful, and the hegemony of the kind of art that was aimed at achieving perceptual effects reached its peak only after the exhibition at MoMA in 1965. Before the opening of *The Responsive Eye*, an article in the *New York Times* reported that Op Art was 'a new art form that, apparently, is going to take over 1965 as its own'.[35]

While the etymology of the movement's name is quite straightforward, it is much more difficult to pinpoint its origins. It is not impossible that the term Op Art was coined by an art historian, and it is perfectly conceivable that it came from Seitz himself, although it could also have derived from Lawrence Alloway, as Vasarely's art gallerist, Denise René, believed.[36] More likely, however, is the suggestion that it was born via analogy with the expression Pop Art, and Op Art eventually shifted from gallery jargon to everyday language. Initially, the artists themselves may have used the phrase to describe the style of their own pictures. It is not beyond credibility that the idea popped out of Vasarely's own mind. In a letter postmarked 18 April 1964, written to the Basel-based art collector Carl Laszlo [fig. 17], the artist wrote, 'After Pop Art, here comes Op Art!'. Like a soothsayer, he also envisioned what often happens when a style suddenly becomes a hit, and in the same letter he predicted, 'It will be fashionable for a year, but only its authentic participants will survive it'.[37] Even if Vasarely was not the inventor of the term, he would have heard it from Seitz, who visited Paris several times while preparing for the exhibition. Whatever the truth is about how the name of the movement first came about, its spread to the general public can be dated to the

/ fig. 17 /

Special edition on Vasarely in
the periodical *Panderma* by Carl
Laszlo, 1963–64 (cover and back
page), on the front, composition
by Vasarely: *Japet*, 1956–59

publication of the article in *Time* magazine referred to above, which featured it in its title. Op Art entered the public consciousness as a direct result. The author of the article, Jon Borgzinner, may have been intimately familiar with the jargon used in the art world because his mother worked at the Martha Jackson Gallery at the time,[38] which had just held an exhibition of works by Julian Stanczak, who also featured in *The Responsive Eye*. Donald Judd, the Minimalist American sculptor, ended his review of Stanczak's show with the phrase 'op-art'![39] If this was not enough to make the general public wake up and see the triumphal march of the new style trend, on 11 December 1964, *Life* magazine, the American weekly with the largest circulation, published an article with the simple title, in capital letters: 'OP ART', which made it obvious to even the most reticent that a new age had arrived. Gordon Hyatt made a television programme about the exhibition in MoMA,[40] while Brian de Palma produced a 16mm film about it. A subsidiary of the Transogram Company designed puzzles in the Op-Art style to sell to hotels.[41] There was even an instance concerning a young girl, whose visual perception had been strangely affected by the hypnotic reproductions accompanying the exhibition review in the *New York Times*, who was said to have torn out the pictures from the newspaper and, in a mesmeric trance, begun to eat them.[42]

Works produced in the Op-Art style, however, not only entered into dialogue with the viewer on a psychological and sensory basis, but also presupposed that the perceiver possessed intellectual sensitivity. It was for this reason that many commentators classified works of this type not as exhibition objects but as manifestations of scientific imagery. They saw them as hollow, soulless portrayals, 'based on textbooks and laboratory experiments, theory, equation, and proofs'.[43] Indeed, turning the hallucinatory experience generated by the optical illusion into a promotional item or a stage accessory discredited the most distinctive inventions of Op artists. Symptomatic of this is the 1967 film *OP-ART hat*, made in Hungary, Vasarely's homeland, a witty parody of the art movement. The film is about the chessboard-patterned hat belonging to a photo model, which at one point in the film is chewed to bits by the protagonist's dog. It turns out that the hat is the only one of its kind in the whole of Budapest. The phenomenon had previously been mentioned in an incisive newspaper article, which stated that, 'Op Art is compromised by not even being an ism. Nowadays it is no longer possible to paint chessboards in pictures, because geometric shapes have found their way onto ladies swimsuits, sunglasses and beach slippers'.[44]

It was for this reason that the other star of the New York exhibition, Bridget Riley, later developed a critical view of the movement, as she explained in an interview she gave in 1970: 'I feel sometimes a slight awkwardness in my attitude to the term "Op Art" because it smacks of a sort of gimmicky selling slogan of purely temporary significance. […] In its crude way I think the term "Op Art" is perhaps right, but it's the contemporary connotations that I resent'.[45] In a newspaper article printed after the opening, she said, '*The Responsive Eye* was a serious exhibition, but its qualities were obscured by an explosion of commercialism, band-wagoning and hysterical sensationalism'.[46] It is revealing to note that whereas Riley experienced the popularity weighing down on Op Art as an assault on the apotheosis of the unique work, for Vasarely, who discovered his own faith in 'the materialist dialectic',[47] mass culture became the most expressive method for disseminating his works. Vasarely never raised his voice against the over-mediatised nature of the movement, but he was mistrustful of the 'bedazzled artists' who practised Kineticism in a superficial way. 'Everything that is spanking new, everything that shines or moves, is not necessarily Kineticism',[48] he opined. Even at *The Responsive Eye* it was obvious that the only way to create solid foundations for the movement was by following Vasarely's system of values – in the hands of epigones, it would become a cheap sideshow at the fair. This opinion about the future of Op Art was shared by, among others, Barbara Rose, who was ahead of her time in asserting, 'I don't see that this road led anywhere for those who came after [Vasarely]'.[49]

It is unlikely that the total acceptance of Vasarely's art would have come about without the success of Seitz's exhibition at MoMA, which toured several other cities in the United States. In the show's wake, Vasarely began to be

revered as the father of Op Art, its apostle or even its grandfather,[50] first on the American side of the Atlantic, and soon across Europe as well. In his adoptive home of France, he had previously been referred to as the 'pionnier de "la plastique cinétique"'.[51] A few years after the New York show, an exhibition hall called the (op)art galerie was opened in Esslingen, Germany, specifically for exponents of the movement. However, while Kineticism could be identified with Vasarely's own artistic beliefs, Op Art was nothing more than a fashion wave that fed on the movement, becoming a whirlpool that even tried to drag Vasarely deep into the maelstrom. The artist clearly became wise to this possibility in good time, and years before the movement burst into public view, he expressed his concerns, somewhat cynically, to the venerable 'prophet' of the Hungarian avant-garde, Lajos Kassák: '...I am almost afraid that I will come into fashion and be ruined by money and success'.[52]

In essence, there is little difference between, on the one hand, advertisements, channels of mass communication, and the rhetoric of image-making in general, which hungers for eye-catching visuals that compete for attention as they seek to sustain the consumer society, and, on the other hand, the artistic principles put forward by Vasarely. As a young artist in the early 1930s, he used the basic printmaking skills he had learnt at the Műhely (Workshop) art school in Budapest to earn a living as a poster designer.[53]

Though it made no official claim of the kind, *The Responsive Eye* was clearly intended, from the very start, to offer a 360-degree panorama of all the possible forms of Op Art that existed. Lawrence Alloway, who was employed as curator of the Guggenheim Museum at the time, gave a lecture – promoted under the snappy title of 'A Response to the Responsive Eye' – which provided a convincing diagnosis of the connections characterising the language of this new movement. Among his accusations against Seitz, Alloway complained that the curator of the MoMA exhibition had merely ushered together under one roof a number of artists who were only apparently similar, but who essentially worked according to different and mutually incompatible concepts.[54] Seitz's main mistake, in Alloway's view, was to identify Op Art with contemporary trends in abstract art, especially with

kinetic art. In his interpretation, the exponents of the movement were bound by the conscious or unconscious use of a repertoire of forms, and as a consequence of this, it would be virtually impossible to categorise Op Art as an independent style. In spite of this, Alloway's criticisms were the main factor in making the term 'optical art' part of art history parlance – as with the phrase 'pop culture' a decade earlier. Furthermore, the name Op Art was also applied in Europe to the movement based on the idea of motion.[55]

In his lecture, Alloway deployed a clever analogy in order to explain that Op Art was nothing more than a simple technique, and unsuitable as a style or movement. He compared Seitz's work with somebody in the fifteenth century dedicating an exhibition to perspective, bringing together all the paintings (such as those by Leon Battista Alberti) that were made with the help of lines leading towards the vanishing point. (Surprisingly, Vasarely was the one artist to whom this statement could not be applied. A few years after the exhibition, the press came to the conclusion that 'Optical Art, it becomes apparent, is a new form of perspective, and Mr. Vasarely is its Alberti'.[56]) According to Alloway, all the artists invited to *The Responsive Eye* represented 'perceptual abstraction' by exploiting different devices, making use of one or more of the following four principles, either alone or in combination: 1. symmetry; 2. repetition of small forms; 3. texture causing the surface to shift optically; 4. limited, 'atonal' colours. Alloway distinguished between the two generations of artists at the exhibition by claiming that brushstrokes could be found in the works of the older generation, whereas the youth tended to aim for technical perfection. The latter, he said, resulted in an anonymity that validated art which questioned the value of being unique and unrepeatable. Bearing in mind all the arguments put forward by Alloway, it is easy to conclude that among the Op artists represented at the MoMA exhibition, only Vasarely's works fulfilled all his criteria at the same time. This was not only true for Alloway's principles, but also for Seitz's categories, which were devised in accordance with the pursuits of the type of art that he named 'perceptual abstraction'. The six categories presented in his study were: 1. The Colour Image, 2. 'Invisible' Painting,

3. 'Optical' Paintings, 4. Black and White, 5. Moiré, and 6. Reliefs and Constructions.

Below we take a look at a few examples of Vasarely's aesthetic principles, as we attempt to match them to the categories that Seitz came up with in the mid-1960s as his way of analysing the anatomy of Op Art.

1. THE COLOUR IMAGE. Seitz's first category featured the 'heraldic' canvases of 'post-painterly abstraction', whose reduced vocabulary of forms was composed of the very simplest elements, notably bands of colour placed side by side in striking juxtapositions. In 1960, the art critic Clement Greenberg was the first to use the epithet 'colour' in connection with the paintings of Morris Louis and Kenneth Noland.[57] According to the aesthetic he espoused, colour becomes 'optical' when it generates a purely visual effect, that is, it does not create tangible space.

Vasarely once claimed that it was in 1947, while he was staying on Belle Île, that he first realised the universe could be expressed using pure shape and pure colour.[58] He began to take a programmatic interest in the practical systemisation of the principle of 'pure composition' or 'pure painterliness' in 1955. The overture to this could be found in the series of small numbers of precisely defined abstract elements, expressed in just a few colours (homogeneous, matt or silky colours), which he regarded as 'the canvas reduced to its own pure expression'.[59] He used this as the basis for formulating the concept of the *unité plastique*, consisting of the combination of colours and shapes, and of the repeated variation of the two within a regulated system.[60] He patented the concept on 2 March 1959.[61] The shapes could be dots, circles, ellipses, squares or rhombuses, while the other variable of the structure was usually ten colours, each comprising twenty different shades. The colour palette the artist used was supplemented with twenty shades of grey, twelve 'wild' colours (such as Verona green, ultramarine or cinnabar), and six variations of metallic colours (silver or gold).[62] The 'Plastic Unit' or 'Pictorial Unit' was the most fundamental component and the philosophical basis of Vasarely's optical art, and was the guiding principle behind the artist's first ever large-scale exhibition, which opened in March 1963 at the Musée des Arts Décoratifs in Paris.

The paintings Vasarely made around 1950, during his Gordes-Crystal period, consisting of complementary colour forms arranged beside one another as in a collage, can be regarded in several respects as parallels of the American colour-field painting that developed out of Abstract Expressionism (Barnett Newman, Frank Stella, Gene Davis, etc.). The 'zip' paintings of Barnett Newman, for example, in which fields of colour are divided by narrow vertical lines, both elevated colour to the status of a subject in its own right and focused on the autonomous power of the colour field; although some of Vasarely's pictures from this period, such as *Lomblin* [fig. 18], *Orom* (1950/53), *Uzok-III* (1952–60), *Kandahar* [fig. 19] and *Sauzon* [fig. 20], lacked both these characteristics, the planarity and optical nature of their colouration nevertheless fulfilled the criteria put forward by Greenberg concerning compositions by exponents of post-painterly abstraction, which consistently bore 'purity and openness' in mind. The painting titled *Kalota* (1963), included in *The Responsive Eye* [fig. 21], is composed of monochromatic units of toneless blues and corresponding reds; this work – rather like the 'Structural Constellations' of Josef Albers, in which he explored the autonomous power of colours – shares parallels with Minimalism, a later stage in the development of geometric abstraction; what is more, though never publicly acknowledged, Vasarely's work also served as the prototype for Minimal Art.[63] Later, referring back to Seitz's first category, Vasarely decided to give the name 'Sin' (from the Hungarian word *szín*, meaning 'colour') to the period that began in 1962, when most of the works featured in *The Responsive Eye* were produced.

2. 'INVISIBLE' PAINTING. Seitz used this term to define compositions made up of large homogeneous surfaces of colour. As the pictures in this category have a consistent, uniform character, the handprint of individuality within them can only be traced with difficulty. It was not by chance that Rudolf Arnheim, in reference to *The Responsive Eye*, talked

/ fig. 20 /

Victor Vasarely, *Sauzon*, 1950
Oil on canvas, 130 × 97 cm
Private collection, courtesy
Patrick Derom Gallery, Brussels

/ fig. 21 /

Victor Vasarely's
painting *Kalota* (centre)
and collage *Orion MC* (right),
both 1963, at the exhibition
The Responsive Eye
Museum of Modern Art
Archives, New York, 1965

/ fig. 18 /

Victor Vasarely,
Lomblin, 1951–56
Oil on canvas, 65 × 50 cm
Collection Lahumière, Paris

/ fig. 19 /

Victor Vasarely,
Kandahar, 1951–55
Oil on wood, 48 × 53 cm
Vasarely Múzeum, Budapest,
INV. V.273

about the growing appreciation of 'anonymous art', for which the exhibition served as a trend-setting forum.[64] The other common feature of these works is that they only reveal themselves after lengthy contemplation, as exemplified by Ad Reinhardt's paintings, which explore the absolute power of colour. The viewer is compelled to stay alone with the works for a while, allowing the eyes to adjust to the circumstances. Only then can one begin to notice the brushstrokes and the 'invisible' tones that make up patches of colour. In these compositions, most of which are monumental in scale, the enigma of the monochrome hues that fill the canvas convey a kind of sacrality, endowing the pure visuality expressed in the pictures with a metaphysical force. The other aspect of uniformity, however, is anonymity, which poses the problem of mechanical reproduction and multiplicability. As we know, the collective way in which his works were produced and used was one of the cornerstones of Vasarely's art, a notion that he embraced from the Bauhaus. In reference to Lajos Kassák, in the early 1950s Vasarely wrote on a piece of paper in his studio in Arcueil: 'Abstract art is universal and breaks down borders'.[65] Universality in this case involuntarily became a synonym for 'invisibility'. It speaks volumes that in 1944, at the time of Vasarely's first exhibition in France, held in the Galerie Denise René [fig. 23], the artist decided, consciously and conceptually, that the printed sheets advertising the event would be written using an upper case 'Univers'-like version of the clean-lined, highly legible, Bauhaus-inspired typeface.[66] The use of such lettering represented not only the ideas of uniformity, purity and

simplicity, but also aesthetic coherence, and in the exhibition hall, the entire visual image was built around this font. In 1955, the landmark exhibition titled *Le Mouvement* was also held at the Galerie Denise René, and in the *Yellow Manifesto* published to accompany the show, Vasarely proclaimed his aesthetic of 're-creation, multiplication and expansion', which broke with the elitist approach of the unique artwork.[67] Under such premises, the work is the real thing, and it is the artist that becomes invisible.

The notion of universally communicating information as a direct result of unrestricted reproducibility ultimately turns every work of art into something invisible, elusive and imaginary. In addition to László Moholy-Nagy, who came up with the idea of ordering pictures over the phone, another Constructivist artist, El Lissitzky, promoted the idea of transferring the tasks of painting from ateliers to factories, industrial plants and foundries.[68] Vasarely now adopted this Utopian avant-garde ideal, which outraged connoisseurs who had grown accustomed to unrepeatable works of art. In 1971, during the Vasarely retrospective held at the Kunsthalle Cologne, a portrait film of the artist was screened twice each day, with the lead role played by the 'picture factory' he had set up in his studio in Annet-sur-Marne. In the film, an army of assistants can be seen drawing and painting the pictures of the 'invisible artist' onto squared paper, following strict instructions. The master's studio was on the floor above, and in one spectacular scene, the film shows Vasarely standing up from his enormous desk, taking a few steps towards a trapdoor in the floor, lifting the flap

/ fig. 22 /

Victor Vasarely in his studio, 1988
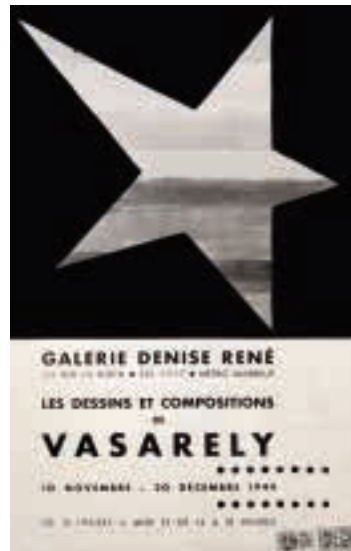
/ fig. 23 /

Poster for Vasarely's exhibition at the Galerie Denise René, Paris, 1944

up and shouting down to the people below: 'A little more yellow!' Then, with a loud bang, the door snaps shut. Back in the projection room in the Kunsthalle, measuring the same size as a conventional cinema, a loud clamour could be heard, as many in the audience stood up in outrage and exited in disgust.[69]

3. 'OPTICAL' PAINTINGS.

In 1962 Sam Hunter wrote that 'the ambiguities of Vasarely's paintings and relief constructions are both kinetic and optical'.[70] The question is how the two relate to each other and whether one follows logically from the other.

Vibrant surfaces created from patterns of geometric figures arranged according to a particular algorithm can be found among the mosaics of Antiquity. The first stage in the history of the autonomisation of retina-based art, however, came at the end of the nineteenth century with Pointillist painting, which relied on the scientific theory of the optical combination of colours, and with the so-called Divisionists, who strove to separate optical effects using an analytical method. Georges Seurat's 'optical painting', however, remained firmly attached to the real spectacle. Primary shapes became a means of generating illusions with the arrival of non-objective, abstract art styles, especially Cubism. Optical games derived from periodic series of geometric elements were incorporated into the repertoire of applied photography in the second half of the 1920s. During his studies in Budapest, Vasarely may have come across such depictions, even in the printed press, such as the photograph of the Hollywood actress, Alice White, in a room of mirrors decorated with abstract patterns [fig. 24].

Yet optical illusion was not enough to bring about Op Art, which also needed the dynamism of kinetics. It became inseparable from the concept of the fourth dimension of motion-time, which tipped the static work out of its fixed position by involving the viewer and turning the eye into the active organ of sight. In this sense, Vasarely's optical kineticism also posed the question of the dematerialisation of the artwork, for in his works, the actual spectacle is not present on the canvas at rest in front of us, but comes about through interacting with the work and is generated on the retina.[71] Vasarely was never concerned with the type of mechanical movement that brought about the works of Jean Tinguely or Marcel Duchamp. The Hungarian artist's planar kineticism was in this respect far more closely connected to visual research than to the approach of works that emphasise their industrial nature, which Jack Burnham has pejoratively described as 'unrequited art'.[72]

The emergence of the kinetic approach in Vasarely's oeuvre came about as a result of the artist's meeting with Gestalt theory in the early 1940s.[73] Among the laws defined by Gestalt psychology, the one that most caught his attention was anti-symmetry, that is the observation of ambiguities of form and content. In his experiments, he began to examine the mechanism of the threshold or borderline, in other words, the situation that disturbs the eye so that it 'is physiologically incapable of distinguishing between two or more perceptual hypotheses'.[74] In these images, the interpretative space of the works is created by the unstable perceptive field, and this imbues the meaning attached to the composition with two or more layers. The illusion-generating device in his works was initially the chessboard pattern, but this was replaced in the early 1960s with the honeycomb structure. In the series titled *Homage to the Hexagon* (1964–71), he built on the axonometric perspective of his pictures to split the hexagon into six triangles, resulting in a perspectively foreshortened Kepler cube (actually a Koffka cube[75]) being formed out of the remaining three identical rhombuses. The characteristic

/ fig. 24 /

Alice White, Tükörkép (Alice White, Mirror Reflection), *Magyar Magazin* 2, 13, 15 September 1929, 22

of this cube is that by being placed in the centre of the hexagon, the surrounding shape itself is converted into a Kepler cube. Depending on the relationship of the two 'solids' to each other, one appears to be either protruding or sunken, as though it were an ambiguous bas relief in a state of constant flux. By connecting Kepler structures together and filling them in with colours, Vasarely created *Deuton*, *Ion* and *MEH*, which generate visual illusions in accordance with the 'impossible trident' principle. With these compositions, collectively named *Tridim*, which turn a monochromatic background into a visible space, Vasarely claimed to have created 'a *perpetuum mobile* in *trompe l'oeil*'.[76] It was not difficult to take the next step, namely to remove the extraneous background shape surrounding the essential forms. Thus were created the series of works titled *Bidim*, produced by cutting out figures from sheets of metal, shaped identically on both sides. These works enabled Vasarely to take Kineticism out into real, three-dimensional space.

For Vasarely's works in general it can be said that the starting point is the plane, and that plasticity is created from the shapes that emerge from its surface. As far as the precursors to his pictorial logic are concerned, the artist himself stated that the point of departure for what would later culminate in his Op Art compositions came from the textile patterns that he produced with his wife, Claire (original name: Klára Spinner), for the Lyon silkworks in 1931 and 1932 [cat. 9].[77] More than twenty years later, during the planar kinetic period that began in 1954, he made series of works with broken lines and multiple rotations of rectangular shapes placed side by side, titled *Tlinko* [cat. 23], *Cintra* [fig. 25], *Erdian*, *Betelgeuse*, *Andromède* and *Bellatrix* [fig. 26], whose structures share parallels with his early experiments on fabric. The latter corpuscular pictures, consisting of the simplest geometric elements possible, generated the sense of a constantly vibrating structure, akin to silk pattern designs arranged out of interconnected patterns of regular waves and intersecting circles. The feeling of spatial depth and the illusion of movement could also be achieved by reducing the length of the lines making up the composition as they came closer to the centre of the picture, as in the series *Vonal* [cat. 39] and *Zsinor* (1968–74), which Vasarely made by gradually diminishing the size of the rectangles.

Nevertheless, the artist's kinetic compositions cannot be regarded as direct descendants of patterns in which the surface is kept in a permanent state of vibration. What actually formed the basis of the visual analysis later known as Op Art was an extremely simplified, almost ascetic equation, a shape derived from an emergent square. The starting point for the experiment, in a rather eloquent manner, was the work widely regarded as the end point of painting, namely Kazimir Malevich's Suprematist composition, *Black and White* (1915). Vasarely first conceived of his *Homage to Malevich* in 1952, but only completed it in 1958 [fig. 27]. Its basis is a Malevich-type square, into which is fitted a slightly asymmetrical rhombus. The rhombus can also be viewed as a square that has been partly rotated around its axis, generating a strange, unfathomable sense of space within the image frame. In his *Yellow Manifesto*, published for the 1955 exhibition at Galerie Denise René in Paris, *Le Mouvement*, regarded as the first major presentation of Kineticism, Vasarely formulated the movement's basic principles, and he illustrated the cover with squares 'rotated' into rhombuses, symbolically implying that the fourth dimension could be conquered from the second dimension [fig. 28].

4. BLACK AND WHITE. 'Most optical effects can be achieved by the use of black and white alone',[78] stated Cyril Barrett in his 1970 book titled *Op Art*. Vasarely used a binary code consisting of fullness and absence, organised around a system of positive and negative forms, in the pre-kinetic prints he made as logical extensions of the visual experiments he had conducted at Budapest's 'Bauhaus' (Sándor Bortnyik's private school, Műhely [Workshop]) – in the *Zebras* (1935–38) [cat. 13], which constituted a dialectic unit of form, and in the compositions titled *Wrestlers* (1937) and *Amor* (1940) [fig. 29]. From around the turn of the 1940s/1950s, he consistently strove to develop the absolute contrast that could be pictorially expressed out of the opposites of black and white.[79] As the artist himself
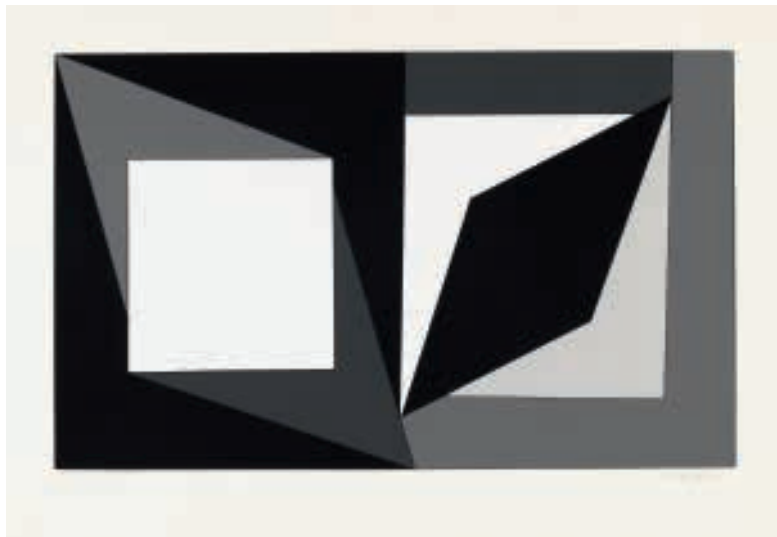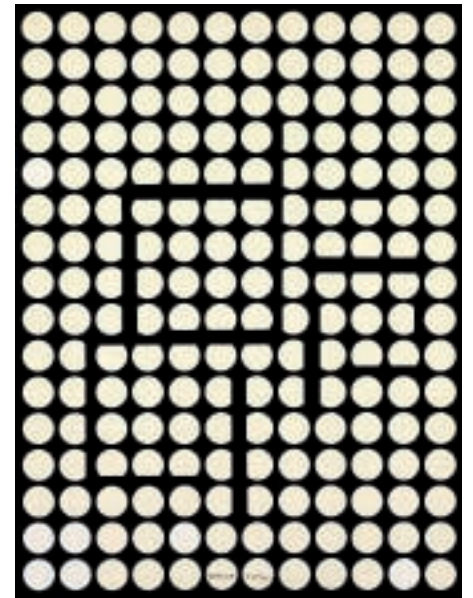
/ fig. 25 /

Denise René with Vasarely's
painting *Cintra*, 1956

/ fig. 26 /

Victor Vasarely,
Bellatrix-Os, 1956
Gouache on paper, 44 × 33 cm
Vasarely Múzeum, Budapest,
INV. V.165

/ fig. 27 /

Victor Vasarely, *Homage
to Malevich*, 1952 (1953/61)
Serigraphy, 50.2 × 67.1 cm
Szépművészeti Múzeum,
Budapest, Department of Prints
and Drawings, INV. L.68.128

/ fig. 28 /

Victor Vasarely, *Yellow Manifesto*,
printed on the occasion of the
exhibition *Le Mouvement* held at
the Galerie Denise René, Paris,
in 1955

NOTES POUR UN MANIFESTE

LE MOUVEMENT

AGAM
BURY
CALDER
MARCEL DUCHAMP
JACOBSEN
SOTO
TINGUELY
VASARELY

GALERIE DENISE RENÉ

enthused, 'To pair affirmation and negation into one unit is to make knowledge complete. What a prospect!'[80]

The catalogue for Vasarely's second exhibition in France, in 1946, was introduced by Jacques Prévert, who wrote a poem for the vernissage. The title of the poem, 'Imaginoires', is a masterly play on words, and can be read both as 'imaginary pictures' and as 'black images'.[81] The latter meaning was a descriptive reference to the spectacle conveyed in the pictures, the vibrant web of sprawling black lines on a white background. The artist began to deal programmatically with the idea of compositions emerging from bivalent contrasts in the early 1950s, when he abandoned his post-Cubist style of painting. The *photographismes*, as they were called, were made by mechanically magnifying line drawings that were full of contrasts, to be used as the projected decoration of a total stage space [fig. 30]. It is most likely that the demand for kinetics that could be derived from the contrast of positive and negative first raised its head in the Théâtre de l'Humour. Vasarely's drawings, projected in several layers onto the canvas behind the stage, actually escaped from the plane, becoming part of the choreography, in which the dimension of motion-time was created by the dancer, Marina de Berg, as she tracked the movements of the elements contained in the projected image.[82] This may have been the point at which Vasarely became fully aware that he could use the code of black and white as the basis of Kineticism, for the separation of foreground from background could be made most apparent by exploiting the contrast between black and white.

The same solution was employed in the 'deep kinetic photograms' which were produced on light-sensitive paper placed behind two superimposed sheets of stained or acid-etched glass.[83] These compositions, which were later touched up with India ink or gouache, or transformed into independent paintings, created spatiality with subtle extensions of the effects of light and shade. It was now evident to Vasarely that stripping a work bare and reducing it to 'non-colours' so as to end up with a mere framework was enough to generate the illusion of depth and motion. The contrast between binary forms became the exclusive formal device of his pivotal Black and White period (1955–63), and in essence it was the cybernetic structure consisting of units of zero and one that made the move into common parlance under the definition of 'Op Art'. The Kineticism of his Black and White period was summarised in the *Cinétique NB* portfolio, published by the Galerie Denise René in 1975, which contained nine of Vasarely's most distinctive works. The structures of lines and intersecting geometric shapes that criss-crossed these compositions gave off an effect that was sometimes dynamic, sometimes in equilibrium, depending on their topographies. By simply mirroring the motifs, it became possible to multiply them *ad infinitum*. If black and white came up against one another in a pattern without any difference in their size, the relationship between foreground and background became interchangeable in our perception, depending on the apparent position of the two shapes. The 'molecules' from which the black and white compositions were made consisted of elements that could be associated

/ fig. 29 /

Victor Vasarely, *Amor (Szerelem)*, 1940, in 'Optique, graphisme et publicité', *Art Présent* 4–5, 1947, p. 84

/ fig. 30 /

Victor Vasarely, display of *Photographismes* at *Formes et Couleurs Murales*, Galerie Denise René, Paris, 1951

– in terms of form – with order and stability, yet taken as a whole, they stretched the image frame apart and turned reception of the work into a temporal experience. It could be said that the Black and White period of this artist, who liked to call his works 'screens' *(écrans)*,[84] served as an 'experimental practice ground' leading to the development of his autonomous artistic language, during which Vasarely made targeted efforts to bring about a renewal of cinematography (expanding the sense of cinematic movement), in particular the 'art film'.[85]

5. MOIRÉ. The moiré effect is generated by the interference between two slightly misaligned grids laid one over the other. In the late 1950s, the young and upcoming artist François Morellet produced some abstract compositions, reminiscent of wallpaper patterns, constructed out of oscillating raster points, which caught Vasarely's attention because of the structural similarity in the logic with which both men arranged their images.[86] Some two decades earlier, in his pre-kinetic studies of motion, Vasarely had discovered the distinguishing marks of his illusionism in the vibrant surfaces of his pictures, created using undulating shapes that seemed to rotate in space. At that time he still worked with recognisable figures (such as zebras, tigers, harlequins, prisoners and Martians), although in a partly non-figurative manner, as can be seen in his designs for the Lyon silkworks [cat. 9]. Indeed, the latter compositions could even be directly connected to the patterns discussed in

/ fig. 31 /

Victor Vasarely, *Mitin* (study for poster), 1938 Gouache, opaque white, black paint and aerosol on graph paper, 59.7 × 40 cm Vasarely Múzeum, Budapest, INV. V.24

this section, by virtue of the etymology of the name of the technique used to make them: the French word *moiré* originally referred to the 'foamy', watery appearance of the silk. Vasarely's attraction to dynamic structures was partly driven by a childhood memory. The criss-crossing network produced by the layers of gauze covering his injured left hand would later prove 'infinite sources' for Kineticism [fig. 31].[87] Even during his time at the Műhely in Budapest, he 'made a thorough study of networks of lines and crosses'.[88] The *Raster* compositions he produced in 1935 recall the intricate and disturbing texture of a fishing net that has begun to unravel.[89] A purified variant of the same design was used in the *Naissances* (Birth) compositions of 1951 and 1952 [cat. 17 and fig. 32], which were constructed out of lines running parallel to each other, reminiscent of the contour lines found in geography atlases; the high point of this series was the ceramic-covered panel titled *Sofía* (1954), designed for the Central University of Caracas. The *Photographismes* he produced by enlarging small drawings to monumental proportions were also utilised in his collages: around the turn of the 1940s/1950s, several of his pen-and-ink drawings were completed with the addition of a photograph of a lattice structure pressed into an oval, lens-shaped form, which was stuck over the network of lines,[90] resulting in a disquieting trembling effect that agitated the entire surface of the picture. The moiré effect was also revisited a few years later in his *Transparence* pictures [cat. 22], made using the planar plastic solution of projecting two sheets of foil over one another. These collages, made on translucent tracing paper or on rhodoid sheets, generated a *trompe-l'oeil* effect that unveiled layers of virtual space, setting a precedent for his later bas reliefs. Moreover, when Vasarely realised that the figures painted onto the lower plane of the picture were illuminated by the light permeating the upper layer, reinforced several times over, he was relying on the experience he had acquired during his studies into the prism-like behaviour of layers of water.

The technique of shifting patterns of concentric circles over one another was so close to Vasarely's heart that he frequently employed it to produce self-portraits, by changing photographs into profiles. His monumental hexagon-shaped

portrait of President Georges Pompidou, made of aluminium profiles placed vertically at regular intervals, likewise only comes together as a coherent whole when seen from afar, or when looked at through squinted eyes [fig. 33].⁹¹ Works such as *Tuz* (1973), consisting of discs facilitating the movement of overlapping structures, enabled visitors to experiment with their own moiré grids, to come up with the kinetic forms they preferred. The compositions titled *Oervegn* were made by shifting the focal points of circles in a given direction. One version, painted onto long, narrow panels covering the facade of the RTL headquarters in Paris, resembles the surface of a lake that has just swallowed a pebble thrown into it (The title of the work is a reference to this, for *Oervegn* entered the artist's vocabulary as a paraphrase of the Hungarian word *örvény*, meaning 'vortex') [fig. 34].

The synthesis of Vasarely's art manifests itself in the combination of two basic elements, the wave-like structure and the corpuscular structure. Undulating motion comes about inside a network created with the help of line drawing. When two identical networks are superimposed, elemental particles are generated at the points of intersection. The prototype for this compositional schema is represented by the pictures titled *Eclipses* (1954) [cats. 32–35], which recalls the raster grids used in printing workshops. Works in Vasarely's *Laika* series (1955), observed from a specific distance, are reminiscent of the topology of typographic points coming into interference with each other; *Betelgeuse Os* (1954) and *Alphard-Os* (1956) develop this effect kinetically along junctions where elements of the raster structure meet. The system interruptions caused by the distortion of circles and squares are also used in the series titled *Novae* and *Supernovae* (1959), in which an apparent sense of motion arises from the radiating effect and the afterimages.

The network, the lattice structure and the chessboard are three elements forming the basis of the virtual perspective found in Vasarely's works. In essence, simple deformation of the basic gridwork could be used to 'blow up' the plane into three dimensions. Enlarging square or circular structures (as in the *Vega* series) results in convex forms, while compressing them (as in the *Ond* series) produces

concave forms [cat. 1–5]; meanwhile, depending on the extent of expansion or contraction, elements of the deformed gridwork are reshaped into rhombuses or ellipses. The most differentiated variant of the parametric compositions created in this way is found in the series titled *CTA-102*, consisting of gold and silver squares placed before a shiny background, which, not only in its auratic expression but also with its title, alluding to wave signals picked up from the cosmos, became a symbol of two-way motion, recalling the pulsating light of nebulas.

The connection with the cosmic dimension in the artist's works was also expressed in the organic spectacle of microstructures. In the multiples titled *Markab*, a hundred of which were made between 1956 and 1959, and which were sold for 20,000 francs as part of the 'Edition MAT' series of the Galerie Édouard Loeb in Paris, the illusion of shapes undergoing transformation in the surface of

/ fig. 32 /

Victor Vasarely, *Naissance 1–4*, 1952 Ink on paper, 20 × 20 cm each. Vasarely Múzeum, Budapest, INV. V.157–162

/ fig. 33 /

Victor Vasarely, *Homage to Georges Pompidou*, 1976
Hexagon-shaped plastic portrait for the entrance hall of Centre Pompidou, Paris

/ fig. 34 /

'Ce soir là les lumières de Paris étainent signées Vasarely',
Paris-Match, 5 February 1972
Article reporting on the inauguration of the emblem on the façade of the headquarters of RTL TV channel in Paris, designed by Vasarely and his son, Yvaral

rippling water is caused by the cross-reeded glass grid, which splits light in a multitude of directions. Made around the same time, the artist's *Vibration Picture*[92] likewise created a suggestive spatial experience by incorporating the reflection of the surrounding environment. In Vasarely's deep kinetic compositions, which he called his *œuvres profondes*, the three-dimensional effect was generated by combining fragments of two simple abstractions. The moiré patterns also came into play in the artist's architectural integrations [cat. 68–73]. Vasarely once called attention to the kinetic wall constructed around the speed-skating rink for the Winter Olympics in Grenoble, which was inspired by his series titled *Capella*, 'where there was a predominance of stroboscopic effects through the juxtaposition of alternating vertical black and white slats'.[93]

6. RELIEFS AND CONSTRUCTIONS. Twenty years after the original publication of the *Yellow Manifesto* (1955), regarded as the key text of Op Art, a new edition was published with the following subtle footnote: 'Vasarely has chosen to be known as a *plasticien* rather than as a painter'.[94] His split with the elitist idea of easel painting went hand in hand with Vasarely's discovery, as the servant of the concept of community art, that the true purpose of his art lay in the aesthetic of 'multiples' (reproduced, three-dimensional objects). Fundamental to his artistic philosophy was his conscious decision not to discriminate between individual creations and duplicated works. His desire was to recreate his compositions in a way that even he would not be able to tell them apart from their respective prototypes. He believed that as long as every tiny detail of the manufacturing process was followed precisely, serigraph sheets and multiplied objects would retain the same quality as the original pattern, and neither their aesthetic nor market value would be any the worse for it. In other words, he wanted his works to be defined not by their rarity but by the measure of their quality. Vasarely first formulated the idea of multiples, as an alternative to unique, one-off works of art, in 1952. The following year, he set about making screen prints at the Arcay Studios, and laid the market conditions for selling his

works.[95] In 1966, at the artist's suggestion, the Galerie Denise René opened a showroom in Paris that exclusively sold multiplied works.[96]

During his Black and White period, Vasarely began to toy with the idea of transplanting his planar Plastic Units into actual three-dimensional bas reliefs. In parallel with this, he also dealt with the urbanistic issue of the integration of form and colour, which he sought to implement on a monumental scale, in the form of wall cladding, in accordance with the morphology of his own 'plastic alphabet'. The bas reliefs he made in 1954 to decorate the campus of the Central University of Caracas, Venezuela [see cat. 72 and fig. 35], marked the first step in his programme of 'architectural integration', born out of the symbiosis between the work of the artist/inventor and that of the contractor/craftsman. Vasarely would have been aware of the forerunners to this programme, such as the ideas for using colour to improve the quality of life in urban environments proposed in the periodical *Die Farbige Stadt*, first published in 1926 by the Bund zur Förderung der Farbe im Stadtbild in Hamburg. However, when he devised the concept of the 'Polychromatic City' (*Cité Polychrome*) in 1956, followed up eight years later by the 'Polychromatic City of Happiness' (*Cité Polychrome du Bonheur*),[97] his ideas for synthesising the different branches of the arts were based on Le Corbusier's work titled 'Radiant City' (*Cité Radieuse*).[98] Vasarely published his ideas for extending his compositional method to the arena of urban planning in a book titled *Plasti-cité* (1970).[99] As he wrote, 'The future city built by a thousand engineers, architects, plasticians will fulfil all the physical and psychic needs of humanity'.[100]

Appended to the notion of 'multiplication' was the potential for mobility and variability. Based on any given prototype, an object could be recreated in any size and any quantity, depending on whether it was to be located in a public space or in the intimacy of a private home. The mission was the same in both instances, for the 'Polychromatic City' proved versatile enough to be adapted to every area of life, and some of its forms enabled 'art to penetrate into society'.[101] The artist's compositions were sent to the weaving houses of Pinton and Tibard (and later, La Demeure), where they were converted into limited-edition Aubusson tapestries (typically five identical items) for wealthier collectors [cat. 14, 31, 39 and 51, and fig. 36]; individually signed serigraph albums, meanwhile, often in print runs of 250, made the same compositions affordable among the middle classes. His multiples were marketed both as parts of albums or independently, and were issued in a variety of sizes and quantities (25 or 100). From the mid-1960s onwards, the latter objects were constructed from glass and aluminium, and then Perspex and BASF Luran, and they were subsequently covered with screen-printed sheets.[102] Later, in the 1980s, multiples were also made from wood (Sipo or Agépan fibreboard), to which Lascaux acrylic paint was applied by hand. The idea of multiplication was even put into practice as a spectacular, albeit somewhat didactic exhibition technique, in the form of his display mechanisms (*présentoirs*), set up in the foundations Vasarely established in Gordes and Aix-en-Provence, which enabled works too large or too numerous to fit on the walls to be displayed conveniently. These two-sided mechanisms were suitable, on average, for presenting 2 × 18 works, placed on interchanging aluminium sheets. The images would change every thirty seconds, so visitors could peruse sets of works that would ordinarily occupy an entire room without needing to move from a single fixed position, as easily as flicking through the pages of one of the artist's albums [fig. 37].[103]
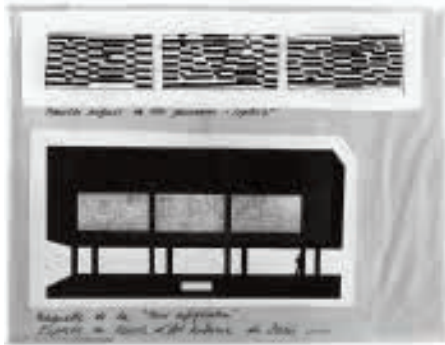
/ fig. 35 /

Victor Vasarely, *Sofia*
(architectural integration sketch
and placement plan for the
Central University of Venezuela,
Caracas, architect: Carlos
Raúl Villanueva), 1954

/ fig. 36 /

Victor Vasarely, *Maamor-T*, 1969
Carpet, 392 × 381 cm
Vasarely Múzeum, Budapest,
INV. V.271

/ fig. 37 /

Victor Vasarely observing
the *presentoir* display cases
designed by him for the
Fondation Vasarely in
Aix-en-Provence, 1976

Op Art as Algorithm

The most trenchant criticism aimed at *The Responsive Eye* by Lawrence Alloway was directed against the exhibition's elitism. He voiced his displeasure at the fact that Seitz's selection paid insufficient attention to the collaborative output of artist groups, who tended to work on a communal basis, even though creations by individual members of these groups were represented in the show. Seitz's decision to regard kinetic works as exclusive and unrepeatable was completely incompatible with Vasarely's art philosophy. As Denise René once commented, Vasarely 'loved to denounce art that was destined for somebody's safe'.[104] When it came to the aesthetic and market values of artworks that existed in multiple copies, opinion was split even among the artists participating in the exhibition. In terms of form, the experiments into perception conducted by Vasarely and Bridget Riley, for example, had much in common, and yet their views on the democratisation and interdisciplinarity of art differed sharply. Unlike Riley, who always insisted on her paintings being one of a kind, Vasarely's programme of art targeted a re-evaluation of the aesthetic of reproduced, duplicated objects. It was in this regard that Vasarely came closest to Pop Art and to its iconic exponent, Andy Warhol. In spite of this, Vasarely was not in thrall to Pop Art. He spoke appreciatively of its achievements, but he considered it to be a movement outside the realm of painting, a parody or caricature of its own times. Pop Art, meanwhile, suffered greatly from the fact that Op Art ultimately proved far more popular. 'I am "pop" in the sense that I would like to be popular',[105] Vasarely wittily replied when one journalist pressed him on his personal position in Op Art, shortly after it had found fame as a fashion phenomenon. A few years later, at a reception held in the Galerie Spiegel in Cologne in September 1971, where a work by Vasarely hung on the wall beside Tom Wesselmann's *Great American Nude*, an iconic piece from the rival movement, the Hungarian-born artist was asked his opinion of Pop Art. He could not refrain from commenting that the essence of Pop was exaggeration. He then cast a malicious glance at Wesselmann's painting before declaring, 'Art is not about painting gigantic pictures for billionaires'. When it was subsequently suggested that his democratic views were not compatible with the high prices commanded by his works, he replied, 'The critics compare me to hippies who loathe money but who want to get around by hitchhiking. And at such times it is of no concern to them that they are travelling with the help of General Motors, Shell and other billionaire companies'.[106]

There was, however, a whole group of Pop-Art fans who would never have dreamed of denigrating Kineticism. Warhol, for instance, began to follow Vasarely's career after seeing his works at the opening of *The Responsive Eye*. He was present at the artist's exhibition held in 1965 in the Pace Gallery in New York, and his admiration endured until 1984, when he attended Vasarely's birthday party, arranged by Yoko Ono. It was probably on this occasion that Warhol was given a handkerchief signed by Vasarely, decorated with a pre-kinetic zebra composition, which the American artist preserved among his relics up until his death [fig. 38]. We would find few artists in the twentieth century who achieved more in rethinking the aesthetic of the multiplied artwork than Vasarely and Warhol, so there is a striking contradiction in the fact that the only work by Vasarely in Warhol's collection was a monochromatic oil painting, titled *Onix* (1966)[107], which actually represented the counterpoint to the paradigm expressing the latent artistic opportunities in duplication (including the entire spectrum of vibrant and saturated colours).

For Vasarely, however, the multiple meant more than the antithesis of easel painting. The idea of permutability was present not only in the technique, but also in compositional invention and in the method of expression. Thanks to their algorithmic nature and their similarity to a computer programming language, they became an independent medium in their own right. The phrase 'arte programmata' was used in 1962 by Umberto Eco to describe this way of picture-making in connection with the endeavours of Italian kinetic art.[108]

'Tachisme is entropic, Kineticism is informatic', Vasarely once said.[109] From the relationship between colours and shapes, the artist wanted to come up with an 'imagotheque',[110] which he hoped would be able to generate

a limitless supply of unique compositions derived from variations arranged in accordance with concrete algorithms. The pictures he created by combining reiterative constant and variable components of different basic forms led him to discover parallels with music. More or less the same concept was already around in the avant-garde of the 1920s, when the hope was first expressed that by establishing a typology of visuality and by learning the contents of the visual dictionary, viewers would be capable of finding their way around the universe of artistic depictions, in the same way as trained musicians read scores, and speakers, readers and writers communicate in the acoustic realm of language, thanks to the fact that speech can be written down. Proclaimed in 1962, Vasarely's programme of *Planetary Folklore* (originally denoting colour compositions organised from Plastic Units) proposed the creation of a universally understood optical language.[111] There were many forms in his repertoire that carried connotations of cultural identity: diagrams, letters, logos, symbols, enigmatic figures, heraldic insignia, flags, ornaments composed of different shades of colour, optical illusions constructed out of planar geometric shapes, picture puzzles, abstract decorative elements, macroscopic figurations, folk art motifs and diverse fantasy drawings. Vasarely believed that in the

/ fig. 39 /

Instruction chart for *Planetary Folklore Participations No. 2*, 1971, puzzle box for polystyrene elements designed by Vasarely
Vasarely Múzeum, Budapest, INV. V.295

/ fig. 38 /

Victor Vasarely, *Pre-Kinetic Zebra* on a handkerchief, about 1984
Collection of the Andy Warhol Museum, Pittsburgh, TC 522.153

course of his work, these basic forms would 'provide infinite picture possibilities in accordance with the imaginations of different individuals or ethnic groups'.[112]

Composition became a mosaic of alphabetic elements.[113] The logic of jigsaw puzzles formed the basis of the interactive Vasarely multiples, *Planetary Folklore Participation No. 1* and *No. 2* [fig. 39], released by Editions Pyra of Zurich in 1969 and subsequently in 1971.[114] The box, intended to improve visual agility, contained four hundred pre-manufactured elements taken from the artist's 'plastic alphabet', and could be purchased for the symbolic price of four hundred dollars. Following the sample that was included, a dextrous user could create his or her own 'Vasarely work' in just a few hours! The 'programming' that registered the process for assembling the picture assumed that the colours, shades and shapes making up the image could be recorded numerically. By feeding this set of data into the memory of a computer, compositions of practically any complexity could be generated simply by combining these parameters. It was due to the connection between algorithmic thinking and the creative process that theorists of computer art, including Abraham Moles, one of the founders of 'Information Aesthetics', based their aesthetic principles of binary communication on Vasarely's working method.[115]

The theoretical possibility of cybernetic design first occurred to Vasarely in the mid-1950s,[116] but he never carried out practical experiments with the medium, although the chance to do so came his way in autumn 1968. At this time he was visited by Maurice Tuchman, curator of the Los Angeles County Museum of Art and head of its Art and Technology Program, established two years previously, whose job was to pair up major industrial corporations with artists who required technical support for experiments in new art media. In 1971, Tuchman held a major exhibition of the works produced by the artists he had supported in this way. Vasarely's suggestion was never implemented, mainly due to its high cost (around two million dollars), but his

ambitious plan was published in the report on the A&T programme, to which forty companies had made contributions.[117] The artist's idea was rejected by IBM and by the Jet Propulsion Laboratory in Pasadena for being excessively complex,[118] and by RCA because of the price. Teledyne initially saw potential in the project, but they ultimately declined, having already committed to the proposal of Robert Rauschenberg.[119]

Vasarely's idea centred around an enormous lumino- kinetic screen, consisting of a total of 625 compartments, made up of combinations of squares and circles. By mixing six colours together, the machine could produce 72 different shades. The system would convert digital data into coloured light that would pass through the compartments, setting up the potential for a virtually infinite number of variations of colours and shapes. Henceforward, the artist would need to do nothing more than select the most beautiful patterns from among those generated by the machine and recreate them in the desired size and medium. Here too, Vasarely did not forget the interactive participation of the viewers. Based on the chosen patterns, he wanted to obtain statistical information on aesthetic taste. This unconventional form of market research would have been one of the most daring examples of optical democracy.[120] 'Now there is nothing to stand in the way of art entering the everyday life of production and consumption',[121] the artist concluded. This statement encapsulated every reason why Op Art had, a few years earlier, fallen victim to the anachronism of the museum world. At the same time, it also reflected the irreconcilable contradiction of Vasarely's social utopia. The ambivalence of increasingly fragile and unsustainable utopias, and the collapse of trust in them, as demonstrated by the ideological despair of the student protests in 1968. While this paradox was the reason behind the success of optical art, it also led to the movement's downfall. Op was public property, yet simultaneously it also served the consumer society.

NOTES

1 Victor Vasarely to Carl Laszlo, Annet-sur-Marne, 18 April 1964. Budapest, Petőfi Literary Museum Archives, inv. 5037/17/3. In Vasarely's original Hungarian text: '...íme az Op-Art!'.

2 Saletnik 2015, 61.

3 Arnheim 1947.

4 William C. Seitz, 'Acknowledgements' and 'Perceptual Abstraction', in New York 1965, 3, 7–8.

5 Ibid., 5.

6 Imdahl 1967.

7 Vasarely [1973] 2016, 28.

8 Ferrier 1969, 42; Miller 1969, 47.

9 Vasarely 1975, 40. According to the artist himself, in the name of the movement he sought to express a parallel with cinematography, and he had taken inspiration for his understanding of the physical rules regulating its functioning, and for transplanting them into the language of art, from works he had read by the physicists Louis de Broglie, Robert Oppenheimer, Norbert Wiener and Werner Heisenberg. It was only later that he found out that the word 'kinetic' had first been used in connection with art by the Russian-born Constructivist sculptor, Naum Gabo.

10 Ferrier 1969, 46.

11 Alloway 1968, 50, note 20.

12 Hess 1965, 41–43, esp. 41.

13 Firstly at the exhibition titled *Le Mouvement*, held at the Galerie Denise René, Paris, in 1955, which was initiated by Vasarely himself. The first comprehensive exhibition of kinetic art to be held in a museum was in 1960, in the Kunstgewerbemuseum in Zurich.

14 Millet 1991, 93.

15 Press Release no. 55, Friday, 28 May 1965. New York, The Museum of Modern Art, Archives.

16 This was the reason why the *New Yorker* labelled Op Art 'out-of-town art'. See Coates 1965.

17 Karlstrom 2012, 99.

18 Tillim 1965a, reprinted in Madoff 1997, 137.

19 Millet 1991, 93.

20 The two most important studies on Op Art published as a result of the exhibition are Rose 1965 and Tillim 1965b.

21 Ackerman 1966, 29.

22 Ibid., 30.

23 Many visitors went to the exhibition because they had been led to believe that the optical illusion produced by some of the items on display caused a sense of stimulation similar to that experienced by users of LSD and other hallucinogens. See Hess 1965, 41. In the catalogue, the curator of the exhibition, William C. Seitz, in referring to Gerald Oster, the biophysicist who also attained a reputation as an artist, mentioned that when a person is under the influence of LSD or mescaline, certain colours within the optical compositions enhance the psychedelic experience; see New York 1965, 31, and Oster 1965.

24 Léderer 1965, 9.

25 'Automobile et art moderne', *Réalités* 2, no. 11 (October 1967), 83. One of the illustrations accompanying the article shows an Opel Kadett decorated with Vasarely's 'plastic units'.

26 Joe Houston in Columbus 2007, 155.

27 Ludwigshafen am Rhein–Wolfsburg–Bottrop 1997, 210.

28 'Museums: Enter Ob', *Time* 85, no. 24 (11 June 1965), 81.

29 'Op Art Opens Up New Design Vistas', *New York Times*, 16 February 1965, 31.

30 Ibid.

31 Quote from the interview with Larry Aldrich featuring in Brian de Palma's film, *The Responsive Eye* (Zodiac Associates Production, 1965).

32 *Vogue* 145, no. 10 (June 1965), 3.

33 Columbus 2007, 150.

34 Borgzinner 1964, 78. George Rickey claims that the term 'Op Art' entered the public consciousness thanks to this article. See Rickey 1965, 22.

35 Canaday 1965, 12.

36 Millet 1991, 81.

37 Victor Vasarely to Carl Laszlo, Annet-sur-Marne, 18 April 1964. Budapest, Petőfi Literary Museum Archives, inv. 5037/17/3. In Vasarely's original Hungarian text: 'Egy évig lesz divat, csak az autentikus résztvevők fogják túlélni.'

38 Columbus 2007, 57.

39 Judd 1964, 68.

40 Gardner 1965.

41 'Retail Buyers Look at Op and Pop Art', *New York Times*, 18 May 1965, 53.

42 Rowan 1965, 22.

43 Rose 1965, 30.

44 Gách 1966, 20.

45 Sausmarez 1970, 61–62.

46 Riley [1965] 1999, 89.

47 Victor Vasarely to Lajos Kassák, Arcueil, 17 February 1960. Budapest, Petőfi Literary Museum Archives, inv. V.3786/3.

48 Ferrier 1969, 115.

49 Rose 1965, 32.

50 Canaday 1966; Vasarely 1966; Lentz 1970. Among the Hungarian critiques comparing Vasarely's leading role in defining the movement to that of a church leader, the most graphic was written in connection with the exhibition held at the Műcsarnok [Art Hall] in Budapest, for which see Perneczky 1969, 8.

51 'Non figuratifs', 25 November 1955, newspaper cutting. Paris, Centre Pompidou, Bibliothèque Kandinsky Archives, documentation dossiers, 'Victor Vasarely', box 2.

52 Victor Vasarely to Lajos Kassák, Gordes, 15 August 1961. Budapest, Petőfi Literary Museum Archives, inv. V. 3786/11. In Vasarely's

original Hungarian text: '...szinte attól félek, hogy én is divatba jövök és tönkretesz a pénz, a siker.'

53 Vasarely, Le Person and Kelly 2012.

54 Alloway 1965.

55 Millet 1991, 93.

56 Canaday 1968.

57 Greenberg 1961.

58 Clay 1967, 232.

59 Ferrier 1969, 59.

60 Vasarely [1973] 2016, 35.

61 Spies 2008, 317.

62 Joray 1976, 51.

63 Lippard [1966] 1968; Donald Judd, who would later become a leading exponent of Minimalism, wrote appreciatively of Vasarely as early as 1961, when an exhibition of the latter's work opened in the World House Gallery in New York at the end of that year. In view of the fact that this was the period when the formal repertoire typical of Juddian Minimalism began to emerge, the starting point for the strict, conceptual system on which his Minimalism was based may have come from Vasarely's compositions, or at least, it is possible that Judd needed to see these works in order to confirm and justify his own theories. See the manuscript review written by the American artist apropos the Vasarely exhibition in the archives of the Donald Judd Foundation, in which Judd concluded: 'Vasarely's work has an immediacy and rigor much needed now'.

64 Rudolf Arnheim interviewed in Brian de Palma's film, *The Responsive Eye* (Zodiac Associates Production, 1965).

65 'L'art abstrait est universel et aboli les frontières'. Paris, Centre Pompidou, Bibliothèque Kandinsky Archives, Fonds Sonia Delaunay, Vasarely folder, 1953–1966, inv. 10575.

66 Millet 1991, 19.

67 Vasarely 1955, the two-page document printed on yellow paper which served as the exhibition catalogue.

68 The idea was put forward in 1922 by El Lissitzky in a presentation on 'New Russian Art'. See Lissitzky [1922] 1967, 340.

69 Based on the generous communication of Géza Perneczky, who interviewed Vasarely on behalf of Deutsche Welle at the time of the artist's exhibition in Cologne in 1971.

70 Hunter 1962. Paris, Centre Pompidou, Bibliothèque Kandinsky Archives, documentation dossiers, 'Victor Vasarely', box 2.

71 Imdahl 1967, 301.

72 Burnham 1968, 218–84.

73 Ferrier 1969, 41–42.

74 Ibid., 41.

75 Named after the German psychologist Kurt Koffka, a pioneer of Gestalt psychology.

76 Ferrier 1969, 82.

77 Victor Vasarely, 'Deep Kinetic Work', in Vasarely 1975, 41; Vasarely 1970, 91–92.

78 Barrett 1970, 38.

79 Victor Vasarely, 'White and Black', in Vasarely 1975, 42.

80 Vasarely [1973] 2016, 86.

81 Diehl 1972, 15.

82 Spies 2008*,* 304.

83 Ibid., 309.

84 Ibid., 255.

85 Vasarely [1973] 2016, 45. Roger Bordier dedicated a separate study to Vasarely's relationship with film, printed on the back of the *Yellow Manifesto* of 1955, which accompanied the exhibition titled *Le Mouvement*. Vasarely's intention was to generate a cinematographic kineticism similar to the effect Edgard Pillet achieved in his six-

minute animated film, *Genèse* (1951), by metamorphosing black geometric figures floating in front of a white background.

86 Marianne Le Pommeré, 'Interview with François Morellet [28 June 2013]', in Brussels–Zurich 2013–14, 206.

87 Ferrier 1969, 68.

88 Diehl 1972, 44.

89 Ludwigshafen am Rhein–Wolfsburg–Bottrop 1997, 31.

90 For example, the composition titled *Linéaire* (1949, India ink and collage, 62 × 48 cm). See Esslingen am Neckar 1986, 124.

91 After the relief was unveiled, it was placed in the atrium of the Centre Pompidou, Paris. See Vasarely 2015, 38.

92 Krefeld 1963, 82, fig. 29.

93 Ferrier 1969, 98.

94 Victor Vasarely, 'Notes for a Manifesto', in Vasarely 1975, supplement.

95 Vasarely [1973] 2016, 24.

96 Domitille d'Orgeval, 'Vasarely's Influence, Then and Now', in Brussels–Zurich 2013–14, 52.

97 Vasarely [1973] 2016, 51, 165; Vasarely 1970, 130.

98 Laffont 1979, 205–7.

99 The French title is a play on words, meaning 'plasticity' and also 'plastic [= malleable, adaptable] city'.

100 Gomringer 1977, 13.

101 Ferrier 1969, 126.

102 As communicated verbally by Robert Zussau, who, as an employee of the Gold et Lebey company, worked with Vasarely on his multiples. I would like to thank Bruno Fabre for his kind help in arranging for me to meet Mr Zussau, and for expanding my knowledge of Vasarely's multiples with a wealth of hitherto unknown details.

103 Vasarely and Desailly 1975, 28–30.

104 Millet 1991, 105.

105 Descargues 1966, 6.

106 Géza Perneczky's conversation with Victor Vasarely on behalf of Deutsche Welle, September 1971. Typewritten transcript of the interview in Perneczky's archives in Cologne.

107 Marion 1988, vol. 6, lot 3407.

108 Eco 1962, unpaginated.

109 Ferrier 1969, 55.

110 Werner Spies, 'Besuch bei Vasarely', in Cologne 1971, 21.

111 Dahhan 1979, 269.

112 Gera 1968, 1164.

113 Joray 1976, 53.

114 'Participatory Art', *Time* 94, no. 14 (3 October 1969), 90.

115 A[braham] A. Moles, 'Victor Vasarely', in Budapest 1969. Moles regarded the combinatorial algorithms in the structures created by Vasarely as the starting point of 'permutational art', and claimed that Vasarely played the leading role in the spread of structuralism.

116 Vasarely [1969], 50.

117 Tuchman 1971, 327–28.

118 Maurice Tuchman's notes on the technical requirements of the artists participating in the programme [October 1969], Los Angeles, Getty Research Institute, Special Collections, Maurice Tuchman Papers 2015, M.19, Box 16, Folder 2.

119 Tuchman 1971, 328.

120 Similarly, the action titled 'Une journée dans la rue', held in Paris on 19 April 1966 by the GRAV group (one of whose founding members was Vasarely's son, Yvaral), was conceived as research based on Vasarely's art philosophical principles.

121 Vasarely 1970, 142.

Victor Vasarely

THE BIRTH OF OP ART

7 June / 9 September / 2018