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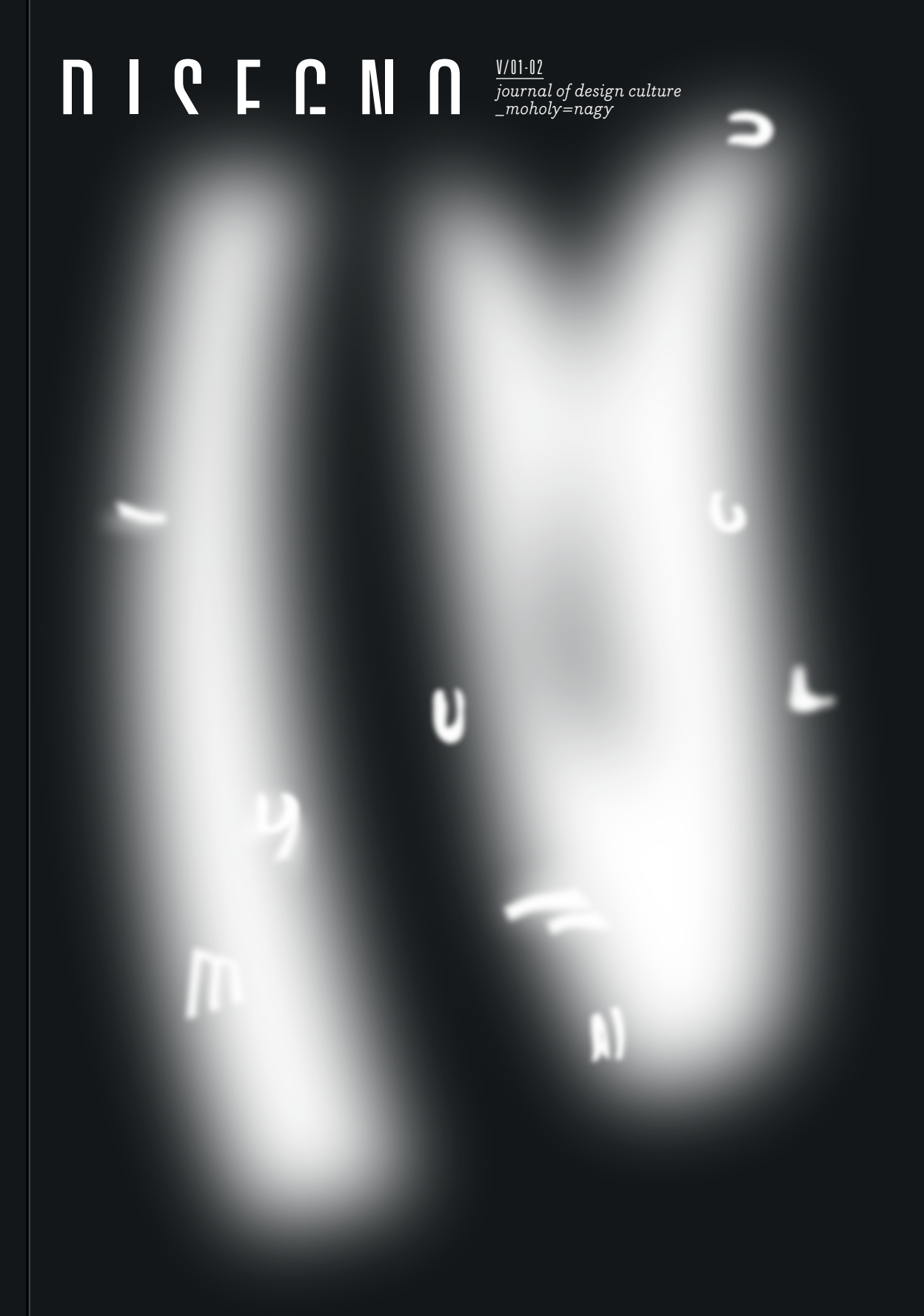

Disegno

Journal of Design Culture

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Aims and Scope

Disegno publishes original research papers, essays, and reviews on all aspects of design cultures. We understand the notion of design culture as resolutely broad: our aim is to freely discuss the designed environment as mutually intertwined strands of sociocultural products, practices, and discourses. This attitude traverses the disciplinary boundaries between art, design and, visual culture and is therefore open to all themes related to sociocultural creativity and innovation. Our post-disciplinary endeavor welcomes intellectual contributions from all members of different design cultures. Besides providing a lively platform for debating issues of design culture, our specific aim is to consolidate and enhance the emerging field of design culture studies in the Central European academy by providing criticism of fundamental biases and misleading cultural imprinting with respect to the field of design.

All research articles published in Disegno undergo a rigorous double-blind peer review process.
This journal does not charge APCs or submission charges.

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MOHOLY-NAGY'S LIGHT PROP FOR AN ELECTRIC STAGE.

DESIGN, COPIES, AND REPRODUCTIONS

Sofía Quiroga Fernández

ABSTRACT

László Moholy-Nagy worked on the prototype for Light Prop for an Electric Stage *for eight years, from 1922 to 1930, developing several sketches and designs. The final drawings and model were made with the collaboration of the Hungarian architect Stefan Sebök (István Sebők). The device was built by the AEG company, and it was displayed for the first time in the Werkbund exhibition held in Paris in 1930, where it appeared as an autonomous aesthetic object. This was clearly captured in the film* Light Play: Black-White-Gray, *in which Moholy-Nagy recorded its kinetic quality in the spirit of the abstract films developed at that time. The film clearly shows the motion of the lighting device as a formal exercise of abstraction using double exposures, special effects and close-ups. The* Light Prop *underwent several alterations over time to keep it working in a variety of exhibitions around Europe and America. In 1956, after Moholy-Nagy passed away, his widow, Sibyl Moholy-Nagy, donated it to the Harvard Busch-Reisinger Museum, where it has remained ever since. After further damage caused by inappropriate restoration and its mechanical instability, the* Light Prop *was reconstructed in 1969 for the exhibition* From Pigment to Light, *celebrated at the Howard Wise Gallery in New York (Tsai et al. 2017). The idea of a copy emerged during the planning of this exhibition to preserve the legacy of Moholy-Nagy's knowledge. Sibyl Moholy-Nagy finally approved this idea in 1970, allowing the production of two copies, one for the exhibition and the other for the 35th Venice Biennale (1970). Both reproductions were kept and sent to the Bauhaus Archive in Darmstadt and the Van Abbemuseum, where the original device had suffered repeated damage during the* KunstLichtKunst *exhibition (1966). The essay attempts to trace the timeline of modifications from the original device to the reproductions.*

#copies, #electric stage, #exhibition, #Light Prop, #reproduction

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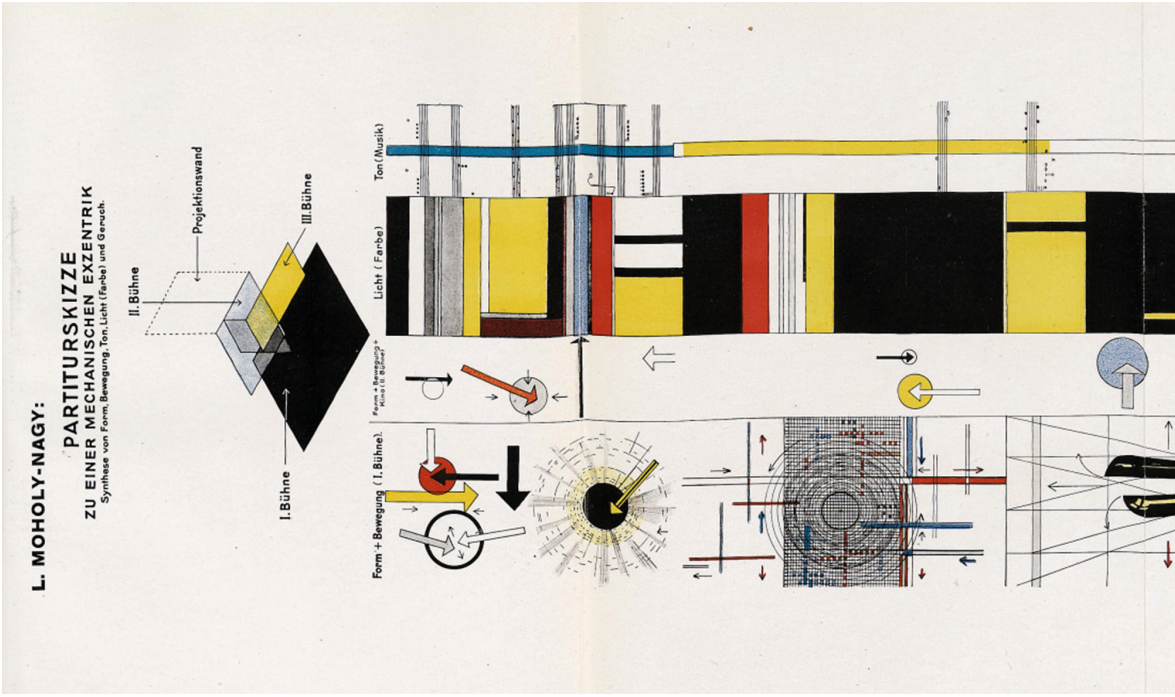
INTRODUCTION

László Moholy-Nagy, besides exploring painting, leading the Metal Workshop, writing, editing books, and applying new typographies at the Bauhaus school, also explored the creative possibilities of photography and film as art. Both photography and film work with light, which was also the main focus of Moholy-Nagy's research in painting, sculpture, photo plastics, photograms, photographs, typography, and theatre sets. He started his research in paintings and photo collages, exploring space through transparencies. Moholy-Nagy was interested in the arrested moments of light on canvas and kinetic light plays, both live and recorded as film (Botar 2014, 102). His interest in movement and light through space led him to explore its possibilities and build *Light Prop for an Electric Stage*, which Moholy-Nagy also called "the architecture of light" (Peterse 2010, 104). The mobile perforated disks, the rotating glass spiral and the sliding ball, together with the lighting bulbs, intentionally created the photogram experiments' effect in motion. For Moholy-Nagy, the *Light Prop* is a mechanism that illustrates the phenomenon of light and movement, and which applies in space the ideas reflected in his writing production (Moholy-Nagy [1944] 1947). In *Malerei, Fotografie, Film* he presents new media as creative resources capable of reproducing reality and as instruments of creation, highlighting the possibilities of projection (Moholy-Nagy 1927).

Moholy-Nagy's interest in light and space motivated him to present an audiovisual show close to multimedia creation. The experimental display is an example of "total theatre", a precise and fully controlled organization of form and motion intended to be a synthesis of different phenomena such as space, form, movement, sound, and light performing dynamically and simultaneously, based on formal modifications and the conditions for mixing colors, which are directly linked to the composition and the interplay of movements (Schlemmer, Moholy-Nagy, and Molnár 1925). As a reference, Moholy-Nagy counted on the devices designed by Kurt Schmidt and Oskar Schlemmer for the lantern festival at the Bauhaus school. Their investigations into the mechanics of performance were an essential reference for him.

The *Score Sketch for a Mechanized Eccentric*, initially published in the fourth volume of the Bauhaus Books, *Die Bühne im Bauhaus* (Schlemmer, Moholy-Nagy, and Molnár 1925), shows a graphic proposal for the stage. The sketch presents a symbolic notation of multiple



actions that evolve simultaneously, resembling a storyboard. The notation is organized in four parallel columns addressing all the actions and elements displayed and their evolution over time linked to three different stages (fig. 1).

In the diagram, Moholy-Nagy included the following aspects: form and motion, form, motion and cinema, light (color), and sound (music). The timeline prescribes the simultaneous performance of human action, motion, light, and sound. The stage would be equipped with sound systems, mirrors and optical equipment to produce sonorous and visual effects.

Each column refers to one of the three stages defined by Moholy-Nagy as follows: the main one, the one for projection, and the intermediate one (between them). Following the notation, the first column shows form and motion and should be performed in the primary stage; the arrows and geometries in this column represent the movement of human actors, mechanized actors, and machines involved in the production. The second column includes notation for form, motion, and cinema to be displayed on the second stage above the main one. According to Moholy-Nagy's description, the stage would have a folding glass plate for small shapes and movements that would work as a screen for cinematographic projections (Schlemmer, Moholy-Nagy, and Molnár 1925). The third column represents the sequence of lighting effects, which play an essential role and affect all the stages. The lighting notation was made using lines of different

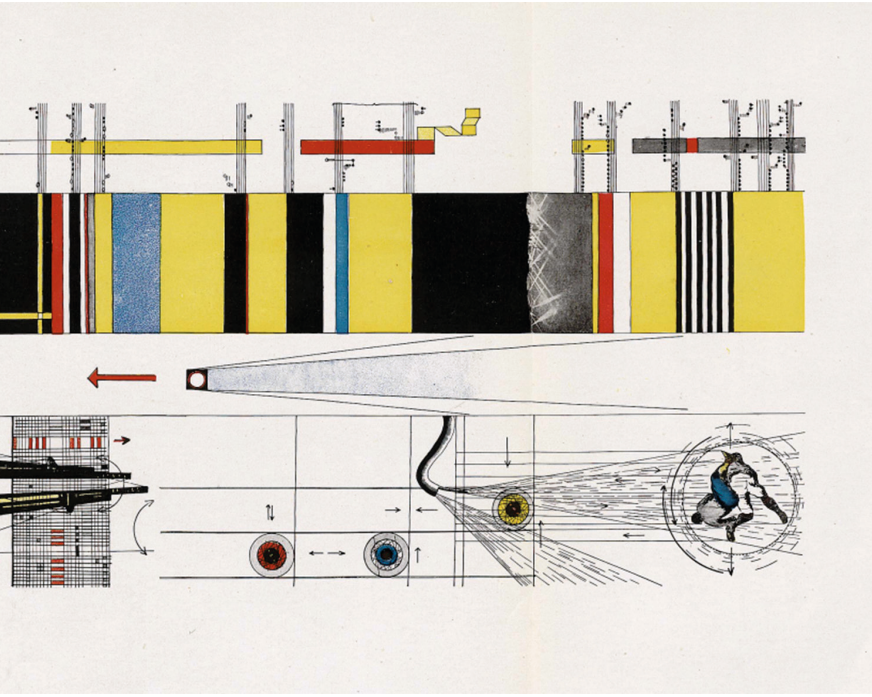


FIGURE 1. *Moholy-Nagy's* Score Sketch for a Mechanized Eccentric *in Schlemmer, Moholy-Nagy, and Molnár 1925, following 44. This sketch was shown in the exhibition organized by Friedrich (Frederick) Kiesler in Vienna (1924).*

color and thickness, which represent the lighting color and duration. The fourth column shows the sound effects produced by mechanical instruments and musicians located on the middle stage so as to be visible to the audience. The notation is written vertically and consists of music notation, vertical stripes representing variations on the tone, and notes to indicate different sound effects. The synchronization of actions and effects is marked with horizontal lines, which provide guidance for the mechanized space operator to interpret the sequence of dramatic action, lighting, sound, and projection. Even though it has never been made or displayed, we can imagine "Mechanized Eccentric" as a "total theatre" of stunts, actions, and projections to behold (Terranova 2016), and it definitely would function as an expanded and extruded version of *Light Prop*.

LIGHT PROP FOR AN ELECTRIC STAGE: *DESIGN AND REVISIONS*

The project that finally materialized instead was *Light Prop for an Electric Stage*. Moholy-Nagy used the term "Light Prop" to describe it, a title that perfectly captures his intention to display together both light and movement into space. He uses the term on drawings, collages, and other artworks. In his research in photography, he tries to synthesize simple elements through the constant superposition of their movements (Moholy-Nagy 1938).

This electric stage would exemplify mechanical movement, electric energy, and industrial aesthetics in art. The *Light Prop* was primarily conceived as a projection device for the stage to generate spatial variations through mechanical movement and the use of light, motion, and color. However, it was first unveiled as an autonomous aesthetic object in the Paris Werkbund exhibition (1930) instead of on the stage. Moholy-Nagy describes the model as a mechanical apparatus made of different materials and shapes displayed in a cube of 120×120 cm with a circular opening on the front side (probably designed to be covered by a translucent screen).[1] On the back of this panel and around the opening were located seventy colored bulbs, yellow, green, blue, red, and white (fifteen watts) and five headlamps (one (hundred watts). Following the precise notation, the glow of the bulbs illuminated a continuously moving mechanism built from translucent, transparent and fretted material that generated a play of shadows on the back wall of the box. This wall could be removed to project the shadows on a bigger screen or even into space, and thereby transform it (Moholy-Nagy 1930). The appliance was a mobile structure driven by an electric engine. Most of the motion elements were made with transparent materials, such as plastics, glass, wire mesh, latticework, and perforated metal sheets. In the book *The New Vision*, he remarked that, even though he knew how all the effects would work when *Light Prop* was set in motion for the first time in a small mechanics shop (1930), he felt like a sorcerer's apprentice. The mobile was so staggering in its coordinated movements and spatial articulations of light and shadow sequences that he declared he could almost believe in magic (Moholy-Nagy [1944] 1947, 86).

Light Prop for an Electric Stage was conceived by László Moholy-Nagy and Stefan Sebök (István Sebők), the engineer responsible for its design details and construction. Sebök developed a series of drawings to specify the object and facilitate its construction, including plans, sections, axonometric, and description of the materials used for making the artefact. The drawings show the components of the mechanism, its movement, and the relationship between them. For example, one shows the three surfaces installed between the rotating mechanical device segments (fig. 2).

The process of creating *Light Prop* took eight years, from 1922 to 1930. Consequently, the prototypes and designs experienced several modifications based on experimentation and marked by successes and failures.

The documents published in the *Die Form* journal showed the box with a circular opening at the front and bulbs placed on the back around it. There was a second board inside the box, parallel to the front, which also had a circular opening and a set of bulbs mounted around it. Moholy-Nagy outlined the placement of the colored light bulbs and the lighting time sequence. According to Moholy-Nagy, the moving

[1] *Oliver Botar proposed that the device would be shown behind a translucent screen as is recorded on the working plans for* Light Prop*: "The round opening on the box was to be covered by glass with flashing—a layer of glass or film in a contrasting color applied to it" [so that] "the light effects produced within the box, behind the dark flashed glass, would only have been visible when the lighting array on the interior of the box was switched on. […] This is the 'installation lumineuse' seen by visitors to the Paris show: an abstract "film," a 'Flächenfilm' constituted in real time while the visitor was watching". (Botar 2014, 122)*

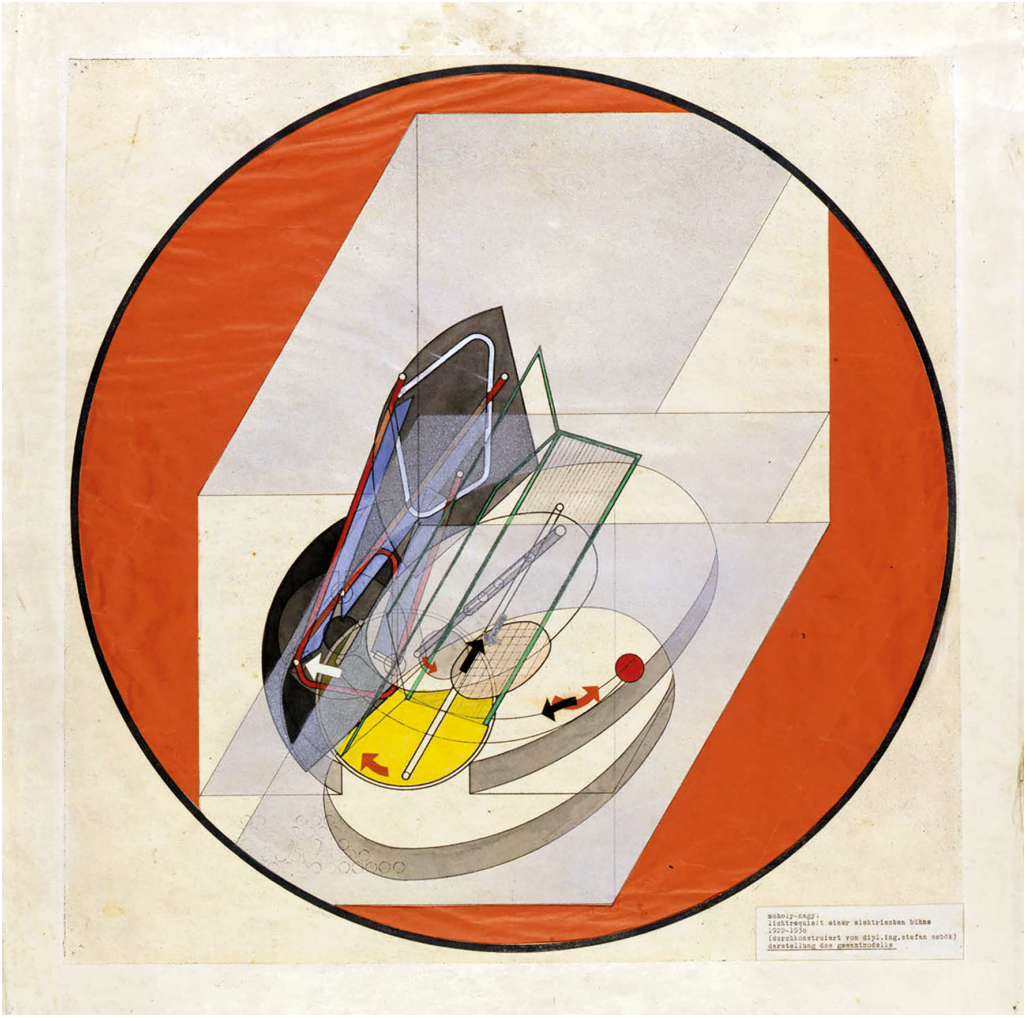


FIGURE 2. *László Moholy-Nagy and Stefan Sebök*, The Mechanics of the Light Prop, *1930. Collage (light-print, ink, watercolor, and colored paper on paper), 60.4 x 59.5 cm. Bauhaus Archive. Courtesy of the Moholy-Nagy Estate.*

mechanism was built of translucent, transparent and fretted materials that respond differently to the light, creating different shadow patterns. The mechanism, divided into three parts, was mounted on a circular platform divided by two transparent cellophane walls and a metal wall made of vertical rods (fig. 2). The three sectors would accommodate different playful movements that, together with the material's reflection of the moving mechanism, would create striking optical effects, transforming the space around it.

These vertical surfaces and the inner boards also appeared in the *Room of the Present* exhibition plans (fig. 3). The exhibition was curated by the director of the Hannover Landesmuseum, Alexander Dorner, who invited Moholy-Nagy to design the final room in their collection's chronological reorganization.

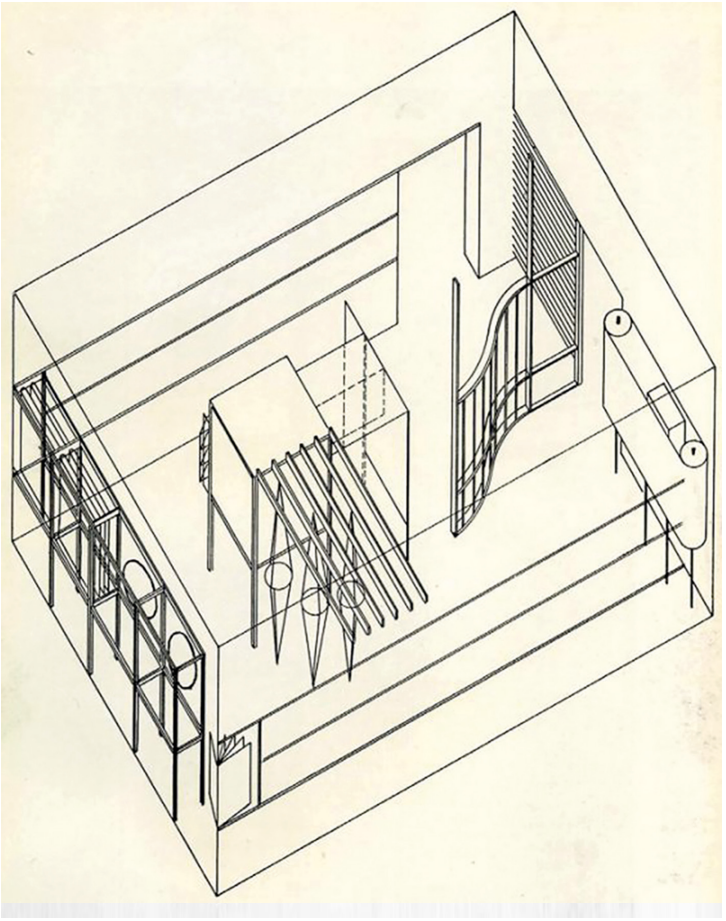


FIGURE 3. *László Moholy-Nagy's design for the* Room of the Present *for the Hannover Landesmuseum, 1930. Courtesy of the Moholy-Nagy Estate.*

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This room, knows as the *Room of the Present*, aimed to have interactive exhibits dedicated to film, architecture, and design. Moholy-Nagy included *Light Prop* in the exhibition layout, installed in a box framed with lights (fig 3). Although Moholy-Nagy's plans were never realized in Hannover due to financial and political issues, a reconstruction of the *Room of the Present* based on the 1930 documentation was exhibited from 2009 to 2012 at the Van Abbemuseum Eindhoven. The stunning reconstruction by the researchers and designers Kai-Uwe Hemken and Jakob Gebert included the *Light Prop* replica made in 2006.

LIGHT PROP FOR AN ELECTRIC STAGE: *EXHIBITION*

Light Prop for an Electric Stage would finally be exhibited as an autonomous aesthetic object at the Werkbund exhibition in Paris in 1930. The display follows the same ideas used previously for the *Room of the Present* in the Hannover exhibition, but it was presented differently, as it is shown in the plans and pictures (fig. 4).

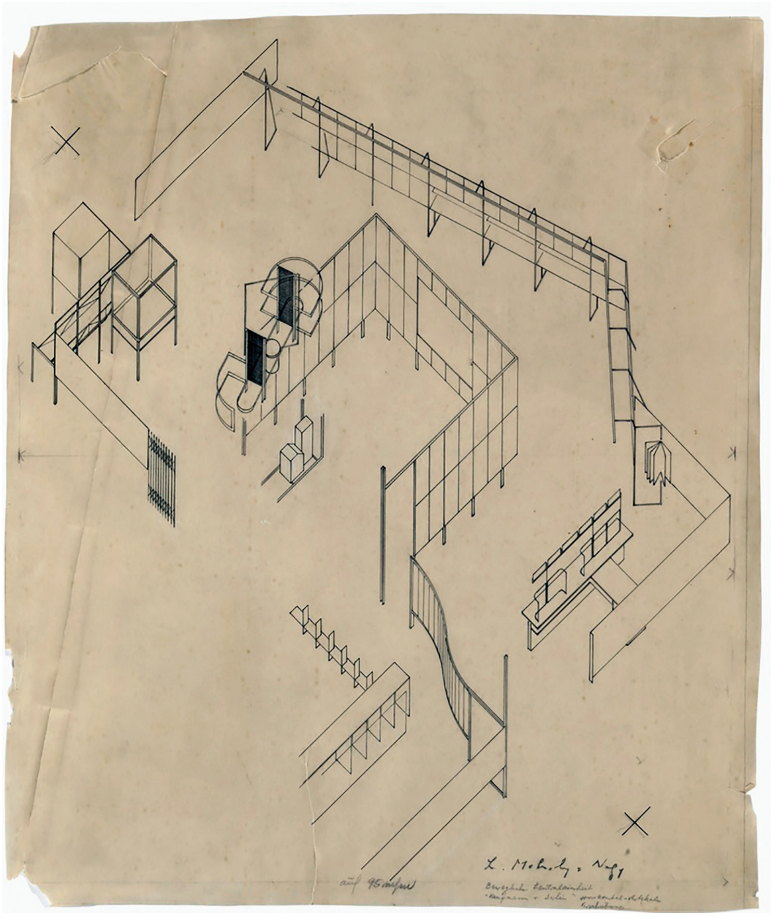

FIGURE 4. *László Moholy-Nagy's isometric view of room 2 for the 1930 Paris Werkbund exhibition. Ink on tracing paper, 52. x 45. cm. Courtesy of the Moholy-Nagy Estate.*

Light Prop was shown in a cubical structure, elevated to eye height by a metal framework to facilitate the view. Looking through the circular aperture acting as a frame, the audience would be fascinated by the *Light Prop* "stage" performance and the colored bulbs placed around it (fig. 5).

This installation of *Light Prop* produced unexpected results. Although the mobile was mainly designed to see transparencies in action, it was a surprise to discover that shadows thrown on transparent and perforated screens produced new optical effects, a kind of visual interpenetration in constant change. The mirroring of the moving plastic elements on the extraordinarily polished nickel and chromium-plated surfaces were also unexpected outcomes. These surfaces, although opaque in reality, seem transparent in movement. In addition, some transparent wire-mesh flags had been placed between the bottom and ceiling planes, demonstrating powerful and irregular illusions of motion. These reflective surfaces produced a dramatic and emotional display, shifting the shadows and varying the volume of the composition, generating

FIGURE 5. Light Prop for an Electric Stage. *Designed by László Moholy-Nagy from 1922 to 1930, it was built by Stefan Sebök and the theatre department of AEG for the 1930 Paris Werkbund exhibition. Courtesy of the Moholy-Nagy Estate.*

temporal space transformations linked to lighting and movement. In this exhibition, Moholy-Nagy was finally "painting with light" in space, equal in innovation to what he had previously done with drawings and photograms. As Noam Elcott mentions, the device was thought of in cinematic terms, enhancing the components of what would typically be captured in film, only without the medium of film (2011). Moholy-Nagy also thought about the possibility of removing the back of the box to project the light play effects on an external screen specially set up for it and the possibility of being remotely controlled (Moholy-Nagy 1930). Although Moholy-Nagy's intention was to display the light prop in the designed box (fig. 4), without the box, the device could transform an entire room by projecting light into space (Botar 2014), activating the space around like avant-garde cinema had aimed to do.

Moholy-Nagy recorded the performance of *Light Prop for an Electric Stage* in the film *Light Play: Black-White-Gray* (1930). He also used the film as an experimental tool to study the interferences of movement, light and shadows, and our perception of it in time. The film[2] recorded the kinetic quality of the device, avoiding the apparatus and focusing on the play of light.

LIGHT PROP FOR AN ELECTRIC STAGE: *REVISIONS, RECONSTRUCTIONS AND REPLICAS*

Over time, *Light Prop for an Electric Stage* underwent suffered several changes and restorations due to misuse and the fragility of its components.

The article "Lichtrequisit Einer Elektrischen Bühne" ("Light Prop for an Electric Stage"), published by Moholy-Nagy in the journal *Die Form* (Moholy-Nagy, 1930), anticipated the potential failing of the lighting device performance. He remarked that the *Light Prop* displayed at the Paris exhibition represented only a modest initial attempt to introduce the possibilities of light technology to the public (Tsai 2010, 293). The fact is that it broke when it was displayed first in Paris (Tsai et al. 2017).

Like a precious piece of Art, Moholy-Nagy took the device with him around the world, no matter the cost. When he moved to London in 1935, he realized how fragile the object was; therefore, he added an external frame to stabilize it and prevent further damage. When Moholy-Nagy moved to Chicago in 1938, other elements like the engine or the glass spiral were replaced and modified. The glass spiral was replaced by a metal one, together with an acrylic wedge located on the base. This was the first transformation.

After Moholy-Nagy passed away, and according to the documents, the Busch Reisinger Museum had the opportunity to keep the machine on a long term loan. The device came to the museum in a deplorable condition, with some elements missing and corroded surfaces. At this point, Jack Washeba, the museum curator, replaced the missing parts and painted the corroded surfaces to hide them.

In 1956, the Moholy-Nagy's widow, Sibyl Moholy-Nagy, donated *Light Prop* to the Harvard Busch-Reisinger Museum. After that, the electric stage underwent several alterations to keep it working in exhibitions around Europe and America. For instance, in 1965, the *Light Prop* was restored to be displayed in the *Kinetic Art Exhibition* organized in Eindhoven. The restoration made by William Wainwright consisted of removing the paint used in previous work to hide the corroded surfaces, re-plated some components and recovered the machine movement. It was the first time that the idea of a replica emerged, but Sibyl Moholy-Nagy preferred to restore the original *Light Prop*. After subsequent damage as a consequence of international exhibition loans (*KunstLichtKunst*, Van Abbemuseum, 1966), in 1966, Sibyl Moholy-Nagy demanded the return of the device to her due to its poor condition.

[2] *Later, Moholy-Nagy applied the knowledge he acquired from it to produce his design of the city of the future, which he created specially for the film* Things to Come, *directed by William Cameron Menzies in 1936. It seems that the design of this city was initially offered to Le Corbusier and Fernand Léger, who, for political reasons, declined. Finally, the commission was offered to Moholy-Nagy, with Gropius as a consultant, to ensure that the design was in accordance with Bauhaus design principles. In the space of ninety seconds, Moholy-Nagy managed to transmit the atmosphere and dynamism of the futuristic city by including industrial images. Despite the considerable research and the recorded film metrics, the work was reduced to a few frames, and he would never appear on the film's credits.*

Light Prop was exhibited again in 1968. It was part of the exhibition *The Machine as Seen at the End of the Mechanical Age* celebrated at MOMA in New York. As a result of its fragility and difficulties in running the machine safely, *Light Prop* was shown as a static element, and this was when the idea of replicas emerged again, obtaining permission from Sibyl Moholy-Nagy, who agreed for no more than two copies to be made. She believed that the best way to preserve Moholy-Nagy's work was to reproduce the device.

It was finally reconstructed in 1969 for an exhibition held in New York at the Howard Wise Gallery, where other contemporary lighting explorations were displayed under the supervision of the Harvard art historian and researcher Nan Piene. Two copies were produced, one for this exhibition and the other for the 35th Venice Biennale (1970). Both reproductions were kept and finally sent to the Bauhaus Archive in Darmstadt and the Van Abbemuseum. The replicas were made by Woodie Flowers, an engineer at MIT, assisted by Nan Piene, who had written her Master's thesis about *Light Prop for an Electric Stage*. These copies were built after analysis of the original piece, together with the pictures kept in the Harvard archive. The MIT engineer modified some parts to ensure their safety and movement in exhibitions.

Another replica was made in 2006, also for a new exhibition, *Albers and Moholy-Nagy* at Tate Modern in London. A full-sized replica of *Light Prop* commissioned by the Tate was made by the German engineer Juergen Steger. It was considered a travelling exhibition copy. To make the replica, Steger studied the original space modulator and Moholy-Nagy's original pictures, drawings, and film *Light Play: Black-White-Gray*. All this documentation served as a guide for the creation of the new replica. The engineer also created a CAD file to simulate its movement as well as to facilitate the fabrication of every copied element. The model was made to match the Moholy-Nagy original design, preserving even the variety of finished surfaces.

The Harvard Museum acquired it on condition that the replica would be lent to significant exhibitions, that it would not be considered a work of art, and that the Tate Museum could display the reproduction once every four years. Steger developed, together with the museum staff members, a document for the replica's maintenance and correct operation to avoid future problems or damage. Due to the instability of the initial device and the inherent weaknesses in its design, the replica needs to be adjusted and repaired, and some pieces also need to be occasionally replaced to keep it running correctly and in good condition. This document is a record of the pieces that make the *Light Prop for an Electric Stage* possible. It serves as an archive document of the replicas and their components, preserving and showing Moholy-Nagy's research legacy.

REFERENCES

Botar, Oliver A. I. 2014. *Sensing the Future. Moholy-Nagy, Media and the Arts.* Zurich: Lars Müller Verlag.

Elcott, Noam M. 2011. "Rooms of Our Time: László Moholy-Nagy and the Stillbirth of Multi-Media Museums." In *Screen/Space*, edited by Tamara Trodd, 25–52. Manchester: Manchester University Press.

Lie, Henry. 2007. "Replicas of László Moholy-Nagy's Light Prop: Busch-Reisinger Museum and Harvard University Art Museums". *Tate Papers* (8). https://www.tate.org.uk/research/publications/tate-papers/08/replicas-of-laszlo-moholy-nagys-light-prop-busch-reisinger-museum-and-harvard-university-art-museums

Moholy-Nagy, László. 1927. *Malerei Photographie Film.* Munich: Albert Langen Verlag.

———. 1930. "Lichtrequisit Einer Elektrischen Bühne." *Die Form: Zeitschrift Für Gestaltende Arbeit* 5 (11/12): 297–99.

———. (1944) 1947. "Abstract of an Artist." In László Moholy-Nagy, *The New Vision and Abstract of an Artist*, 65–87. New York: Wittenborn, Schultz, Inc.

Peterse, Frans. 2010. "László Moholy-Nagy y Holanda." In *László Moholy-Nagy El Arte de la Luz*, edited by Hattula Moholy-Nagy, 95–107. Madrid: La Fábrica. Exhibition catalog.

Schlemmer, Oskar, László Moholy-Nagy, and Farkas Molnár. 1925. *Die Bühne im Bauhaus.* [*Bauhausbücher 4*]. Munich: Albert Langen.

Terranova, Charissa. N. 2016. *Art as Organism: Biology and the Evolution of the Digital Image.* London: I.B. Tauris.

Tsai Joyce. 2010. "Sorcerer's Apprentice: László Moholy-Nagy and the Light Prop for an Electrical Stage." In *Reconsidering the Total Work of Art*, edited by Anke Finger and Danielle Follett, 277–433. Baltimore: Johns Hopkins University Press.

Tsai, Joyce, Angela Chang, Matthew Battles, and Jeffrey Schnapp. 2017. "László Moholy-Nagy's Light Prop as Design Fiction: Perspectives on Conservation and Replication." *Leonardo* 50 (3): 311–15. https://doi.org/10.1162/leon_a_01429.