LASZLO MOHOLY-NAGY. *From the Radio Tower, Berlin.* ca. 1928. Gelatin-silver print. Art Institute of Chicago, Chicago.

"The receding and advancing values of the black and white, grays and textures, are here reminiscent of the photogram."
—Moholy-Nagy.

11 · IN QUEST OF FORM

In 1913 Alvin Langdon Coburn, a member of the Photo-Secession, included in his one-man show at the Goupil Gallery, London, a series of five photographs under the title *New York from its Pinnacles*. They were views looking down, and the distorted perspective emphasized the abstract pattern of streets and squares and buildings. In the catalog he pointed out that one of them, *The Thousand Windows*, was

almost as fantastic in its perspective as a Cubist fantasy; but why should not the camera artist break away from the worn-out conventions, that even in its comparatively short existence have begun to cramp and restrict his medium, and claim the freedom of expression which any art must have to be alive?

In this photograph the camera axis is oblique; our sense of equilibrium is challenged, and the facades seem trapeziform planes arranged as in an abstract painting. An extremely wide angle of view adds to the effect: to achieve this Coburn used a pinhole in place of a lens "because it can be the widest angle of any wide angle 'lens'!"[1]

A few years later Coburn produced completely abstract photographs by devising an optical device based on the kaleidoscope. He clamped three mirrors together facing one another to form a hollow triangular prism through which he photographed bits of crystal and wood on a glass tabletop. His friend Ezra Pound, poet and spokesman for the Vorticist group of English abstract painters, called the instrument a *vortoscope* and the results *vortographs*. Coburn held an exhibition of them together with some of his recent paintings in 1917. The paintings were representational; Pound, in his speech at the opening, dismissed them as "Post-Impressionist," but for the vortographs he had high praise. Coburn's venture into abstract art, however, was brief and he laid the vortoscope away and made no more exposures with it.

Christian Schad, a member of the Zurich Dada group of modern artists, produced in 1918 abstractions made photographically without a camera. Using the technique dating back to H. Fox Talbot's first experiments, Schad laid cutout paper and flat objects on light-sensitive paper which, upon exposure to light, recorded designs closely resembling those Cubist collages made of newspaper clippings and bric-a-brac stuck onto canvas with glue.

Around 1921 Man Ray (an American painter in Paris) and László Moholy-Nagy (a Hungarian painter working in Berlin) began to make their somewhat similar *rayographs* and *photograms.* They went further than Schad, for they put three-dimensional objects on the sensitive paper; thus not only contours were recorded, but, cast shadows, and in the case of translucent objects, textures as well. The apparent automatism of the process appealed to the Dada-Surrealist sensibility: both Man Ray and Moholy-Nagy chose gear wheels and small machine parts for their early compositions, which bear a striking resemblance to the designs Francis Picabia made in a similar "automatic" way by dipping springs, toothed wheels, and pinions of an alarm clock in ink and then pressing them to paper. Moholy-Nagy's later photograms are exercises in light and form, architectonic in composition: to him the objects placed on the sensitive paper were "light modulators" and no longer identifiable objects.

Man Ray, on the other hand, chose objects for their evocative value: the twelve rayograms he published in 1922 as *Les Champs délicieux* ("Delectable Fields") contain such objects as a key tagged with a hotel room number, a pistol, a fan, a spinning gyroscope, a strip of motion picture film. His friend Tristan Tzara wrote in an introductory essay to the portfolio:

The photographer turned on the thousand candle power of his lamp and little by little the sensitive paper soaked up the black silhouetted by everyday objects. He had discovered the power of a tender, fresh lightning flash which goes beyond all constellations intended for visual pleasure. The precise, unique and exact mechanical alteration of form is fixed—as sleek as hair filtered through a comb of light.[2]

Everybody knows that when a camera is not held level, buildings seem to be falling down or about to topple over. Academic perspective is based on vanishing points situated on the horizon, which is always placed at eye level. That this is a convention anyone can prove by glancing up the side of a tall building or looking down upon one. The parallelogram of the facade becomes trapezoidal. As

ALVIN LANGDON COBURN. *The House of a Thousand Windows, New York,* 1912. Gelatin-silver print. George Eastman House, Rochester, N.Y.

early as 1840, Arthur Parsey in his book *The Science of Vision; or, Natural Perspective. . . . Containing the New Optical Laws of the Camera Obscura or Daguerreotype,* demonstrated that converging perpendiculars of the camera image were indeed mathematically correct and concluded: "Art has always represented objects geometrically, or as *they cannot be seen* in the *perpendicular* and visually, or as *they can be seen* in the *horizontal* direction."[3] But his findings were ignored. Indeed, amateurs were warned in manuals and instruction books never to tip the camera. Many hand cameras were even equipped with levels to assure the viewer that he was holding the camera horizontally.

But now, in the 1920s, photographers found the "new perspective" rich in compositional possibilities. The architect Erich Mendelsohn, pioneer of the International Style, made photographs of the skyscrapers of New York and the grain elevators of the Middle West by pointing the camera now upward, now downward. They were published as *Amerika: Bilderbuch eines Architekten* ("America: Picture Book of an Architect") in 1926.[4] Some of the photographs were so extreme that they became virtual abstractions, and Mendelsohn felt the need to state in the captions that they were *Schrägaufnahmen* ("oblique shots"). The Russian Constructivist artist El Lissitzky wrote that the book

is incomparably more interesting than the photographs and postcards of America that we have known up to now. Leafing through the pages for the first time grips us like a dramatic film. Completely strange pictures unwind before our eyes. You have to hold the book over your head and twist it around to understand some of the photographs. The architect shows us America, not from the distance, but from the inside; he leads us through the canyons of its streets.[5]

El Lissitzky's fellow countryman Alexander Rodchenko, who abandoned Constructivist painting to become a professional photographer, disdained photographs taken with the camera held level at the waist. "Bellybutton shots" he called them in 1928:

In photography there is the old point of view, the angle of vision of a man who stands on the ground and looks straight ahead or, as I call it, makes "bellybutton" shots. . . .
I fight this point of view, and will fight it, along with my colleagues in the new photography.
The most interesting angle shots today are those "down from above" and "up from below," and their diagonals.[6]

The influence of avant-garde filmmakers is obvious in the still camera work of "the new photography," not only in angle shots, but also in extreme close-ups. The abstract painter Fernand Léger, who was fascinated by the motion picture medium and directed *Le Ballet mécanique* (1924) wrote:

ALVIN LANGDON COBURN. *Vortograph.* 1917. Gelatin-silver print. George Eastman House, Rochester, N.Y.

When asked which was the top of this image, Coburn replied, "It does not really matter 'which way up' a good 'Vortograph' is presented, but you have this one right." (Letter to Beaumont Newhall, January 15, 1963.)
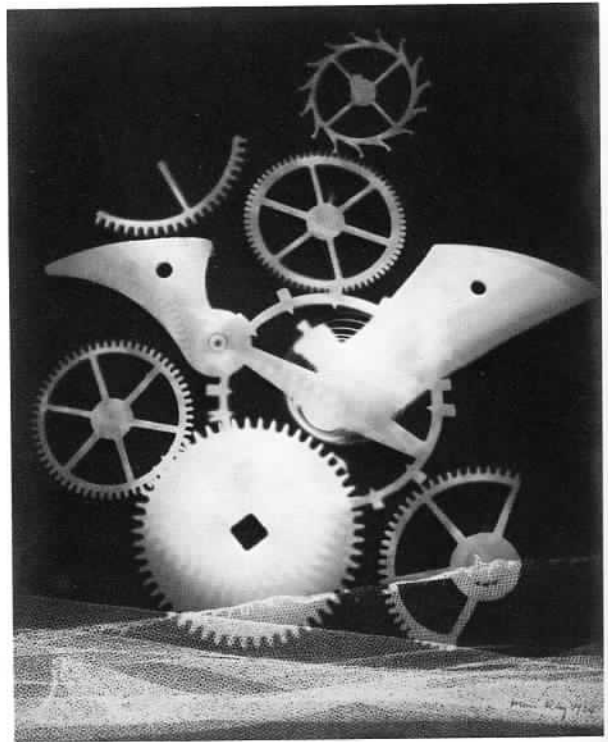

CHRISTIAN SCHAD. *Schadograph.* 1918. Photogram on aristotype paper. The Museum of Modern Art, New York.

MAN RAY. *Still Life of his Painting "Dancer/Danger" with Banjo.* 1920. Gelatin-silver print. Collection Arturo Schwarz, Milan.
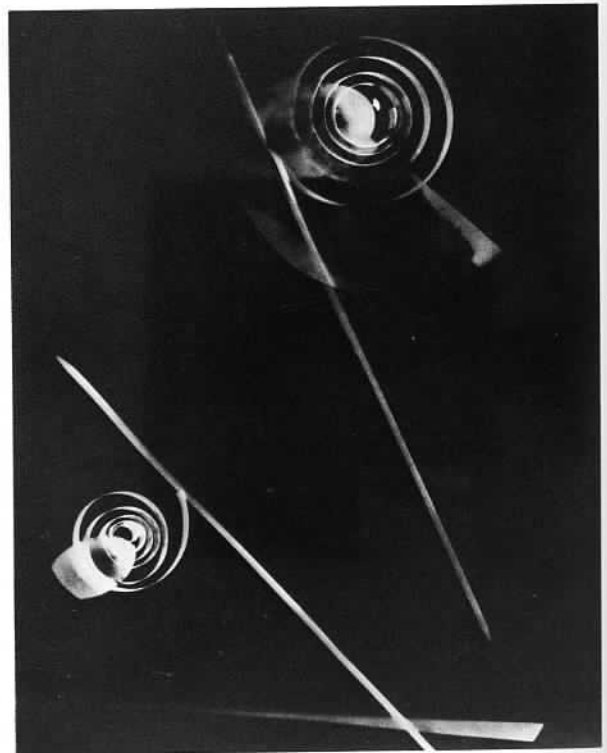
Man Ray painted *Dancer/Danger* by putting gear wheels on the glass and spraying them with an airbrush.

MAN RAY. *Rayograph.* 1924. Gelatin-silver print. Private collection.

FRANCIS BRUGUIERE. *Cut-paper Abstraction.* ca. 1927. Gelatin-silver print. George Eastman House, Rochester, N.Y.
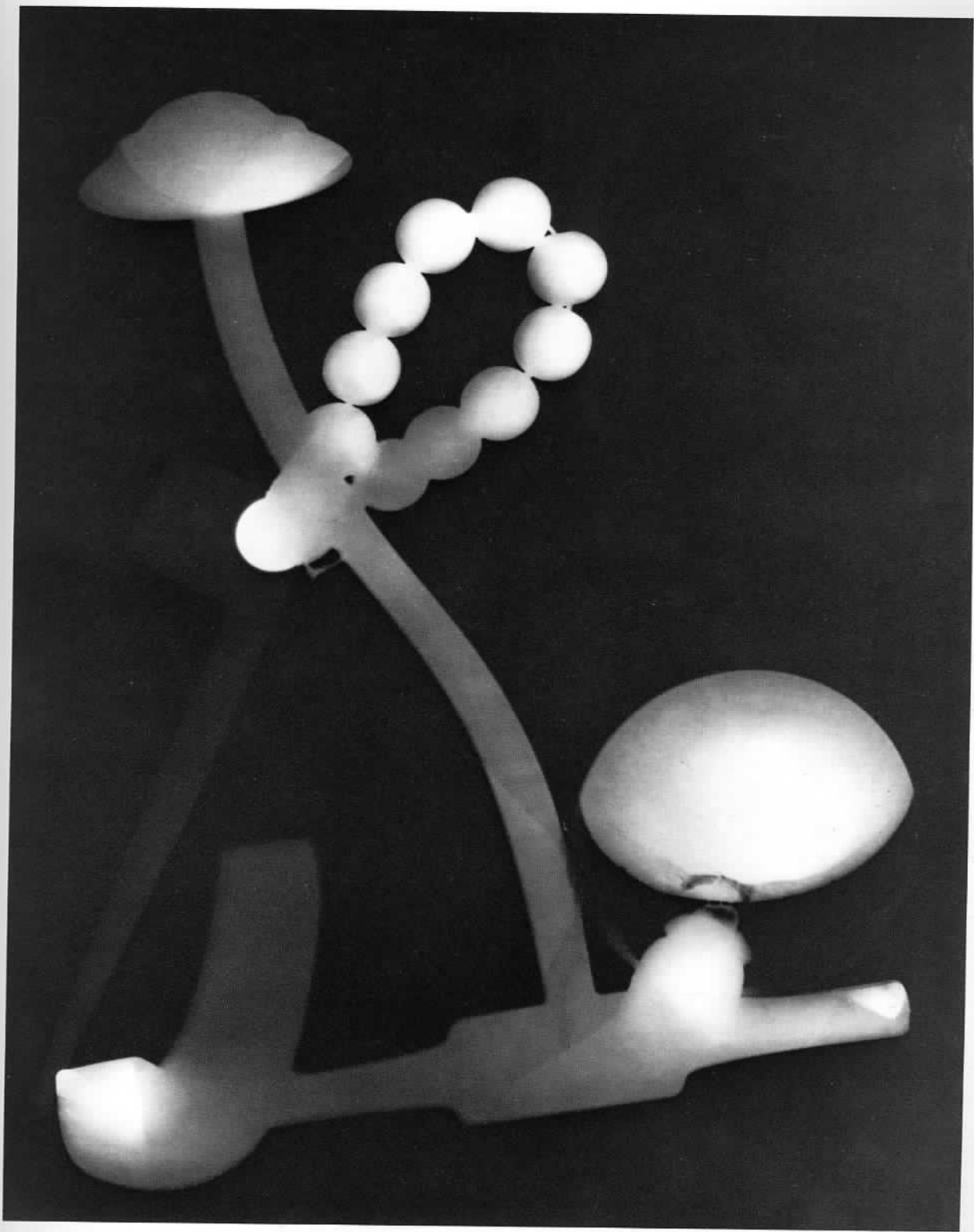

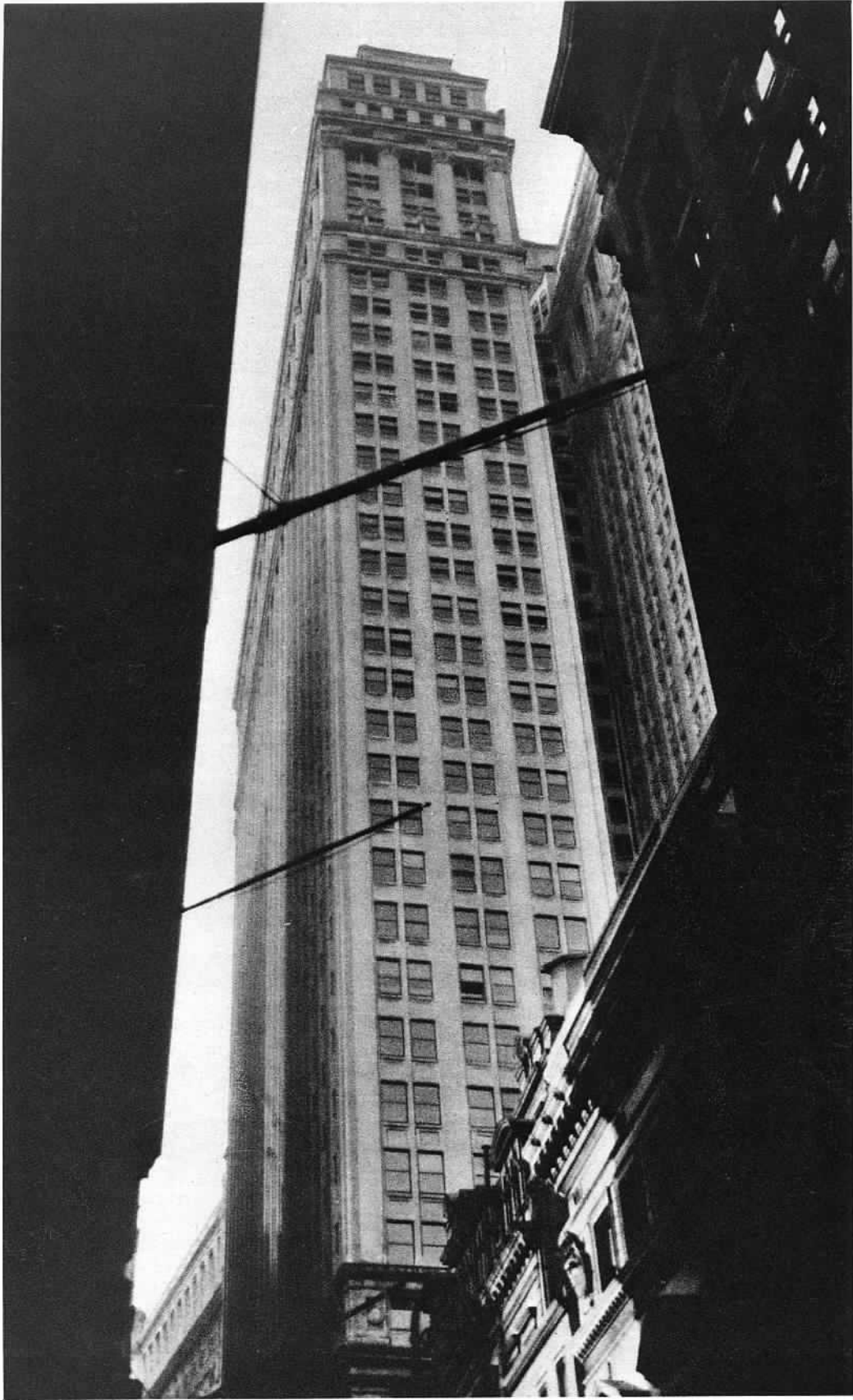LASZLO MOHOLY-NAGY. *Photogram.* ca. 1925. Gelatin-silver print. George Eastman House, Rochester, N.Y.

MAN RAY. *Rayograph.* 1922. Gelatin-silver print. From *Champs délicieux* (Paris: 1922). The Museum of Modern Art, New York.
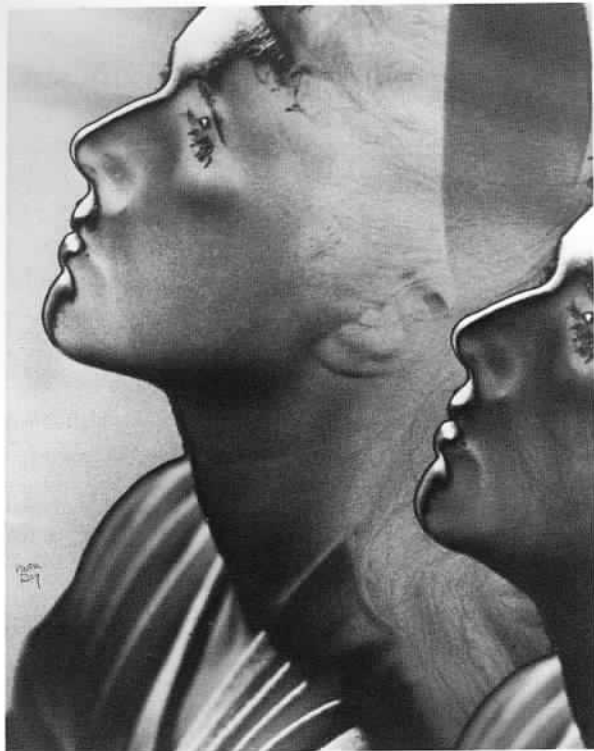
ERICH MENDELSOHN. *Equitable Trust Building, New York.* ca. 1924. From *Amerika, Bilderbuch eines Architekten* (Berlin: 1926).

ALEXANDER RODCHENKO. *Woman at the Telephone.* 1928. Gelatin-silver print. The Museum of Modern Art, New York.

MAN RAY. *Faces.* 1932. Solarized gelatin-silver print. Menil Foundation Collection, Houston.

ALEXANDER RODCHENKO. *Portrait of Alexander Schewts-chenko, Russian Painter.* 1924. Gelatin-silver print. George Eastman House, Rochester, N.Y.

"What does that represent?" has no meaning: for example: with a brutal lighting of the fingernail of a woman—a modern fingernail, well manicured, very brilliant, shining—I make a movie on a very large scale. I project it enlarged a hundredfold, and I call it "Fragment of a Planet, Photographed in January, 1934." Everybody admires my planet. Or I call it "abstract form." Everybody either admires or criticizes it. Finally I tell the truth—that what you have seen is the nail of the little finger of the woman sitting next to you.

Naturally, the audience leaves, vexed and dissatisfied, because of having been fooled, but I am sure that hereafter those people won't ask any more of me and won't repeat that ridiculous question: "What does that represent?"[7]

The artist-photographers of the 1920s also explored double-exposures. One of the most successful is Rodchenko's portrait of Alexander Schewtschenko (1924) showing the painter in profile as well as full face.

The negative image was appreciated for its own sake. As Moholy-Nagy wrote, "The transposition of tones transposes the relationship, too."[8] The unreality of the negative throws emphasis upon shapes and contours not usually seen.

The phenomenon of edge reversal, known to scientists as the *Sabattier effect,* was used as a plastic control, particularly by Man Ray. When a sensitive emulsion that has been developed, but not fixed, is exposed to naked light and developed again, the image shows a reversal of tones wherever there is a sharp edge. A print from such a negative has its contours rimmed with black lines. The process is generally known in artistic circles as *solarization,* although that term is reserved by scientists for a somewhat similar phenomenon of edge reversal caused by gross overexposure, particularly noticeable in daguerreotypes and platinum prints.

Man Ray also made negative prints, processed both normally and with edge reversal. He diffused the image by deliberately increasing the size of the silver grains. These controls are adaptations of the photographic process. Other physical methods of distorting the camera's image have been devised. Texture is introduced into the gelatin emulsion of the negative by subjecting it to rapid temperature changes, producing reticulation, a netlike structure in the normally transparent film. Or the gelatin is melted so that the image it bears droops and sags. A pseudo bas-relief appears when a negative and transparent positive are printed together slightly out of register. These methods have all been used singly or in combination by photographers who are impatient with the limitations imposed upon the medium by those who consider its function to produce conventional, readily understood images.

To Moholy-Nagy the camera was a tool for extending

206

vision. Once, looking at a photograph he had taken years previously from a bridge tower at Marseilles, his attention was held as if it were a new thing and the work of another. "What a wonderful form!" he said, pointing to a coiled-up rope. "I never saw it before!" It did not matter to him who had taken the photograph, or why. His quest for form led him to appreciate photographs taken for scientific and other utilitarian purposes.[9] In them he found a "new vision" of the world. His 1925 *Malerei, Photographie, Film* ("Painting, Photography, Film"), in the Bauhaus series of books, contains not only a selection of photograms and photographs made by himself and other artists deliberately as works of art, but an equal number of astronomical photographs, photomicrographs, x-ray exposures, aerial views, and news pictures.

Many other avant-garde artists were greatly influenced by scientific photographs. Marcel Duchamp stated that when he was painting his famous *Nude Descending a Staircase* in 1912, art circles in Paris were stimulated by the multiple-exposure, high-speed photographs taken by Etienne Jules Marey for his physiological studies. The Futurist painters were also greatly influenced by this type of photography. Giacomo Balla's 1912 painting *Dynamism of a Dog on a Leash* is truly stroboscopic: the dog appears to have a multitude of feet and tails. The Italian photographer and filmmaker Anton Giulio Bragaglia took issue with Marey and Balla. He felt that intermittent exposures did not reveal the continuum of motion, and compared Marey's photographs with a clock so built that the hands jumped at five-minute intervals. To produce a dynamic record of the trajectory of action, Bragaglia made time exposures of people in action. He called his work "photodynamism," and published a number of them in his book *Fotodinamismo futurista* (1913).[10]

The architect Le Corbusier chose an aerial photograph of the Eiffel Tower in Paris for the cover of his book *Decorative Art of Today* (1925); from the same photograph Robert Delaunay made a painting. Le Corbusier pointed out that the illustrations in popular scientific magazines

take the cosmic phenomenon to pieces under our eyes; amazing, revealing and shocking photos, or moving diagrams, graphs, and figures. We are attacking the mystery of nature scientifically. . . . It has become our folklore.[11]

There was also a great interest in what was described as "phototypography," a word coined to describe photomontage, photocollage, and the mixture of type and photographic image.
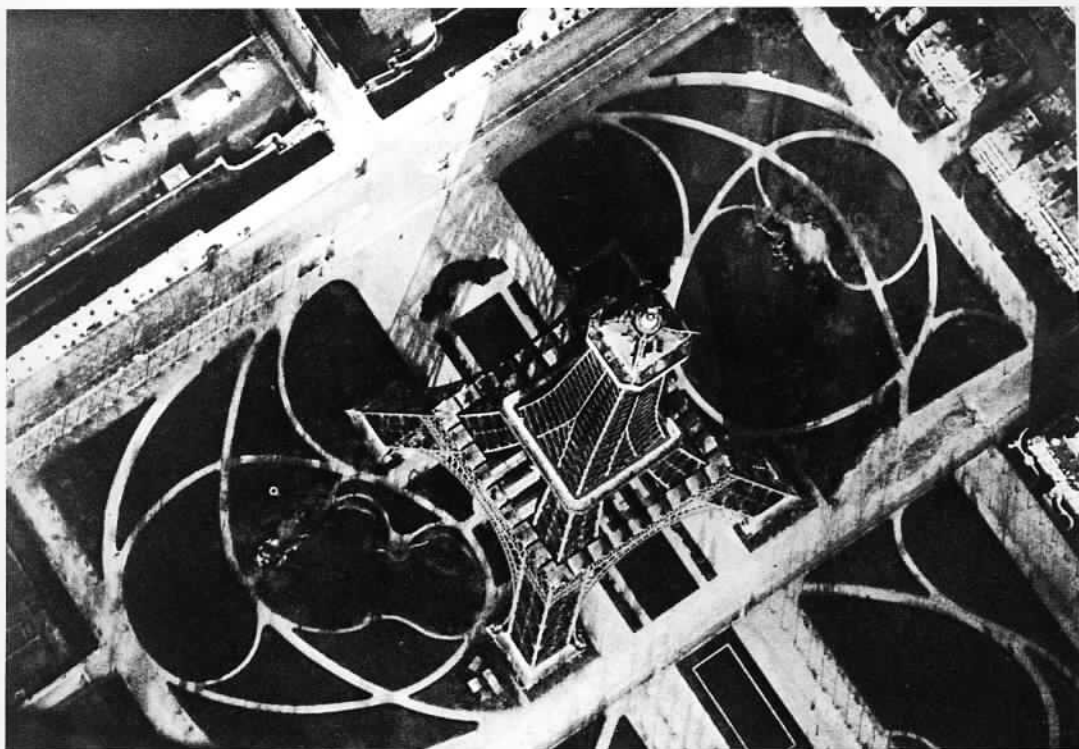

ALEXANDER RODCHENKO. *Chauffeur.* 1933. Gelatin-silver print. The Museum of Modern Art, New York.

ANTONIO GIULIO BRAGAGLIA. *Greetings!* 1911. From *Fotodinamismo futurista* (Rome: 1913). Courtesy Centro Studi Bragaglia, Rome.
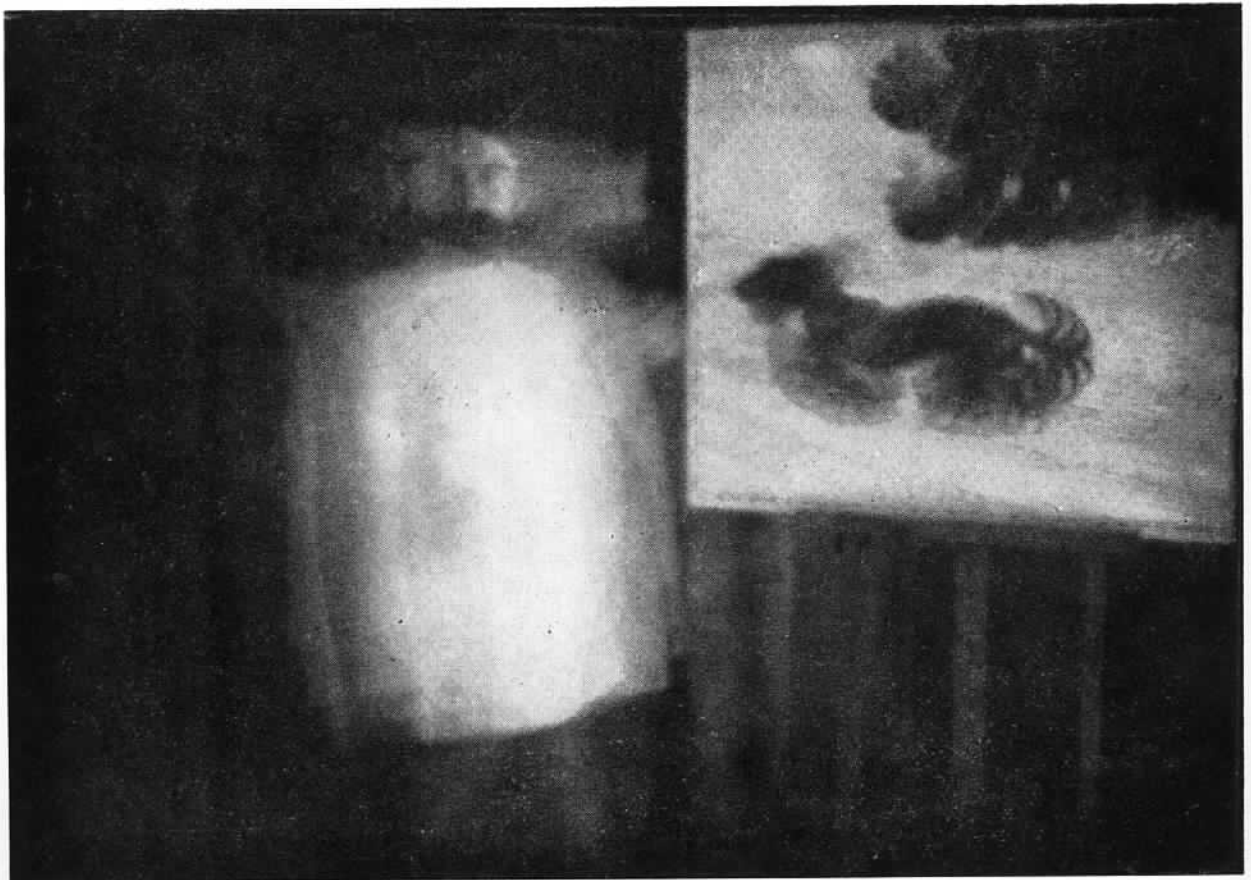
ANTONIO GIULIO BRAGAGLIA. *The Futurist Painter Giacomo Balla.* 1912. From *Fotodinamismo futurista* (Rome: 1913). Courtesy Centro Studi Bragaglia, Rome.

Photographer unknown. *The Eiffel Tower, Paris, from a Balloon*. From André Schecher and S. Omer-Decusgis, *Paris vu en ballon* (Paris: ca. 1909).
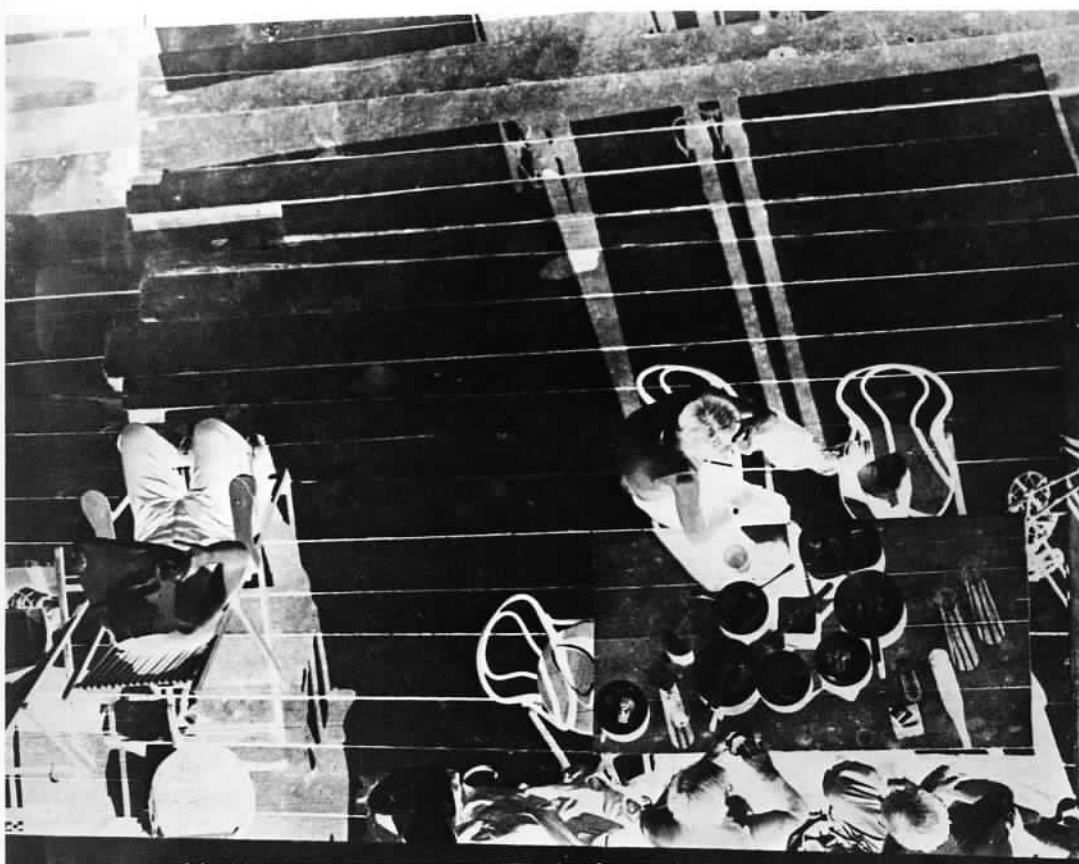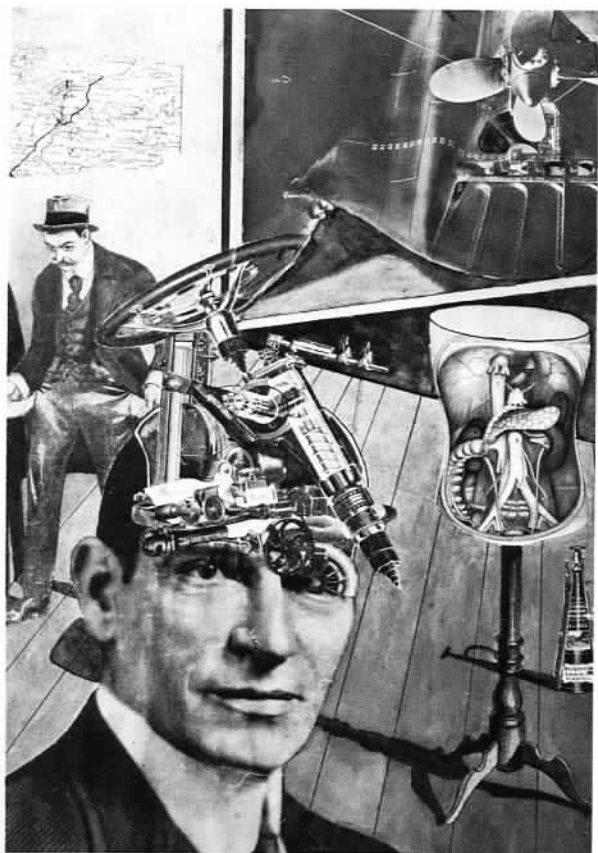

HERBERT BAYER. *Sundeck*. 1930. Gelatin-silver print. The Museum of Modern Art, New York.

HANNAH HOCH. *The Millionaire, or High Finance.* 1923. Photomontage, from L. Moholy-Nagy, *Malerei, Photographie, Film* (Munich: 1925).

RAOUL HAUSMANN. *Tatlin at Home.* 1920. Pasted photoengravings, gouache, and pen and ink. Moderna Museet, Stockholm.

The pasting together or otherwise combining of separate and disparate pictures to form a new visual entity was one of the most striking contributions of the artists of the 1920s. Their work, though not technically dissimilar to the "combination prints" by H. P. Robinson, Rejlander, and other nineteenth-century photographers, was utterly different in intent and result. While the Victorians carefully fitted photographs together, as in a jigsaw puzzle, to produce a cohesive image resembling an academic painting, the men and women of the 1920s assembled pictures that widely varied in subject, perspective, scale, and tonal value. Each individual image reacted with its neighbor in sympathetic reinforcement or in violent opposition. The process was no doubt inspired by the introduction into abstract paintings of printed matter—usually newspaper clippings—and small objects that were glued to the canvas. Hence these works were referred to as *collages*, from the French verb *coller*, meaning "to glue."

The beginning of photomontage as an artistic medium may be traced to the Dada group of modern painters. Wieland Herzfelde, the brother of the brilliant *photomonteur* John Heartfield,* described the process in the catalog of the first Berlin Dada exhibition in 1920:

Painting once had the express purpose of recording the appearance of things—landscapes, animals, buildings, etc.—which people could not get to know with their own eyes. Today this task has been taken over by photography and film, and is accomplished incomparably better, more perfectly than ever was done by painting.

Yet painting did not die with this loss of purpose, but sought new goals. All artistic efforts since then—however great their differences—share this trend of emancipation from reality.

Dadaism is the reaction to every attempt to deny the factual, which has been the motive force behind the Impressionists, the Expressionists, the Cubists and—since they have not wished to surrender to film—the Futurists....

Dadaists say: while in the past vast quantities of love, time and effort were put into painting a person, a flower, a hat, a cast shadow, etc., we just take a pair of scissors and cut out all the things we need from paintings or photographs. If we need small-sized things, we do not represent them, but take the object itself, for example a pocket knife, an ash tray, books, etc.; simple things that in the museums of old art are beautifully painted. But, even so, only painted.[12]

Popular imagery, especially in the form of fantastic postcards, greatly influenced the pioneers. George Grosz and John Heartfield traced the origin of their montages to anonymous messages they sent to friends in combat in World War I. They pasted on postcards "a mischmasch

---

*He anglicized his name as a protest to German nationalism in World War I.

of advertisements for hernia belts, student song-books and dog food, labels from schnaps and wine-bottles, and photographs from picture papers, cut up at will in such a way as to say, in pictures, what would have been banned by the censors if we had said it in words."[13] Hannah Höch recollected that she and Raoul Hausmann, with whom she often collaborated, saw in a hotel room at a summer resort a chromolithograph of a uniformed soldier standing against a background of the regimental barracks and surrounded by military symbols. The face of the soldier, however, was cut out of a photograph and pasted on the lithograph in the blank space reserved for it.

Hannah Höch's photomontages are complex, powerful, and often menacing. In *The Millionaire* (1923) two industrial magnates hold machine parts. Between their fragmented heads is a gigantic rifle, broken at the breech for loading. In the background aerial views of cities are patched together with a vast factory complex, and an enormous tire, on the treads of which drives a truck and trailer. Raoul Hausmann has described the process of making his photomontage *Tatlin at Home* (1920):

To have the idea for an image and to find the photos that can express it are two different things. . . . One day, I was aimlessly leafing through an American periodical. Suddenly I was struck by the face of an unknown man, and for some reason I made an automatic association between him and the Russian Tatlin, the creator of machine art.

But I preferred to portray a man who had nothing in his head but machines, automobile cylinders, brakes, and steering wheels. . . .

Yes, but that was not enough. This man ought also to think in terms of large machinery. I searched among my photos, found the stern of a ship with a large screw propellor, and set it upright against the wall in the background.

Wouldn't this man also want to travel? There is the map of Pomerania, on the wall at the left.

Tatlin certainly wasn't rich, so I clipped out of a French paper a man with furrowed brows, walking along and turning his empty pants pockets inside out. How can he pay his taxes?

Fine. But now, I needed something at the right. I drew a tailor's dummy in my picture. It still wasn't enough. I cut out of an anatomy book the internal organs of the human body and placed them in the dummy's torso. At the feet, a fire extinguisher.

I looked once more.

No, there was nothing to change.

It was all right, it was done![14]

During the German Third Reich, Heartfield made the most biting of political comments in the photomontage medium. *The Spirit of Geneva,* a dove of peace impaled on a bayonet, appeared on the cover of *AIZ* (*Arbeiter Illustrierte Zeitung,* "Workers' Illustrated Newspaper")

MAX ERNST. *LopLop Introduces Members of the Surrealist Group.* 1930. Collage of pasted photographs and pencil. The Museum of Modern Art, New York.

PAUL CITROEN. *Metropolis.* 1920. Photomontage. Printroom of the University of Leiden, The Netherlands.
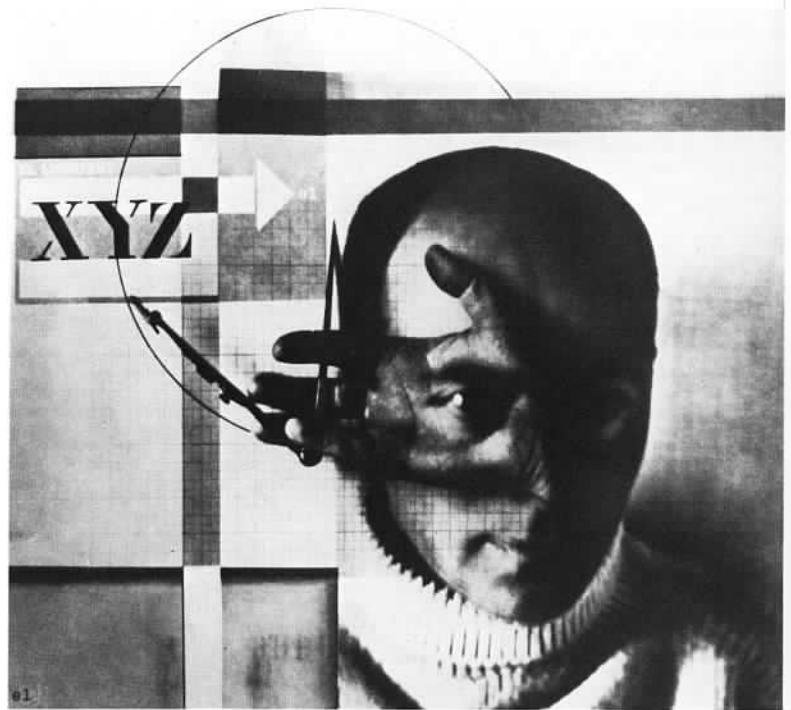
EL LISSITZKY. *The Constructor—Self-Portrait.* 1924. Photomontage. Courtesy VEB Verlag der Kunst. Dresden.

for November 27, 1932. He continued many similar covers for that periodical.

Alexander Rodchenko produced many photomontages reminiscent of the style of the Dadaists, but with a dynamism wholly original: his photomontage illustrations to *Pro Eta* (1923), a book of poems by Vladimir Mayakovski, form a striking continuity, with repetition of the face and haunting eyes of the same woman, introduced in a wide variety of situations. El Lissitzky superimposed his own photographs for his self portrait, titled *The Constructor* (1927). It is, like few other photomontages, completely photographic in its double exposure of face and hand.

Of the Bauhaus group, Paul Citroen piled building upon building to produce a 30 x 40-inch photomontage that Moholy-Nagy called "a gigantic sea of masonry." Moholy-Nagy's own photomontages are highly imaginative, often to the point of fantastic satire. In *Jealousy* (1927) the artist steps out of a negative, leaving a void filled by a squatting woman with a rifle at the ready. In *Leda and the Swan* (1925) the photographic elements are balanced in a delicate linear web.

In 1929 a mammoth international exhibition of "The New Photography" was held in Stuttgart by the Deutsche Werkbund, the German organization so instrumental in the promotion of modern architecture and industrial design. The "Film und Foto" exhibition featured photographs by the artists we have discussed in this chapter, and also a strong group of American photographs se-

lected by Edward Weston—who also wrote a foreword to the catalog—and Edward Steichen. The American work was highly praised. Indeed, the art historian Carl Georg Heise considered Weston's portrait *The Sharpshooter— Manuel Hernandez Galván* the high point of the entire exhibition.

A traveling version of this highly successful and influential exhibition was shown in Berlin, Munich, Vienna, Zagreb, Basel, and Zurich.[15] In addition to exhaustive reviews in the daily press and both art and photographic periodicals, two books were published about the exhibition. *Foto-auge/oeil et photo/photo-eye,* edited by Franz Roh and the typographer Jan Tschichold, with trilingual text and seventy-six illustrations, is a record of the show.[16] A lively manual, Werner Graeff's *Es kommt der neue Fotograf!* ("Here Comes the New Photographer!"), bold in its layout and selection of illustrations, forms a catalog of the plastic possibilities of photography.[17]

A film festival was held during the exhibition. Among the classics that were screened were *The Passion of Joan of Arc* (Carl Dreyer, 1929), *L'Etoile de Mer* (Man Ray, 1928), *Potemkin* (Sergei Eisenstein, 1925), *Variety* (E. A. Dupont, 1925), and *Man With a Movie Camera* (Dziga Vertov, 1928). These films were all made by directors and cameramen sympathetic to "The New Photography." And, conversely, the photographers learned from the filmmakers. Not before, and not since, have the two media so closely blended.

JOHN HEARTFIELD. *The Meaning of Geneva/Where Capital Lives/Peace Cannot Survive.* Cover of *Arbeiter Illustrierte Zeitung,* November 27, 1932.

"In Geneva, site of the League of Nations, workers demonstrating against fascism were machine gunned down: 15 dead and more than 60 wounded lying on the plaza. . . . The dove of peace is transfixed by the fascist bayonet before the League of Nations building. On the flag the white cross has been replaced by a swastika."—*Photomontages of the Nazi Period: John Heartfield* (New York: 1967).
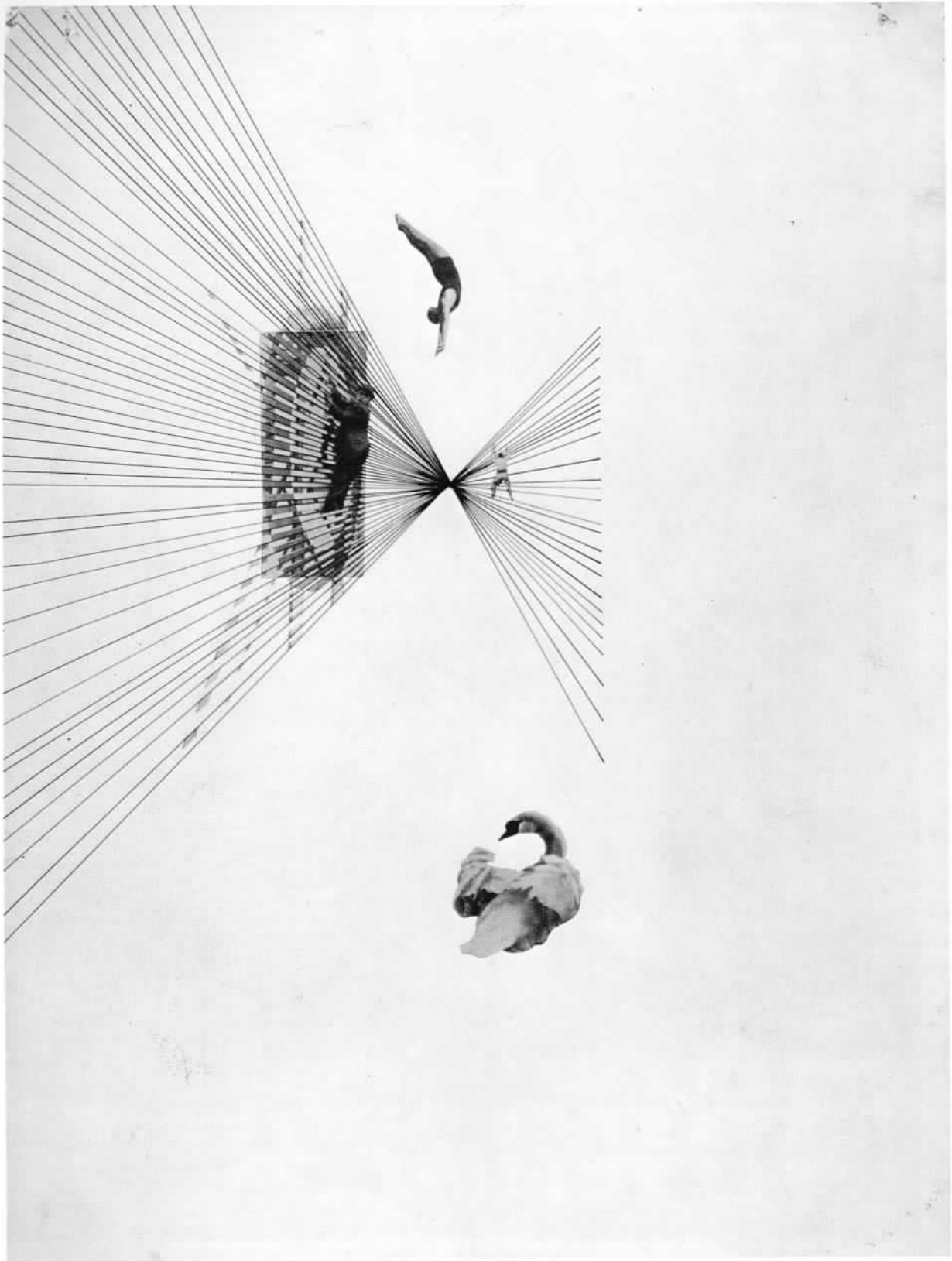
LASZLO MOHOLY-NAGY. *Leda and the Swan*. 1925. Photomontage and ink. George Eastman House, Rochester, N.Y.

LASZLO MOHOLY-NAGY. *Jealousy.* 1927. Photomontage and ink. George Eastman House, Rochester, N.Y.

THE HISTORY OF
PHOTOGRAPHY

Beaumont Newhall