

1. An Interplay of Light and Shadow

László Moholy-Nagy, the *Light-Space-Modulator*, Werkbund exhibition, Paris, 1930

László Moholy-Nagy made his first drawing for the *Light-Space-Modulator* in 1922, after having moved to Berlin from Hungary in 1920, following his military service in Austro-Hungarian army in the First World War. In Berlin, he met the Dadaists and then Walter Gropius in 1922, and attended the first Congress of the Constructivists and Dadaists in Weimar in the same year. In 1923, he became a professor, first at the Bauhaus School in Weimar, where he took over the metallurgical workshop, a post he continued to hold after the Bauhaus moved to Dessau between 1925 and 1928.

It was a time of the re-evaluation of social values, promoted by art, and Moholy-Nagy's art was influenced by the following movements:

In Berlin, he encountered Dadaism. Dada in general was an artistic reaction to the tragedy of the First World War. The collapse of social values and norms that came with the conflict was countered by a free and irreverent art that ridiculed, insulted, and provoked the bourgeois society of the time. Berlin Dadaism understood artwork as political statements, and as a form of satire on contemporary established artistic practices.

Constructivism, an artistic and architectural movement, emerged in 1914 in Russia under the influence of various technological developments. It flourished after the October Revolution of late 1917, when the painter Kazimir Malevich first used the term *constructivist art* to describe the work of Alexander Mikhailovich Rodchenko. Naum Gabo then formally introduced constructivist

art in his 1920 work, *The Realistic Manifesto*, where he with his brother Antoine Pevsner proclaims kinetic rhythms as essential forms of the perception of real time.

There was also an intersection between Constructivism and Futurism – the latter appeared in 1909 with Filippo Tommaso Marinetti's *The Manifesto of Futurism*, published in Paris. Both promoted a radical rejection of tradition (in both art and architecture) and a celebration of technological development and the industrialization of society – though constructivism was not interested in the other goals of Futurism, such as power, speed, movement, violence, and war.

There was also an influence from the architectural field. Between 1914 and 1915, Le Corbusier designed the Maison Dom-Ino, a modular skeletal reinforced concrete structure with open floor plans. He also published his manifesto "Five Points of Architecture" in the *L'Esprit Nouveau* art magazine, and in his book *Vers une architecture* in 1923.

In 1928, the last year of Moholy-Nagy's professorship at the Bauhaus School in Dessau, the 1st Congrès Internationaux d'Architecture Moderne (CIAM) was held at the Castle of La Sarraz in Switzerland. The 2nd CIAM Congress was held in Frankfurt am Main in 1929, where concern was expressed for the housing conditions of the general population, and in particular that of the working class. Moholy-Nagy attended the 4th CIAM Congress on the functional city in 1933.

Le Corbusier's architectural inventions have enabled a lot of sunlight to penetrate into buildings, as the suspended façades allowed wide, high, and long window surfaces, in contrast to traditional architecture, and especially the gloomy interiors of the speculatively built dwellings commissioned by industrialists for their workers during and after the Industrial Revolution.

The fascination with light was inevitable, especially since, as in the Enlightenment, it was a symbol of freedom, of humanistic values and of the fight against the dark conservative shackles of society, the petty bourgeoisie and against prejudice of all kinds.

In architecture, sunlight also had very pragmatic attributions: a lot of sunlight in a house meant healthy living in airy apartments.

In 1930, with the financial support of an electricity company in Berlin and the help of two specialists, an electrical engineer and a metallurgist, Moholy-Nagy managed to realize his 1922 idea for the *Light-Space-Modulator*. It was created at the intersection of Dadaism, Constructivism, Futurism, the goals of the CIAM congresses, and the general enthusiasm for technology, industrialization and, last but not least, light. It is a brilliant artistic upgrade of all these, but the artist also wanted to express his own view of technological development: “[the] reality of our century is technology: the invention, construction, and maintenance of machines. To be a user of machines is to be of the spirit of this century. It has replaced the transcendental spiritualism of past eras.”¹

This quote can be compared with Le Corbusier’s famous statement that “a house is a machine for living in.” Although he disagreed with the inhumane, capitalist use of technology, Moholy-Nagy believed that technology would improve life for humanity, and that art should be a prophet for this mission.

The *Light-Space-Modulator* was exhibited at the celebrated Werkbund Exhibition held in Grand Palais, Paris in 1930, and described as “a mechanism for generating special lighting and motion effects on a stage.” At the exhibition, it was then placed in a box with an observation hole. The *Light-Space-Modulator* projected moving shadows in continuous motion as photograms on the walls of the box, which were generated in a sequence of pre-programmed light beams.

1 The source of this quote, including the translation, is “Constructivism and the proletariat” (“Konstruktivismus und Proletariat”) by László Moholy-Nagy, first published in the Hungarian magazine MA in May 1922. Excerpts from the article were reprinted in the book *Experiment in Totality* published by his wife Sibyl Moholy-Nagy, New York: Harper & Brothers, 1950, p. 19.

Today, the *Light-Space-Modulator* is kept in the Busch-Reisinger Museum² at Harvard University, where it can be viewed without the box. It measures 151.1cm x 69.9cm x 69.9cm. The mechanism is powered by electricity via wheels connected to a bicycle chain. It is composed of high-gloss polished metal and glass parts. Frames with metal grids of varying densities are set on a circular moving panel. There are two vertical, shiny metallic circular panels of varying sizes perforated with small circles. There is a shiny black sphere trapped in a tapered circular and bent frame, along which the sphere slides as the frame changes inclination. The sphere is entrapped with a metallic sound for a moment each time when it slides to the end of the frame. There is also a smaller rotating circular panel with a metal rod with a spiral. This rod penetrates a hole in a glass plate, roughly shaped in a quarter of an ellipse. The form of the glass plate is reminiscent of the uterus – the skirt of the woman in Joan Miró's painting *Maternity*³ from 1924, while the two perforated vertical circular plates of the *Light-Space-Modulator* represent the woman's breasts in the same painting.

The *Light-Space-Modulator* is a revolving world powered by the wheel of time, as hidden in a handcrafted Swiss watch. It moves the image of a flattened Earth in steady circles, just as we understood the universe in prehistoric times, when we believed that the Earth was flat and had defined and finite edges, and that this was all we had. Today we are aware that it has finite edges though it is not flattened, but we still know that this is all we have.

On a thin circular plate of the *Light-Space-Modulator* there appear to be a man and a woman with their reproductive organs: a spiral penis in the erect position penetrates the woman's womb, her breasts float above it, and an egg slides down the fallopian tube, cyclically maturing. Behind this archetypal image of a woman and a man rotating in their own rhythm, there are

2 <https://harvardartmuseums.org/collections/object/299819>

3 Joan Miró, *Maternité / Maternity*, 1924, Penrose Collection.

grids of different densities, coarser and finer. Each, in its tilted circulation, hovers precariously behind their backs, as a kind of explanation that they are being caught in the endless web of human relationships. It is only when this world is illuminated by the light of a soft sun-yellow classical bulb that the elements of this world become visible, precisely because of the shadows that are cast in this world and on the walls in the background in the form of photograms, as on a mirror of the world. The world in its rhythm and with the different rhythms of all the elements in it, illuminated by a static light source, is a polyphony that reveals in the images of the shadows the constantly changing interrelationships, each moment in a different position and yet linked into a harmonious whole and therefore beautiful.

Art of the highest order speaks to all the shades of humanity and the world we live in, says Robert A. Johnson in his book.⁴ On the Busch-Reisinger and Getty websites we read that the *Light-Space-Modulator* is the most spectacular and complete realization of Moholy-Nagy's artistic philosophy, and that this piece is not only a mechanism for creating light effects, but also a sculptural object of beauty. It is one of the earliest light-kinetic works of art and plays a central role in the history of modern sculpture.

The interplay of light and shadow produced by the moving mechanism of the *Light-Space-Modulator* fascinated its author. On the occasion of the 1930 exhibition in Paris, Moholy-Nagy also presented his short film *Lichtspiel: Schwarz-Weiss-Grau*⁵ to demonstrate the results of his sculpture. The rotating construction creates an astonishing array of visual effects. As it moves, illuminated, rays of light fall on the shiny metallic surfaces of the sculpture's individual elements. The light reflects from shiny surfaces and at the same time casts shadows on the elements of the sculpture and on the background walls. The interaction of

4 Johnson, Robert A., *Owning Your Own Shadow*, San Francisco, Harper San Francisco, [1991] 1993.

5 <https://www.moma.org/collection/works/300671>

light with the moving sculpture manifests the sculpture itself in many different perspectives by illuminating it. At the same time, light manifests moving photograms built up by different shapes of illuminated surfaces and shadows. The moving photograms together make a cloud of possible relations between light and shadow. Yet there are finite possibilities, all the time changing and at first sight, undetermined. The sculpture is a simplified version of human reality.

When we create light, we also create shadows. One cannot exist without the other. In the sixth century BCE Taoism understood life and its processes as a balance between opposites that are part of the same system, the Tao (or Dao). In the Tao, light and darkness need each other in order to be recognized, defined and understood – and thus they are needed for us to be able to understand the world and ourselves. The Tao is a creative synthesis of opposites.

If this is true, then it seems appropriate to comment the *Light-Space-Modulator* by paraphrasing Johnson. In *Owning Your Own Shadow*, he states that the creativity of a genius has the capacity to capture the beauty and darkness of the world in such a way that it is precisely through the shadows of the world that it creates and accentuates world's wholeness, which therefore becomes a full-blooded image of our humanity, thus – and only thus – approaching the sacredness of the world. In contrast to works of artistic genius, a one-sided interpretation of the world as good and bright is devoid of vitality or life.

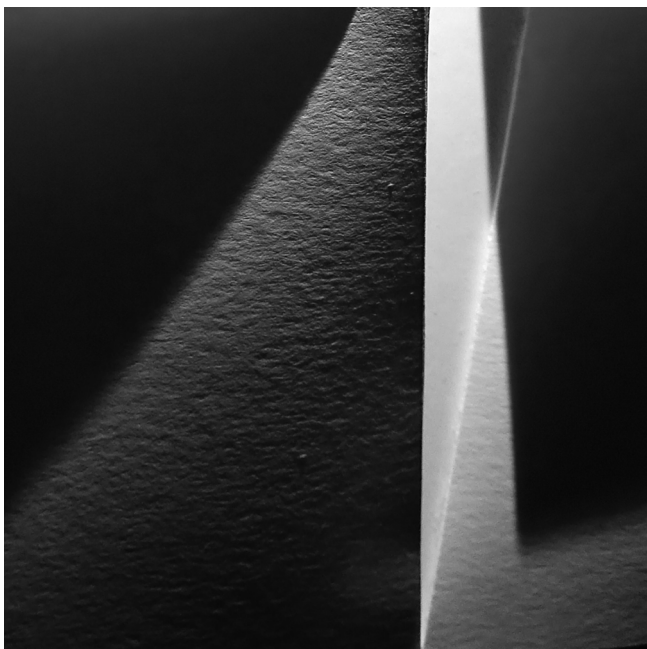


Fig. 2: paper model of micro natural structure and photo:

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