

**RA**

Royal Academy of Arts  
Exhibition in Focus

**Radical  
Geometry**

**Modern Art of South America**  
From the Patricia Phelps de Cisneros Collection

# An Introduction to the Exhibition for Teachers and Students

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*Written by Beth Schneider*

Learning Department

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## **Radical Geometry Modern Art of South America from the Patricia Phelps de Cisneros Collection**

*The Sackler Wing of Galleries*

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Cover:

Cat. 51, Carlos Cruz-Diez, *Physichromie No. 500* (detail), 1970

**RA** Royal  
Academy  
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*The RA is a unique organisation that remains true to its origins in 1768 as a place where art is made, exhibited and debated. Our aim is simple: to be a clear, strong voice for art and artists. The RA's Learning Department fulfils this objective by engaging people in the practice of art through hands-on creative experiences and exploring the art of the past and the present.*

# Introduction

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**'In reality our North is the South. There should be no North to us except in opposition to our South [...] now we know what our true position is, and it is not the way the rest of the world would have it!'**

Joaquín Torres-García, 1935

The works in this exhibition present a rich vein of Geometric Abstraction that runs through South American art from the 1930s to the 1970s. Many factors contributed to the growth of dynamic, innovative approaches to abstract geometric art in those decades. Periods of political stability, economic growth and national ambition to become modern, forward-looking nations led artists, architects, writers and musicians – artists across all media – to investigate styles and content that embodied their aspirations for modernisation and change. Artists broke away from the traditions of figurative art that were taught in local academies, abandoning the Renaissance idea of a painting as a window onto nature. They rejected the concept of perspective as old fashioned and instead embraced notions of the modern reflecting recent technological and scientific advances.

*Radical Geometry* showcases works from Patricia Phelps de Cisneros' outstanding collection of geometric abstract art from South America built up over the last forty years. The exhibition presents art produced in major cities along, or close to, the Atlantic coast: Montevideo in Uruguay, Buenos Aires in Argentina, Rio de Janeiro and São Paulo in Brazil and Caracas in Venezuela. A major influx of immigrants from Europe prior to and during the Second World War brought new political and artistic ideas to these cities and many of the artists were passionately involved in philosophical, political and theoretical debates about art, its form and meaning, and its ability to transform society. They formed groups, wrote manifestos, articles in journals and treatises to promulgate their ideas, and these writings are essential for understanding the art included in this exhibition. They studied the works of the groundbreaking European artists who were working in Geometric Abstraction – such as Piet Mondrian (1872–1944), Wassily Kandinsky (1866–1944), Kazimir Malevich (1879–1935), and Max Bill (1908–1994) – often through pictures in journals, sometimes by travelling abroad, and through exhibitions in South America.

For the artists exhibited here, Geometric Abstraction was not a formal exercise in creating images from lines, planes and colours for their own sake, but rather as a visual language to embody their hopes and ideals for the world in which they lived. In each city, the art produced reflected the local situation and the passion of the artists, from a belief in radical political theories of collectivism in Argentina, to an exploration of a machine aesthetic and the very nature of art objects in Brazil, to experimentation with movement, colour and the optics and physics of vision in Venezuela.

## Montevideo, Uruguay

Montevideo sits on the southern coast of Uruguay, beside the Rio de la Plata, the huge estuary between Uruguay and Argentina. In the mid-twentieth century, this capital city of over 150,000 inhabitants had wide boulevards and esplanades, and coffee houses where intellectuals gathered to debate. However, the city must have seemed provincial to the artist Joaquín Torres-García (1874–1949), who had lived and worked in Europe and America for over 40 years before returning to his native Montevideo in 1934, at the age of 60. He had had a long exposure to the avant-garde in Europe and knew artists involved in movements in Spain, New York, Italy and especially Paris where he had lived from 1926 to 1934. When he returned to Montevideo, he found a country without strong artistic traditions or institutions and set out, with almost missionary zeal, to change the relationship between South America and Europe and to realise his vision of modern art in Uruguay and South America – to create a new visual language that was uniquely American.

**Fig. 1** Torres-García redrew the map, literally. In this image, which appeared in 1936 in the first issue of the journal he founded, *Círculo y cuadrado* (*Circle and Square*), the familiar shape of South America is upside-down. But he did not invert just the continent; he re-oriented the entire map, placing the south at the top and the north at the bottom. Thus, Torres-García gave a visual form to one of his deep convictions that South American artists must take their guiding principles from South America – that they must change their perspective and look inward rather than relying on outlooks from the rest of the world. His aim was to transform art in the Americas through what he called ‘constructive universalism’. Torres-García spread his ideas about constructive universalism through lectures and exhibitions, books, articles, manifestos, radio programmes and magazines and through two organisations of artists, the Asociación de Arte Constructivo and the Taller Torres-García. This built upon his knowledge of European Modernism, especially the geometric grid format of Constructivist art like that of Piet Mondrian.

This painting (**fig. 2**) presents the carefully composed grid structure of black lines with planes of red and blue. The artist viewed this harmony as representing a perfect balance in art and as an ideal for all aspects of life. The work of Mondrian would prove to be seminal for many of the artists in this exhibition.

**‘The man in this city is as unique as the city itself, with those ten letters in a row, neither rising nor falling, equal in size, and disquieting in their pure lack of expression: MONTEVIDEO!’**  
Joaquín Torres-García

**Fig. 1**  
Joaquín Torres-García  
Ink drawing reproduced in the first issue of the magazine *Círculo y Cuadrado*, Montevideo, May 1936





**Fig. 2**  
**Piet Mondrian**  
**Composition No. II with**  
**Red and Blue, 1929**  
 Oil on canvas  
 40.3 × 32.1 cm  
 Digital image © The Museum of Modern  
 Art, New York/Scala, Florence  
 © 2014 Mondrian/Holtzman Trust c/o  
 HCR International USA

The title of Torres-García's journal consciously repeats that of *Cerle et Carré*, a group he and Michel Seuphor (1901–1999) founded in Paris in 1930 to promote abstract art through a journal and an exhibition in which Mondrian participated. But his vision also encompassed ancient traditions in art and architecture in South America. He wrote, 'We would have been in the vanguard of all art now in existence in the entire world and therefore emulating the art of the highest ancient cultures [...] and if it is not that high, it will be, at least, Constructive Painting; that is on the same foundation, contemporary, and with a single theme: Montevideo, 20th century.'

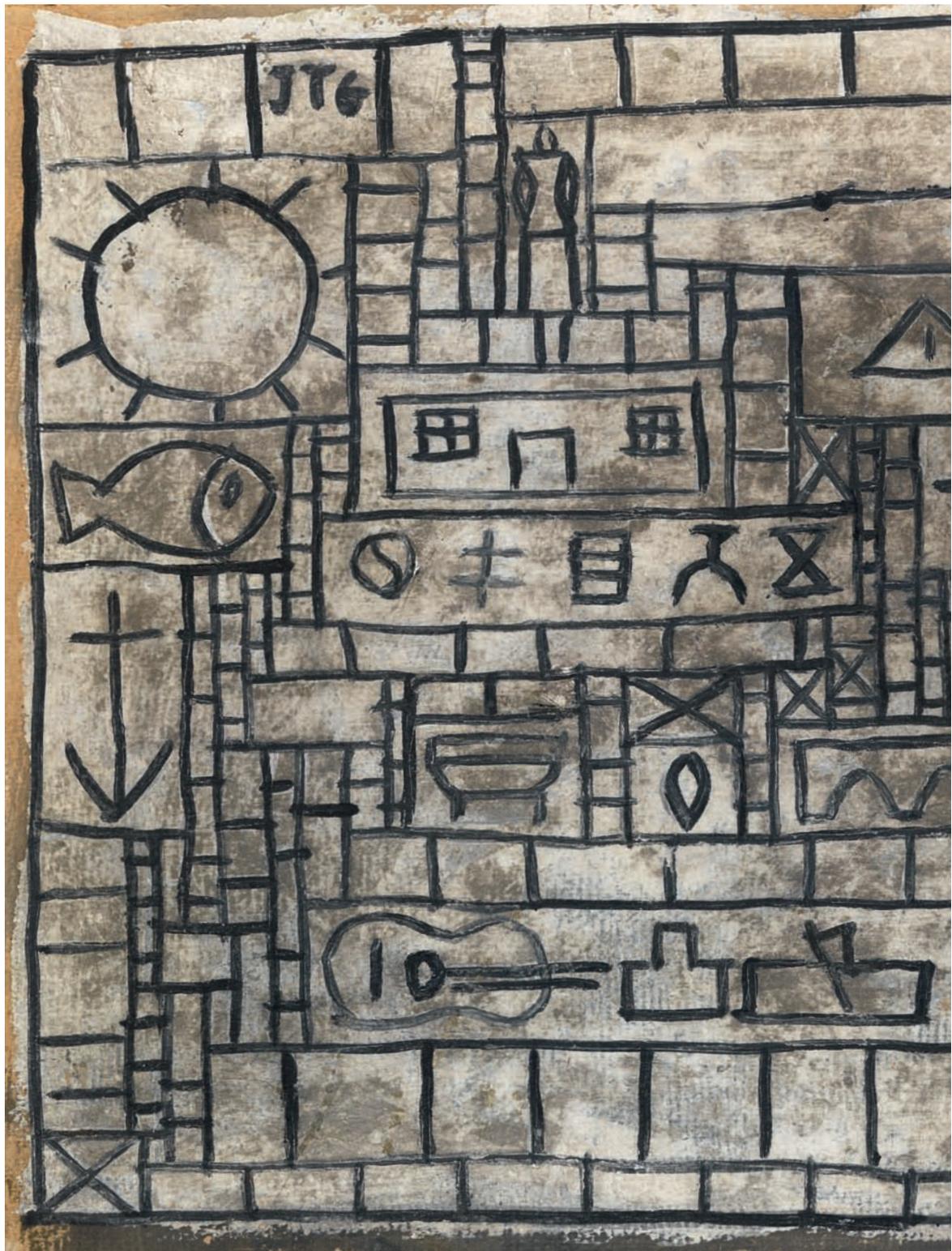
His *Constructive Composition 16*, (**cat. 4**, overleaf) from 1943, is structured along a grid, the sections of which vary in shape and the lines, painted freehand, do not look mechanical or perfectly straight. The palette of tones – grey, cream and brown – is inspired by the colours of Inca stone architecture and monuments in Peru. Little touches of paint seem to flicker across

the surface of the painting. Torres-García populates the grid with his personal pictographs. The large sun on the left is linked to *Inti*, the ancient deity of the Incas, and may also reference the cosmos. In the centre, an aqueduct may represent the constructions of man. Other elements include a man, a shovel, a boat, a train, a guitar, and a fish and anchor which appear in many paintings by Torres-García. Each element is reduced to a simple form and while they suggest universal truths, their meaning is open to the interpretation of the viewer. In the centre, in capital letters, is the name of his city, Montevideo. This refers not only to the place but also to the artist's admiration for the shape of the word itself.

**What similarities and differences do you see between Torres-García's *Constructive Composition 16* and Piet Mondrian's *Composition No. II with Red and Blue*?**

**How does Torres-García combine the ancient and the modern to suggest the city of Montevideo?**

**Cat. 4** *overleaf*  
**Joaquín Torres-García**  
**Constructive Composition**  
**16, 1943**  
 Oil on cardboard,  
 43.2 × 64.1 cm  
 Colección Patricia Phelps de Cisneros  
 Photo Colección Patricia Phelps de  
 Cisneros





## Buenos Aires, Argentina

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Across the Rio de la Plata from Montevideo, Buenos Aires, the capital of Argentina, was thriving. The largest city in South America with a population of over 2.5 million, Buenos Aires had seen an influx of immigrants from Europe and the Middle East, beginning in the late nineteenth century and contributing to its huge growth. Many of the newcomers, especially the Italians, came with radical political ideas that challenged the small ruling class by demanding more open politics and stronger unions to protect workers.

From 1930 to 1943, the so-called 'Infamous Decade' was a time of political suppression, government corruption and economic decline. Juan Domingo Péron, who became president in 1946, was a populist, proclaiming policies of social justice and championing the urban working class. With a booming post-war economy, he cultivated national pride with grand projects such as the nationalisation of the railways and creation of a national airline. But a familiar cycle of economic decline and rising inflation, increased population shift to Buenos Aires, and a falling-out with the Catholic Church, imperilled his position and he was deposed in a *coup d'état* in 1956. A long period of political and economic instability followed.

While the artists in Argentina knew the work and ideas of Torres-García, they regarded him as part of an older, less forward-looking generation, someone interested in the art of past civilisations and spiritual ideas and not the political and social realities of contemporary society. Torres-García can be seen as more of an isolated figure in this exhibition, as he had returned from Europe and looked into the continent of South America, whereas the other artists examined here, in Argentina, Brazil and Venezuela, looked out of their own country and focused on a contemporary approach to art grounded in the European avant-garde. Many of these artists, influenced by Communism, adhered to radical political ideologies. They believed that Geometric Abstraction with its universal language of shapes and lines, a cool, almost mechanical aesthetic and a denial of the individuality of the artist, could help create a new society organised with collective principles. During the decade from the mid-1940s to the mid-1950s, a period of prosperity and high national aspirations for creating a new social order, abstraction and Communism found commonality in Argentina, as they had not done in the Soviet Union.

In 1944, a group of artists published the one and only issue of *Arturo*, a journal of abstract art, beginning one of the most innovative periods in the art of Argentina, creating a new avant-garde and bringing Argentina into the international art world. Several of the artists exhibited at the Royal Academy were involved in *Arturo*. Tomás Maldonado (b. 1922) designed the cover and Carmelo Arden Quin (1913–2010), Rhod Rothfuss (1920–1969), and Gyula Kosice (b. 1924) were on the editorial board. The issue included poems and reproductions of paintings by Wassily

**'A poem or a painting must not justify inaction but, on the contrary, must help man to act within his society [...] The key to everything: surround people with real things, not with illusions.'**  
'Inventionist Manifesto', Tomás Maldonado and Edgar Bayley, *Asociación Arte Concreto-Invención*, No. 1, Buenos Aires, August 1946

Kandinsky and Piet Mondrian. Carmelo Arden Quin stated in the journal, 'Not expression (primitivism); nor representation (realism); nor symbolism (decadence). INVENTION!'

Almost immediately, the artists who founded *Arturo* had philosophical differences and, unable to agree on a second issue, split into two groups. The Asociación de Arte Concreto-Invención, led by Maldonado, adopted strong Marxist politics and envisioned a Utopian role for art in a new revolutionary society. In 1930, the artist Theo van Doesburg (1883–1931) coined the word 'Concrete' and stated, 'The painting should be constructed entirely from purely plastic elements, that is to say planes and colours. A pictorial element has no other significance than itself and consequently the painting possesses no other significance than itself.' In 1938, Kandinsky wrote an article entitled 'L'Art Concret' stating his preference for the term 'Concrete' for abstract or non-figurative art.

Arte Madí, which included Rothfuss, Arden Quin and Kosice, had similar Utopian ideals but was less dogmatic. Their work, while committed to abstraction, challenged

some of the traditional ideas of strict geometry by incorporating play and the unexpected, and their group embraced music, poetry and performance.

Kosice wrote in the 1946 Arte Madí manifesto: 'Madí art [...] confirms man's constant, all absorbing desire to invent and construct objects within absolute eternal human values, in his struggle to construct a new classless society which liberates energy, masters time and space in all senses and dominates matter to the limit [...]' For Madí-ism invention is an internal, superable 'method', and creation is an unchangeable totality. Madí therefore INVENTS AND CREATES!

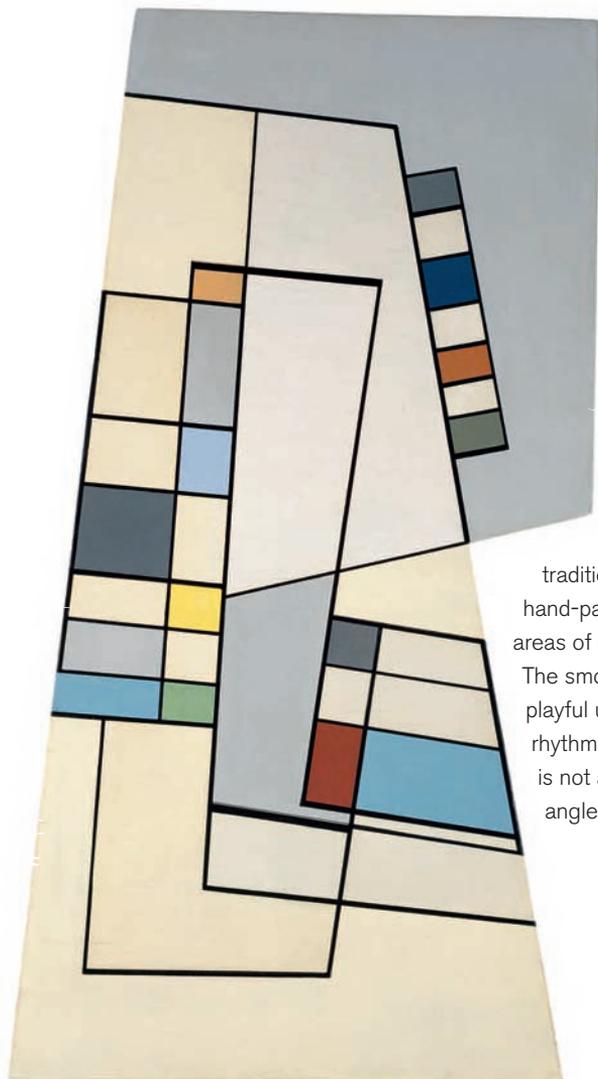
**Cat. 11** *Trío No. 2* by Carmelo Arden Quin relies on a strong, irregular grid, a highly finished surface and an overall shape that breaks with the traditional rectangle. The black lines have none of the hand-painted quality of Torres-García's work, and the flat areas of lively colour could have been made by a machine. The smooth, impersonal surface is enlivened by an almost playful use of colour in small rectangles that create a lively rhythm and animate the work. The shaped plywood support is not a rectangle but comes together in narrow and wider angles to create an irregular perimeter. Arden Quin wrote,

**Cat. 11**

**Carmelo Arden Quin**  
**Trío No. 2, 1951**

Lacquer on plywood,  
51.4 × 27 × 2.5 cm

Colección Patricia Phelps de Cisneros  
© ADAGP, Paris and DACS, London 2014





'By abandoning the four classic orthogonal angles – the square and the rectangle – as a basis for composition, we have increased the possibility for invention of all kinds.'

**What is the effect of Arden Quin's use of colour within the grid?**

**In what ways does the shape of this painting challenge conventional ideas of what a painting is?**

In the 1940s, Madí artists began to discuss the manipulation of works of art. Rather than thinking of art as something to be looked at, to be contemplated, they advanced the idea of the viewer as an active participant who could move elements of a work of art and thus change its configuration and what it is. In their manifesto, the Madí artists declared the 'mobile dynamic arrangement [...] playfulness and pluralism as absolute values'.

Gyula Kosice and his family were among the many Europeans who immigrated to Argentina, arriving from Slovakia when Kosice was four. A leading member of the Madí group, he created movable sculptures from wood, and in the 1960s made sculptures from water. In an interview, curator Gabriel Pérez-Barreiro asked Kosice whether he was aware of his innovation in pioneering movable, kinetic art. The artist responded, 'No, what I wanted was to be unlike anyone else. That's all!'

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**Cat. 18**

**Gyula Kosice**  
**Mobile Articulated**  
**Sculpture, 1948**

Brass, 165.1 × 30.5 × 1.3 cm

The Museum of Modern Art, New York.  
Gift of Patricia Phelps de Cisneros  
in honor of Jay Levenson, 2004  
Photo Colección Patricia Phelps  
de Cisneros / © Gyula Kosice

**Cat. 18** For *Mobile Articulated Sculpture*, 1948, Kosice used materials he found in the leather workshop he ran with his brothers. The small brass elements are bands used to reinforce handbags. When Kosice attached them one to the other in a single large form, it was possible to move the bands and reconfigure the sculpture. Today, unfortunately, the sculpture is quite fragile and as it is in a museum collection it can only be moved in very special circumstances.

The artist intended the viewer to re-form the sculpture, to pick it up, play with the push and pull of the hinged sections and create a new object. There is no base or prescribed correct configuration; the sculpture could rest on a surface or be suspended. The viewer was meant, like the artist, to feel the physical properties of the sculpture, its texture, its warm or cool metal surfaces, its outlines and voids. Because the sculpture is quite large, any viewer manipulating it would be very close to, almost in, the work and thereby become part of it. In the hands of a viewer, *Mobile Articulated Sculpture* becomes part of everyday life.

**What do you think it would be like to manipulate this sculpture? What shapes could you form?**

**Why was it radical to invite viewers to manipulate a work of art?**

## São Paulo and Rio de Janeiro, Brazil

The 1940s and '50s saw great economic and industrial development and growth in Brazil. Under the leadership of President Juscelino Kubitschek, the government undertook the construction of a new capital, Brasília, in the arid centre of the country. This massive civic project enhanced the nation's image, boosted industry, and initiated major construction projects. The modernist architecture by Oscar Niemeyer and others and Lúcio Costa's urban planning created a new, modern city that signalled a break with the colonial past and thrust the nation into the modern world as a multi-racial, democratic country. Part of Brazil's aspiration at this time was to become an international power, both in economic terms and culturally.

To establish its role in the international art world, Brazil opened three new museums between 1947 and 1949: the Museu de Arte de São Paulo, the Museu de Arte Moderna de São Paulo and the Museu de Arte Moderna de Rio de Janeiro. These new institutions provided a place to see the works of major international artists. The launch in 1951 of the São Paulo Bienal, modelled after the Venice Biennale and the first of its kind outside Europe, placed the city and the country squarely on the international art scene. Max Bill, a Swiss architect, sculptor, painter, industrial designer, graphic designer and writer, won the grand prize at the first Bienal for an abstract sculpture that referenced a Möbius strip. Bill extended van Doesburg's ideas about Concrete art into architecture and design, and his writing about and practice of Concrete art across disciplines greatly influenced artists in Brazil. These new institutions also raised questions as to whether Brazil was simply importing European institutions or whether new uniquely Brazilian forms of art could be developed that would both address local issues and play an important international role.

Waldemar Cordeiro (1925–1973), a strong advocate for Concrete art in the early 1950s, represents the approach of artists in São Paulo. Born in Italy to an Italian mother and a Brazilian father, he studied there before settling permanently in São Paulo in 1948. He participated in the first exhibitions at the Museu de Arte Moderna in São Paulo and in the first Bienal in 1951. A founder of the Grupo Ruptura in Brazil in 1952, he defended the mathematical, rational approach of Concrete art. A leader in formulating the theoretical foundations of the group, he wrote in favour of 'all the experiments directed at the renovation of the essential values of visual art (space-time, movement, material)'. He felt that art was essential to social transformation and throughout his life was associated with Communism.

**Cat. 19** From 1952 to 1956, Cordeiro created a series of paintings he called *Idéia visível* (*Visible Idea*). The term comes from a Grupo Ruptura slogan, 'The work of art does not contain an idea, it is itself an idea', which appeared on the back of the

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### Cat. 19

Waldemar Cordeiro

**Visible Idea, 1956**

Acrylic on plywood,  
59.9 × 60 cm

Colección Patricia Phelps de Cisneros  
© Private collection

invitation to its first 1952 exhibition. In this painting, Cordeiro explores movement and three-dimensional space on a static two-dimensional surface by seeming to trace the arc of the movement of two spirals, one black, one white. The composition is meticulously planned; the lines, the planes they define, and the intervals separating the black and white triangles are rational and clear. The painted elements appear almost industrial, capable of being created mechanically. There is no evidence of the hand or gesture of the artist. From a central point on the canvas, triangles of different shapes radiate out and a thin curved line traces the movement. Although the painting is square, the spirals are each inscribed within a rectangle that conforms to the 'golden mean', which represents an ideal of order and beauty. The two individual spirals or rotations combine to create an overall movement of the black and white elements.

**How does Cordeiro use geometry to suggest movement?**

**The artist intended to create a new art, a rational and objective art. In what ways has he succeeded or failed to do so?**





**'The scientific naturalism of the Renaissance – the process of rendering the (three-dimensional) external world on a (two-dimensional) plane – has exhausted its historical task.'**

The *Ruptura* manifesto, 1952

**'Colours, space do not belong to this or that artistic language but to the living and indeterminate experience of man. To deal directly with these elements, outside the institutional frame of art, is to reformulate them as if for the first time [...] Mere contemplation is not enough to reveal the sense of the work – the spectator goes from contemplation to action. But what his action produces is the work itself.'**

Ferreira Gullar, *Dialogue on the Non-object*, 1960

Later in the 1960s, Cordeiro adopted an approach that reflected the reality of social conditions in Brazil. Following the *coup d'état* in 1964 and the establishment of military rule, he incorporated more subversive elements of irony and critical intention into his art, experimented with digital art and moved away from Concrete.

This change in outlook by Cordeiro reflects the approach of a group of artists in Rio de Janeiro who maintained a commitment to Geometric Abstraction but repudiated the logical, mathematical and impersonal works of the Grupo Ruptura. The Neo-Concrete artists in Rio sought to abolish the distance between art and life, to infuse geometry with human experience and to engage the spectator more directly. As described in their 1959 manifesto: 'If we have to look for an equivalent to the work of art, we will not find it in the machine or even in the object as such, but [...] in living organisms.'

The leaders of the Neo-Concrete movement include Lygia Clark, Hélio Oiticica and Willys de Castro. Willys de Castro (1926–1988), like Cordeiro, was active in many areas – painting, engraving, drawing, scenography, costume design and graphic art. He wrote Concrete poetry and created designs for theatres. In 1958, he studied in Europe and on his return joined the Grupo Neoconcreto in Rio de Janeiro. From 1959 to 1962, he created a seminal series of works called *Objetos Ativos* (*Active Objects*) that questioned the very idea of a painting and the flat surface of the canvas, exploring tension, balance and stability and challenging the role of the spectator.

With a traditional two-dimensional painting, a viewer can, from one point of view, comprehend the entire image and explore the balance of painted shapes, lines and colours that form the overall composition. De Castro challenged that convention. For his work *Active Object* (**cat. 40**) he painted a simplified geometric composition of red and white rectangles onto a piece of canvas, which he wrapped around a tall, slender piece of wood. The painting has come off the wall and does not exist on one plane, but on several. To understand the entire work, the spectator must walk around it, seeing the relationships between the elements from different vantage points. The edges of the painted forms and the planes of colour are both fixed to the surface and yet seem unstable, changing as the viewer moves around it. The movement and gaze of the viewer activate and complete the object.

**In this photograph you only see one view of *Active Object*.**

**What do you imagine the other sides look like?**

**Why is it important to experience the real object, rather than just looking at a photograph?**

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#### Cat. 40

Willys de Castro

**Active Object, 1961**

Oil on canvas on wood

150 × 4 × 4 cm

The Museum of Modern Art, Promised Gift of Patricia Phelps de Cisneros through the Latin American and Caribbean Fund in honor of Kathy Halbreich

Photo Colección Patricia Phelps de Cisneros / © Instituto de Arte Contemporânea

The role of the viewer in perceiving and understanding a work of art in space can extend to the understanding of objects and phenomena in the wider world. This became an important feature of the art of Hélio Oiticica (1937–1980). Like de Castro, Oiticica explored approaches that challenged the conventions of Concrete art. One of the most innovative and important artists of the twentieth century, Oiticica came from a family of intellectuals, radicals and artists. He studied art at the Museu de Arte Moderna in Rio and from the beginning of his practice, embraced Geometric Abstraction. Throughout his career, Oiticica would create works that dissolve the distance between art and the world around it.

The *Metaschemes*, a series of over 350 works created in the late 1950s, came at the beginning of Oiticica's investigations into movement, colour and freedom. The small paintings are characterised by limited colour and the arrangement of geometric forms against a plain ground. In this example (**cat. 47**), the artist creates a grid of black rectangles and squares against an off-white background. While referencing the geometric paintings of Piet Mondrian and Kazimir Malevich, Oiticica injects a greater sense of movement, freedom and instability into his work. He rotates the squares so that they are at a slight angle to the edges of the painting, charging the spaces between the squares and rectangles with a pulsating energy. The pattern of shapes across the composition repeat in a 'mirror effect', enhancing the dynamic rhythms and sense of movement, as if the elements are dancing and moving beyond the painting out into space and dissolving the frame, the line that separates art from the world around it.

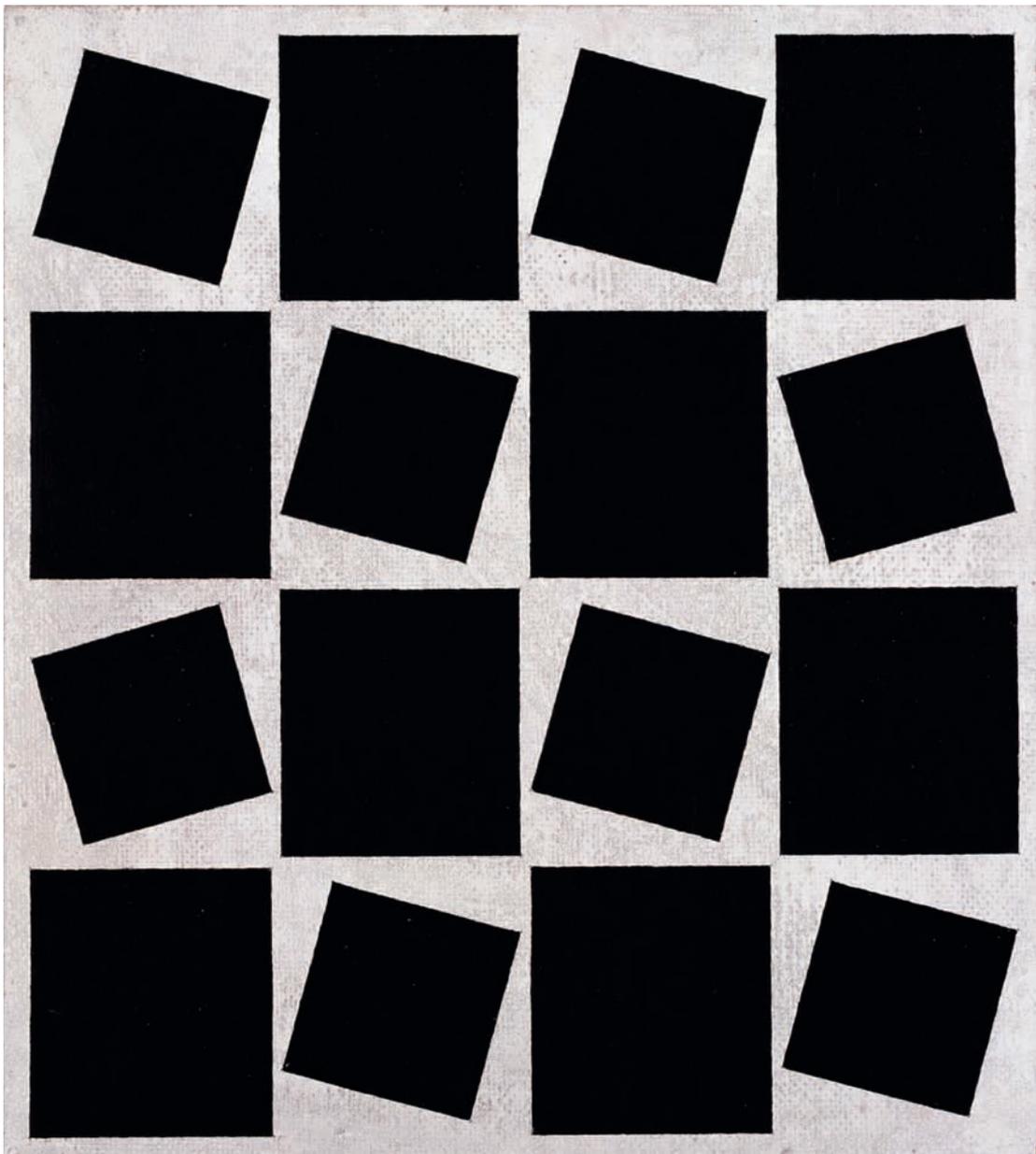
**Compare *Metascheme* to Piet Mondrian's *Composition No. II with Red and Blue*. How does Oiticica challenge the tradition of Mondrian's grid?**

**How does Oiticica suggest that the image here could extend beyond the painting?**

Oiticica followed the *Metaschemes* with more radical experimentations with space, movement and colour. Among his most important inventions are *Bolides*, 1963–67, and *Parangolés*, 1964–79. *Bolides* (fireballs or meteors) are containers, small boxes filled with pigment and found objects like shells, mirrors or meshes. The *Parangolés* are brightly painted, coloured cloths that samba dancers wore or carried during Carnival, exemplifying Oiticica's determination to incorporate lived experiences into his work. Oiticica developed them with the dancers from a famous samba school in Mangueira Hill, a Rio de Janeiro shantytown. One of the *Parangolés* is included in this exhibition.

Like Oiticica, Lygia Clark (1920–1988) was part of the 'Neo-Concrete' group in Rio, and explored Geometric Abstraction, challenging the rectangular painting

**'There is no escape for the non-figurative artist; he must stay within his field and march towards the consequence of his art. This consequence brings us, in a future perhaps remote, towards the end of art as a thing separate from our surrounding environment.'**  
Piet Mondrian, recorded by Hélio Oiticica, 25 December 1959



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Cat.47

Hélio Oiticica

**Metascheme, 1959**

Oil on plywood,  
37.5 × 33.3 × 2.5 cm

Colección Patricia Phelps de Cisneros  
© Projeto Hélio Oiticica

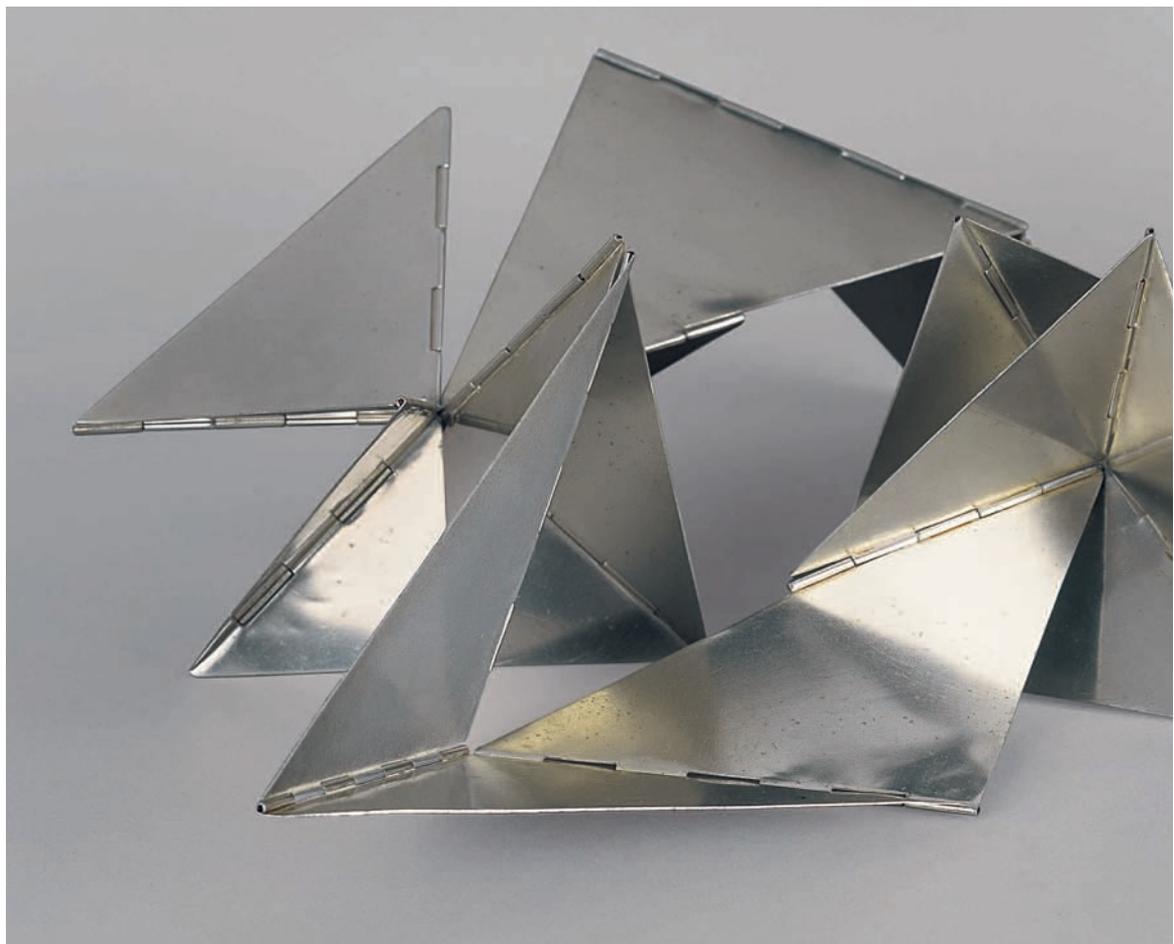
surface and exploring ideas of space. Clark became increasingly experimental in her work, transforming the notion that an artwork is something displayed on a plinth or on a wall into something to be played with, handled, or engaged with in new and different ways.

In *Breaking the Frame*, begun in 1954, Clark created a series of works in which the frame becomes an integral part of the surface of the canvas with the painted elements covering the frame as well, suggesting a movement into the surrounding space, into the larger world. She leaves an actual gap which she calls the 'organic line' between the panels that make up works in her next series, *Modulated Surfaces*. By combining the painted elements with a physical space, she incorporates real, not pictorial space into her work and blurs the contrast between inside and outside within a single work. The *Cocoons*, started in 1959 are lozenge-shaped pieces of metal with one piece cut and folded, extending out from the surface into space and seeming to contain space within it.

'Mondrian, the best of them all, did to the rectangle what Picasso did to the figure. He drained it. Except that the crisis unleashed by Mondrian was a thousand times more serious, and larger, for the time than the one unleashed by Picasso [...] it's a crisis of structure – not formal structure [...] but rather total structure – it's the rectangle that no longer satisfies as a medium of expression'

Lygia Clark to Hélio Oiticica, 19 January 1964

**Cat.32** The *Bichos* are the culmination of Clark's experiments with Geometric Abstraction, exploring her evolving ideas about surface, line and space. *Radar – Small*, 1960, is part of the *Bicho* series and is made out of more than twelve pieces



Cat. 32  
Lygia Clark  
**Radar – Small, 1960,**  
executed in 1984  
Aluminum,  
12.7 × 45.7 × 33 cm

Colección Patricia Phelps de Cisneros  
© The World of Lygia Clark Cultural  
Association

of aluminium, hinged together. The word '*bicho*' (a bug or creature) suggests something organic. Clark wrote about this series, 'It is a living organism, essentially active [...] A passive attitude is impossible between you and the Animal, either on its part or yours.' The viewer could actually handle *Radar – Small*, arranging the metal planes to form spaces of varying shapes between the planes. The *Bichos* have no defined front or back, inside or outside, and many different configurations are possible: tall or wide, open or closed, with elements projecting in opposing directions. Even when an arrangement is made, there is a moment of tension as to whether the planes will hold or collapse. The possibility of motion is always present, even when the *Bicho* is at rest. It is the viewer, who creates the shapes and the spaces and physically experiences the work, the weight, the surface, and the solid and empty areas. Ironically, since these works have become such icons of twentieth-century art, housed in major museums and collections, they are now protected from their intended engagement with the spectator.

**In what ways is this *Bicho* both geometric and organic? How does Clark reconcile the two?**

**Imagine you could handle this *Bicho*. What overall shapes could you make? What would be the form of the voids between the metal pieces?**

## Caracas, Venezuela

In the 1940s, the city of Caracas went through a major period of modernisation with new high density housing and ambitious city planning. The economy of Venezuela, almost entirely dependent on oil, was flourishing and had the resources to realise a vision of building a new, modern international city. The most ambitious project was the Ciudad Universitaria de Caracas (University City of Caracas). Designed by architect Carlos Raúl Villanueva, the project extended over three decades from 1944 to 1970, during both military and democratically elected governments. Villanueva, educated in Europe, embraced Modernist architecture and sought to integrate architecture and all of the arts. He commissioned national and international artists including Alejandro Otero, Jean Arp, Alexander Calder, Fernand Léger and Victor Vasarely, who created murals, stained glass, and sculpture for sites throughout the university.

At the same time, Venezuelan artists were challenging the practice and teaching of art in the country. In 1945, the students at the National Art Academy rebelled against traditional, representational approaches to art. In 1948, the Taller Libre de Arte (Open Art Studio) opened in Caracas and explored new ideas in art, organised



debates and exhibitions and published a journal focused on abstract art. Many Venezuelan artists, including Jesús Rafael Soto (1923–2005) and Alejandro Otero (1921–1990) lived in Paris and other parts of Europe to experience greater artistic freedom and opportunities. They formed Los Disidentes, a group dedicated to circulating new ideas in Paris and Venezuela and published 'Manifiesto No' in 1950, which attacked the teaching of art in Venezuela. Otero and Soto made a pilgrimage from Paris to the Netherlands to see the work of Mondrian, and Soto and Carlos Cruz-Diez (b. 1923) ended up spending much of their careers based in Paris.

In Venezuela, Radical Geometry engaged with Kinetic Art, exploring light and vibration, movement and colour. Artists worked in series and often on a monumental scale. The involvement of the viewer and the process of perception were central to the artists' investigations. But unlike their counterparts in Argentina and Brazil, Soto and Cruz-Diez had no political agenda.

Like many of the artists in this exhibition, Jesús Rafael Soto began his engagement with abstraction by studying Mondrian, the artist who, in his opinion, had 'gone farthest down that road'. In his earliest series from 1950–55, Soto explored visual dynamism with compositions of simple geometric forms, triangles, circles, and squares, aligned and repeated. But he realised that the elements in his own work, like the intersecting lines in Mondrian's paintings, created a vibration. Soto called this the 'problem with two-dimensionality' and explored a solution by adding another dimension. He introduced space into his work by painting on sheets of transparent Perspex, then mounting one sheet in front of the other. The superimposed painted forms appear to vibrate, creating a sense of movement.

In 1955, when Soto was living in Paris, the French gallerist Denise René included him in the landmark exhibition *Le Mouvement* which introduced Kinetic Art to Paris. The exhibition presented a work by Marcel Duchamp and a mobile by Alexander Calder as the historical framework for new approaches such as motor-driven works by Jean Tinguely and objects by Soto, Yaacov Agam and Victor Vasarely that implied movement through optical vibration.

**Cat. 61** *Homage to Yves Klein*, 1961 represents the next phase of Soto's experiments and honours the French artist Yves Klein (1928–1962) with whom he developed an especially rewarding artistic dialogue. On a piece of plywood, Soto painted a dense background of horizontal lines of colour, then attached pieces of wire that extend away from the surface into the third dimension of space. Several of the wires are red and a distinctive bright blue, as is the small rectangular board attached to the surface. As the viewer walks in front of this work, the juxtaposition of repeated painted elements and the wires creates a strong vibration and the total effect, as the artist intended, is to dematerialise the entire piece.

Cat. 61

Jesús Soto  
**Untitled (Homage to Yves Klein) / s/t (Hommage à Yves Klein)**  
1961

Wire, sheet metal and synthetic paint on plywood, 55 × 95.6 × 4 cm

Colección Patricia Phelps de Cisneros  
© ADAGP, Paris and DACS, London 2014



**'I never relinquished the rigour of geometry; I just wanted to prove to myself that my conception of art did not depend on a specific way of doing things [...] My idea was to take objects that were insignificant, though possessing strong formal elements – old pieces of wood, wire, needles, railings, tubes – and incorporate them into the work. I then tried to reach a state of disintegration through pure vibration. Not an easy task, for sure: to dematerialise a piece of wood is very hard work.'**

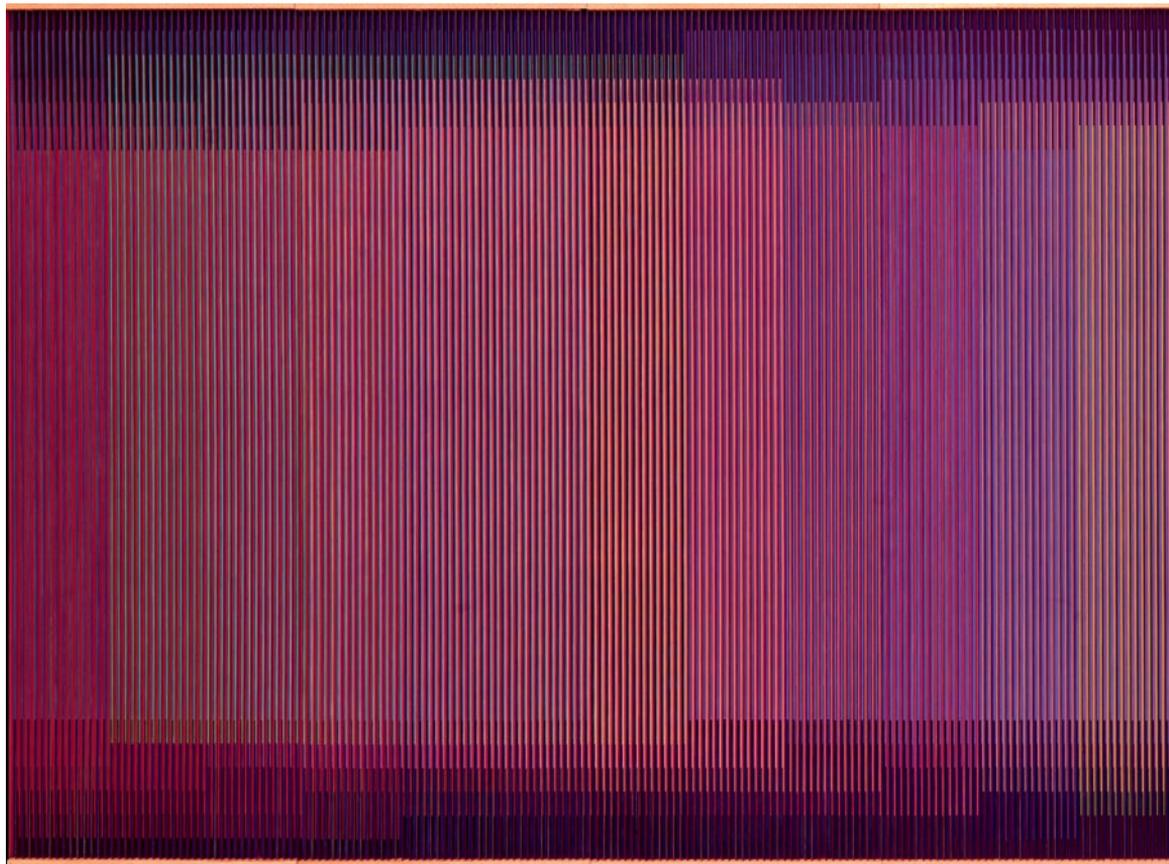
Jesús Rafael Soto

The vibrant blue is called International Klein Blue. As the title notes, Soto's use of this colour is an homage to Yves Klein, who in the 1950s created abstract paintings from one colour as an 'open window to freedom'. Klein worked with a chemist to invent this distinctive blue colour from pure pigment and adopted the hue as a means of evoking the endlessness of his own particular vision of the world.

**Describe the different kinds of line used by Soto in this work. How do they contribute to the overall effect?**

Since 1959, the Venezuelan artist Carlos Cruz-Diez has explored the physical effects of colour, perception and movement. His series *Psychromie* spans more than five decades and includes over 1,000 artworks. He studied works of the Impressionists, Pointillists, Fauves, Josef Albers and other artists who had explored the effects of colour. He also delved into physics, chemistry and philosophy to understand the physical properties of colour, vision and optics and to learn about colour perception. He concluded that, 'the perception of chromatic phenomena is unstable, that it is constantly evolving, that it is subject to many circumstances and that this characteristic has never been put to use by artists.' The *Psychromie* series embodies these ideas of unstable, evolving, evanescent colour.





**Cat.51** Cruz-Diez created *Physichromie No. 500* in 1970 for the Venice Biennale. From the front, it looks like a single plane with gently modulated areas of reds, orange, magenta and purple. In fact, the work is a complex arrangement of repeating coloured elements that combine optically to suggest more colours, which change as the viewer moves in front of it. The artist created colour frames: the sides of each strip are painted a different colour. These bands are placed close together with little space between them and at right angles to the support, which creates the sensation of floating bands of colour.

Two additional elements create the impact and effects of the *Physichromie*. The first is light, which differs according to how a gallery is lit and the time of day. The second is the movement of the viewer as they walk along the monumental expanse of the work (1.8 x 4.8 metres) the colours move and shift. The surface is broken by the frames of colour and the juxtaposition of hues combines the painted colours within the viewer's brain and are perceived as new tones.

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**Cat.51**

**Carlos Cruz-Diez**  
**Physichromie No. 500,**  
**1970**

Casein paint on PVC and acrylic on plywood sheets,  
183 x 484 x 8 cm

Colección Patricia Phelps de Cisneros  
© ADAGP, Paris and DACS, London 2014



**'Contrary to the Renaissance artist, who attached greater importance to the form and coloured planes, I try to release colour from the form, and I have been able to show it only by working at the boundaries of normal vision.'**

Carlos Cruz-Diez

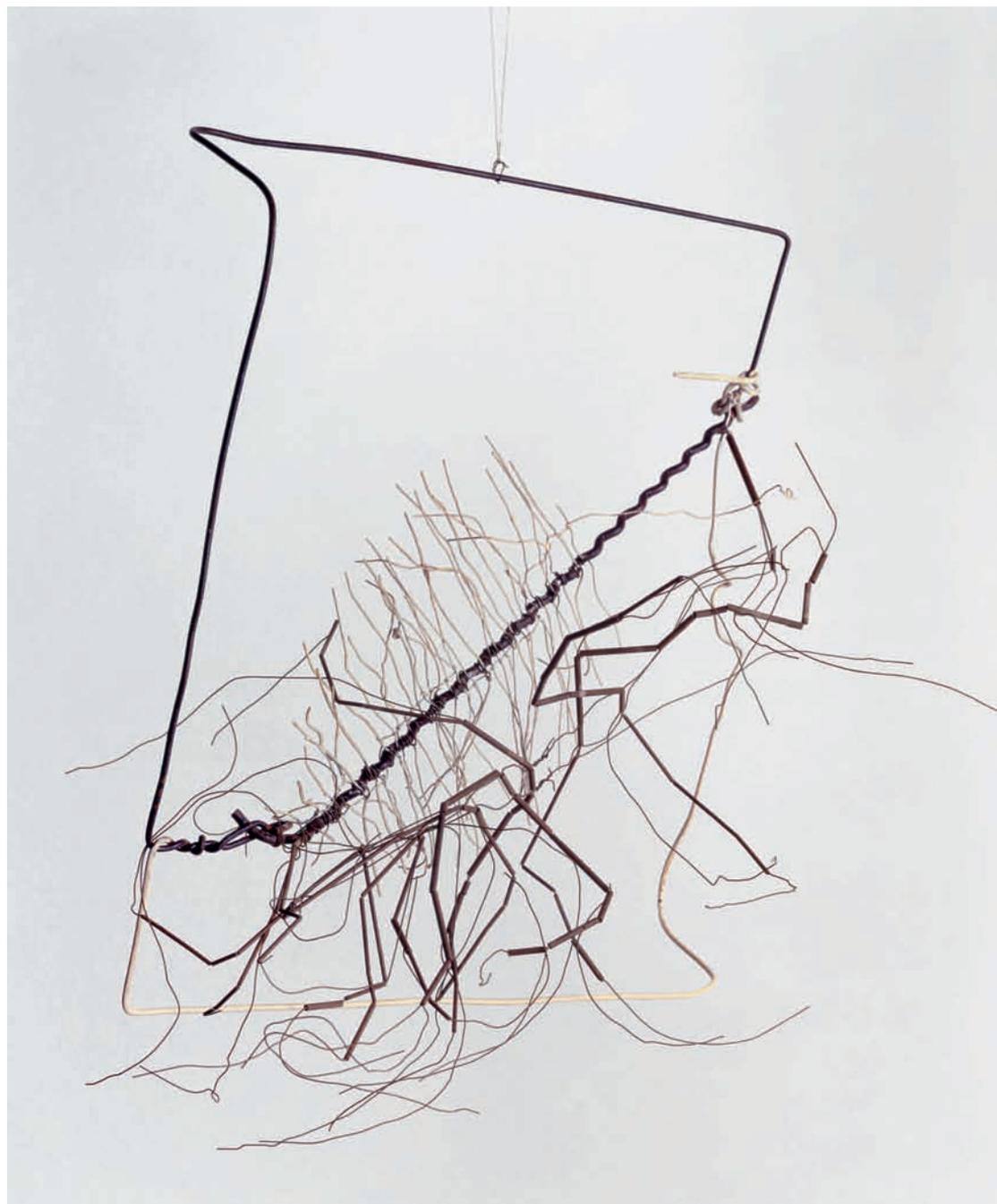
The structure of the *Physichromie* allows the artist to prove 'that colour is constantly in the making, that it happens every time' and that 'the spectator can discover the ability to create and destroy colour with his own perception, and also to find his affective resonance.'

**What colours do you see in this photograph of Cruz-Diez's *Physichromie*?**

**Which of the colours do you think are actually in the work and which might be created by the visual mixing of adjacent colours when perceived by the viewer?**

**What will you want to look for when you see the actual work of art?**

The career of Gertrude Goldschmidt (1912–1994), who is known as Gego, a shortening of her name, exists outside groups of artists, and manifestos. Although aspects of her work do suggest an affinity with Kinetic Art and the work of artists



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**Cat. 81****Gego (Gertrude****Goldschmidt)****Drawing Without Paper****85/19, 1984**Stainless steel and copper,  
25 x 25 x 20 cmColección Patricia Phelps de Cisneros  
© Fundación Gego

such as Cruz-Diez and Soto, she always worked independently. Born in Hamburg, Germany, she studied architecture and engineering. Because she was Jewish, her German citizenship was revoked in 1936 and in 1939 she immigrated to Venezuela. Her artistic career really began in the 1950s, when she was already in her forties. One critic noted, 'For Gego the line, in all its potential freedom, was her permanent muse; and that is clearly evident in *Dibujo sin papel* or *Drawing Without Paper 85/19*, (**cat. 81**) a 1984 work from a series of the same name that she began in the 1970s. Gego herself was very clear that she was making drawings, not sculpture, writing in her notebook, 'Sculpture, three-dimensional forms of solid material. NEVER what I do!'

Here, the lines are stainless steel and copper wires, individually attached using pliers to twist each element into place. Some are thick and long, others short and more delicate, some lines are geometric, others organic. Nothing is regular or mechanical, but rather intuitive and emotional, intensely individual and expressive. The twisting, curving and straight lines seem to have a special independence, each striking out on their own path, sometimes solitary, sometimes intertwining with others. Liberated from paper, the lines move into the surrounding space.

This extension into space results from the way Gego intended the work to be exhibited. The small hook at the top indicates that this 'drawing' is meant to be suspended, the metal lines moving into the space of the room, bringing it into the work. Also, the metal elements all cast shadows onto the adjacent wall, creating yet another set of lines, and another linear but ephemeral drawing without paper. To one critic, her approach was completely radical, she was 'engineering infinity, a state where hierarchies, contingencies and gravity dissolve, where everything connects, and you can see the connections, and tighten them, or loosen them!'

**What are the several ways in which Gego creates a drawing without using paper? In what ways does this challenge your idea of what a drawing is?**

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## Conclusion

This exhibition at the Royal Academy presents exciting, audacious experiments in Geometric Abstraction, representing intellectual fervour, artistic innovation, scientific investigation and international dialogue. Many of the artists in the exhibition believed that society could be transformed by the ideals they infused into the language of Geometric Abstraction. They saw art as something powerful and progressive, reflecting national goals for new, modern societies. However, as we now know, these Utopian ideals were not realised. Military dictators came to power, economies faltered, regimes brutally repressed their own people and foreign countries

intervened in the politics of South America. Many of the artists in this exhibition faced these new, harsh realities by continuing to explore radical geometry. Others created art that engaged more specifically with local politics, while some artists explored new modes such as Conceptual Art. But many continued to be inspired by the aspirations of the pioneering artists exhibited here and by the engagement with the wider world that many of these works embody. As Waldemar Cordeiro stated, 'Fundamentally, it's the attitude that counts – a work of art is not an object, it's not a thing, it's a proposal for mankind, a proposal for society.'

Cat. 61 (detail)

Jesús Soto  
Untitled (Homage to Yves  
Klein) / s/t (Hommage à  
Yves Klein)

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Marí Carmen Ramírez and Héctor Olea, *Inverted Utopias: Avant-Garde Art in Latin America*, Museum of Fine Arts, Houston TX, 2004

## Digital Resources

Explore artworks from 'The Geometry of Hope':

[www.blantonmuseum.org/interact/goh/pachy](http://www.blantonmuseum.org/interact/goh/pachy)

A virtual reference work containing articles and images drawn from Brazilian art, Encyclopaedia Itaú Cultural Visual Arts:

[www.itaucultural.org.br/aplicexternas/enciclopedia\\_ic](http://www.itaucultural.org.br/aplicexternas/enciclopedia_ic)

An online exhibition about Latin American Geometric Abstraction:

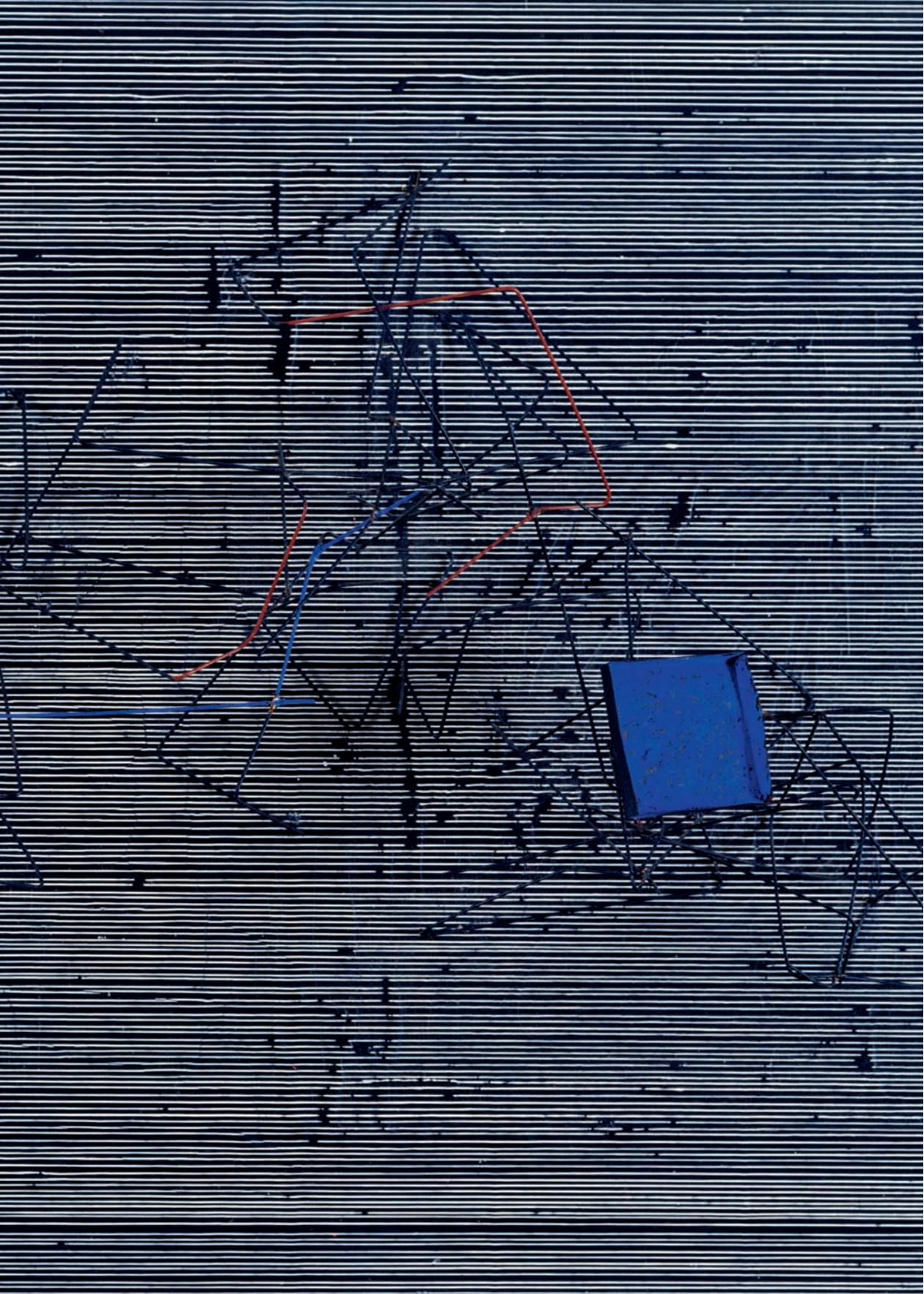
[www.lainvencionconcreta.org](http://www.lainvencionconcreta.org)

Art and ideas from Latin America:

[www.coleccioncisneros.org](http://www.coleccioncisneros.org)

To see an exhibition registrar moving Lygia Clark's *Bicho* (cat.32), go to:

<http://vimeo.com/96699197>



**This guide is given out free  
to teachers and full-time students  
with an exhibition ticket and  
ID at the Learning Desk and is  
available to other visitors from  
the RA Shop at a cost of £4.95  
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