

BAUHAUSBÜCHER

SCHRIFTLEITUNG:
WALTER GROPIUS
L. MOHOLY-NAGY

L. MOHOLY-NAGY:
MALEREI, PHOTOGRAPHIE, FILM

8

L. MOHOLY-NAGY:

MALEREI PHOTOGRAPHIE FILM

ALBERT LANGEN VERLAG MÜNCHEN

László Moholy-Nagy.
Malerei, Photographie, Film
(Munich: Albert Langen, 1925).

“The New Visual Literature”: László Moholy-Nagy’s *Painting, Photography, Film*

PEPPER STETLER

László Moholy-Nagy’s *Malerei, Photographie, Film* (Painting, Photography, Film), published in 1925 as the eighth in the fourteen-volume *Bauhaus Books* series, is known as one of the most important yet perplexing statements on photography’s potential to revolutionize vision and communication.¹ In the twelve essays at the beginning of *Painting, Photography, Film*, each about three pages in length, Moholy-Nagy not only argues for a consideration of photography as a “means of creation” rather than “a mechanical process of recording” but announces that photography is the basis of perception in the modern world.² Scholars have described the book as a “lavishly illustrated document” and treated it as a text-based manifesto of the Bauhaus and New Vision photography.³ Yet, to call the photographs in the book “illustrations” is to misjudge their significance. The term suggests that the primary function of these images is to supplement the book’s text. However, the proportion of text to image alone contradicts this assumption. Hardbound in a bright yellow linen cover with red type, the book consists of forty pages of text displayed in a captivating typographic design, over seventy photographs collected from scientific and popular books and periodicals, and a fourteen-page spread titled “Dynamik der Gross-stadt” (Dynamic of the Metropolis), which was described by Moholy-Nagy as a film script, although the film was never produced. Given the amount of visual material in the book (photographs, as well as typographical forms such as abstract symbols, gridlike patterns, and bold outlines), the fact that *Painting, Photography, Film* has only recently been considered a visual object rather than a textual record is a remarkable oversight in scholarship on the interwar avant-garde.⁴

In what follows, I want to reorient our understanding of *Painting, Photography, Film* by treating its visual material as the focus of the book and exploring what kind of perceptual experience this material creates. My insistence on considering the perceptual rather than the exclusively visual realm of the photographic follows from

Jonathan Crary's important work, which acknowledges the problem of isolating vision as an autonomous area of study. Crary points out that perception is not exclusively a visual faculty but involves a multisensory involvement with the external world. He argues that a scholarly approach that separates vision from broader perceptual processes—sound and touch, for example—internalizes modernity's fragmentation and fracturing of the body into isolated and thus controllable sensory experiences.⁵ Here I want to bring these perceptual issues to bear on the act of reading by considering how the book format influences the way we view these photographs. For Moholy-Nagy, the book's structure allows for experimentation in space-time relationships that are based on principals of photography and film. Because the pages of the book move and are experienced temporally, they can potentially create a hybrid space between various forms of photographic media. Rather than affirming the book's obsolescence in the face of photographic technology, *Painting, Photography, Film* opens outward, invoking media such as illustrated magazines, newspapers, and films. Its first forty pages of text will advise us as we turn through the photographs and will be considered for their typographic and visual design. Through these essays, Moholy-Nagy draws our attention to the issues of perception that determined the book's organization. However, my purpose is to analyze *Painting, Photography, Film* not as a text that records Moholy-Nagy's theories on photography but as an object that compels visual analysis and demands a particular type of perceptual experience.

The Photographic Book as Paradox

In the first section of *Painting, Photography, Film*, Moholy-Nagy resolves that our eyes can no longer be a reliable source of perception.⁶ In an unabashedly technophilic tone, he declares the human body and especially the human eyes to be ill-suited for direct interaction with the quick pace and simultaneity of the modern world. These new conditions of perception demand that photography be used as a supplement to our own inadequate and atrophied visual facilities. Beyond its reproduction of a subject, a photograph is a perceptual model that induces particular sensations, stimuli, and responses. Moholy-Nagy defines photography as a productive medium, one that expands the world of the visible and leads to a “transformation of human perception.” Photography reveals “existences, which are not perceptible or recordable with our optical instrument, the eye,” and that only “can be made visible with the help of photography.”⁷ Better equipped to process the visual stimuli of the modern world than the human eye, photography “can complete our optical apparatus.”⁸

Moholy-Nagy argues that not only is photography able to show us things never

before seen, but it also represents a mode of perception that is separate from our habitual desire to decipher what we see through association and memory. Because photography stands in opposition to conventional vision, showing us that which is unfamiliar to our eyes, it offers a chance for perception in its purest and most immediate form, freed completely from associations with the past. Moholy-Nagy states that reproduction or the “repetition of already existing relationships” is “no more than a matter of virtuosity.”⁹ In this way, Moholy-Nagy speaks of photography as if it was not a medium of representation but a turn to pure vision without the interference of the mind. “Through formal and spatial connections,” he writes, “our eye completes the received optical phenomenon with our intellectual experience to create an image-concept [*Vorstellungsbild*], while the photographic apparatus reproduces the purely optical image and therefore shows recordings, distortions, shortenings, and so forth that are preserved in the optical.”¹⁰ But despite Moholy-Nagy’s insistence on the “purely optical image,” his discussion of photography is not limited to optical effects, forms, or intensities. His insistence on purity has more to do with photography’s isolation from our instinct to assimilate what we perceive through memory than with the dissociation of vision from other bodily senses. As we will see, *Painting, Photography, Film*’s photographic material incites an interaction of the senses—sight, sound, and touch in particular—and thereby stages a form of perception based on instinctual response rather than habit and experience.¹¹

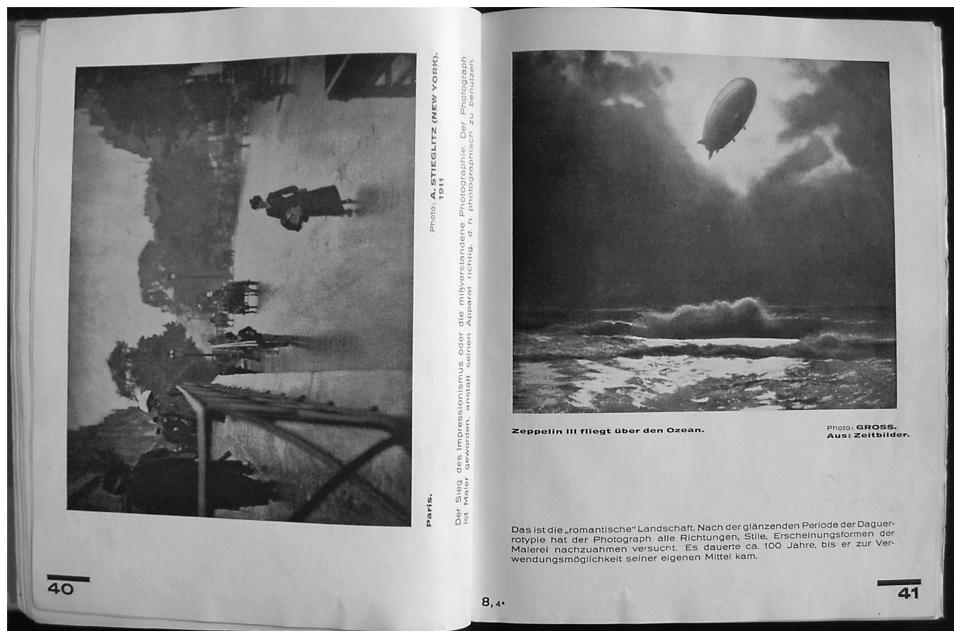
In an introductory note, Moholy-Nagy proclaims that *Painting, Photography, Film* was “assembled” [*zusammengestellt*] in the summer of 1924.¹² Such a description emphasizes two things: that the book’s photographs are its main focus and that these images were not created but chosen for the book.¹³ In an essay published in 1928, Moholy-Nagy explained how he selected the book’s photographic material from hundreds of images he had clipped and saved from illustrated magazines and other publications.¹⁴ As an enthusiast of Germany’s thriving illustrated press, Moholy-Nagy combed through a variety of publications and cut out his favorite images. In probably the most self-reflexive statement in the book, Moholy-Nagy comes close to directly addressing the way he chose its visual material:

Only now and then does one find really “good” photographs among the millions which appear in illustrated papers and books. What is remarkable in this and at the same time serves as proof is that (after a fairly long visual culture) we always infallibly and with sure instinct discover “good” photos, quite apart from the novelty or unfamiliarity of the “thematic” content.¹⁵

Despite a “long visual culture” that has accustomed viewers to certain conventional habits, the “purely optical” of photography manages to connect with a somatic instinct in viewers. According to Moholy-Nagy, this instinct can be revived, even trained, by immersing oneself in the enormous amount of photographic material being produced in “illustrated papers and books.” Moholy-Nagy asserts that photography can lead us to a form of perception that is simultaneously primitive (instinctual) and technologically advanced. *Painting, Photography, Film* aims to intensify this experience, conditioning the observer to stay alert and ready to respond to the new and thrilling visual information that incessantly arises.

Despite the book’s published and polished form, Moholy-Nagy’s selection of photographs from the illustrated press links *Painting, Photography, Film* to more private artistic projects produced in the second half of the Weimar Republic. Hannah Höch’s media scrapbook, a collection of photographs from various illustrated publications that the artist began in the late 1920s, serves as an important point of comparison.¹⁶ For instance, the photograph by Charlotte Rudolf on page 46 showing the famous dancer Gret Palucca in midleap is also preserved in Höch’s scrapbook, as is the photograph of zebras and guineas on page 78, which was taken from the *Berliner Illustrierte Zeitung*. Despite their obvious and important differences in form—published versus private, typographic versus strictly photographic—these books have much in common as products of interaction with the new perceptual world of photographic imagery in mass culture. As with Höch’s scrapbook, Moholy-Nagy’s encounter with photographs while thumbing through illustrated magazines and newspapers motivated *Painting, Photography, Film*’s assemblage. Avant-garde practices of collecting photographs, beginning roughly in 1925, have been discussed as a sharp turn away from the earlier photomontage practices of Dada, which deployed various tactics of fragmentation to intervene in the growing dominance of mass-media photography.¹⁷ Benjamin Buchloh has described this change in approach as part of a developing “confidence in photography’s versatility and reliability.”¹⁸ But *Painting, Photography, Film* is not a project of Dada critique, nor does it demonstrate the narrative or mnemonic capacities of photography. Instead, the book developed out of perceptual practices emerging at this time, and Moholy-Nagy’s process of collecting “good” photographs from the illustrated press attempts to manage overstimulation brought about by photographic media.

Distinct from other photographic books published during the Weimar Republic (and other books with photographs in general), the assemblage and sequencing of photographs in *Painting, Photography, Film* is specifically determined by Moholy-



Nagy's theory of perception. Given Moholy-Nagy's use of the book's images as part of a discussion on the perceptual potential of photography, *Painting, Photography, Film* is clearly not what we expect from a collection of photographs. Rather than assembling photographs to preserve the past, Moholy-Nagy's collection is explicitly antimnemonic.¹⁹ The sources of *Painting, Photography, Film*'s photographs are typed in a chart on the book's last pages, and the sprawling list records an overwhelming variety of subjects: photograms, X-rays, microscopic views of plants, close-ups of animals and machinery, photographs of stars and lightning, a bird's eye view of St. Paul's Cathedral in London, a worm's eye view of a factory tower, photomontages, split-second exposures and time-delayed images. The sequence presents views and suggests connections to which Moholy-Nagy's audience in the 1920s was unaccustomed, a *Weltanschauung* determined by the productive possibilities of photography and not yet assimilable through association or memory. The images are printed on both the verso and recto of the pages, which sets up a series of pairs as well as a continuous confrontation with visual information. Groups germinate and then abruptly end, like the small group of portraits—a publicity photo of the actress Gloria Swanson, a double exposure of Hannah Höch—that forms toward the end of the book not long after a cluster of photograms. Moholy-Nagy has kept some groups bunched together, but others are scattered throughout. Moments of faint recognition arise in which photographs vaguely reference earlier ones. For example, the photograph of hands placed around the perimeter of a table (a film still from Fritz Lang's classic *Dr. Mabuse*) on page 81 echoes the X-ray of hands arranged around the periphery of the image like hands on a Ouija board on page 60. Yet connections between images such as these are disturbed by other subjects, other thoughts that lie in between, hindering our ability to remember what we just saw several pages back. The photographs expose us to recondite visual information and accordingly strive to improve our perceptual capacity. In light of Moholy-Nagy's theory of photographic perception, we are supposed to respond instinctively to the variety of dramatic views assembled here, and pages are meant to be turned without presuming what comes next.

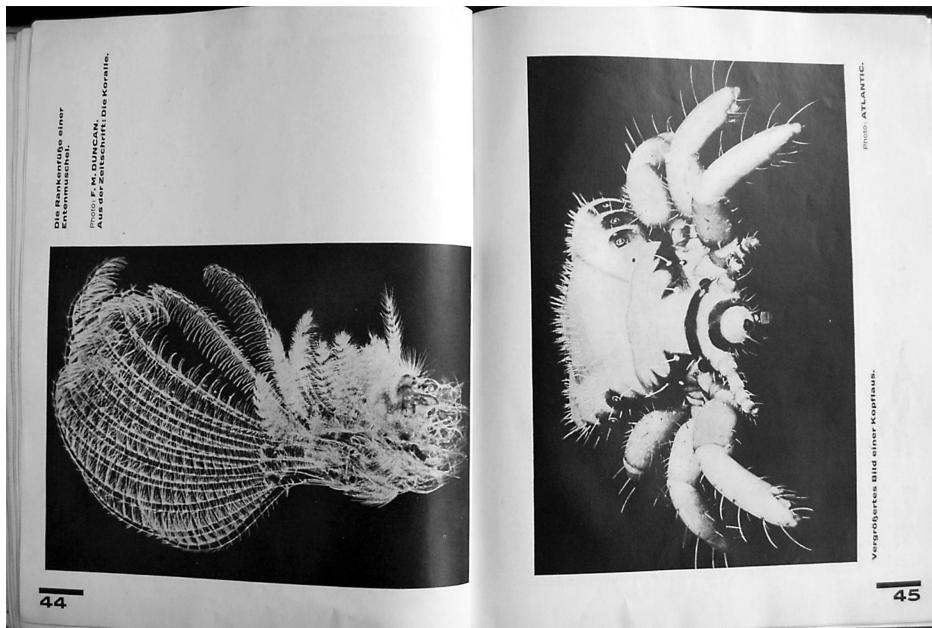
The first two pairs of images in the book address the distinction between reproductive and productive photography. On the left is a photograph of Paris by Alfred

Top: László Moholy-Nagy.
Malerei, Photographie, Film
(Munich: Albert Langen, 1925),
42–43.

Bottom: László Moholy-Nagy.
Malerei, Photographie, Film
(Munich: Albert Langen, 1925),
44–45.

Stieglitz taken in 1911. The caption reads: “The conquest of Impressionism or photography misunderstood. The photographer becomes painter.”²⁰ On the right, a similar admonition accompanies a photograph of a zeppelin, situated in the middle of clouds and flying above a tumultuous body of water: “This is the ‘Romantic’ landscape. After the brilliant period of the daguerreotype, photographers tried to imitate all directions, styles, and appearances of painting. It took approximately 100 years for it [photography] to come into its own possibility of application.”²¹ As examples of art photography and a prephotographic conception of vision, these two photographs stand as a preface to the rest of the photographic material in the book. Moholy-Nagy associates them with the tradition of providing an aesthetic complement to how our eyes see and opposes them to photography’s potential to introduce a new, unconventional form of perception, which his book then presents. We flip the page to find the theme of flight continued by a flock of cranes on the left and a squadron of seaplanes on the right. But in this pair the rules of perspective are abandoned; the visual field is tilted from the upright plane to the unanchored field of the blank, gray sky. The superiority of this form of vision is associated with technological progress in aviation. But more important, these views are stripped of any indication of depth or scale, and we are unable to assimilate them to familiar conventions of representation.

In the next two images, we see the foot of a barnacle and a head louse as we might under a microscope—enlarged and presented against a black background that sets off the glowing white details of these tiny creatures. These enlargements are followed later on in the book by X-ray photographs of other zoological specimens. In addition to these X-rays, which once possibly served a scientific purpose, the book includes other photographic contributions to biology, astronomy, physics, and zoology. Through these images, Moholy-Nagy addresses the importance of photography, freed from the limitations of human vision, to science’s quest for objectivity and truth. Yet the extension of vision beyond the capacity of the eye has long been an important part of scientific observation and illustration, and Moholy-Nagy was far from the first to evoke the camera-as-eye metaphor.²² He comments earlier in the book, in regard to photography’s enhancement of the eye, that “some scientific studies, the study of movement (stride, leap, gallop) and the magnification of zoological, botanical and mineral forms, and other scientific research” have made use of photography’s expansion of visual capabilities.²³ By including images of scientific study, Moholy-Nagy associates his theory of photographic perception with scientific objectivity and technological advancement.



But *Painting, Photography, Film*'s status as a scientific statement is complicated by its more eccentric and unsystematic features. Moholy-Nagy includes a number of photographic oddities—a man with four eyes and three chins, a horse's body elongated to a ridiculous length—that he refers to as “jokes” made possible by photography. These distortions show the flip side of photography’s employment as empirical evidence—its tendencies toward trickery, magic, and showmanship. In fact, the book’s juxtaposition of science with entertainment should be seen in relation to contemporaneous films that employed scientific imagery for popular amusement, such as those by Jean Painlevé.²⁴ The book’s unwieldy photographic collection oscillates between objective record and visual spectacle, yet these two polar categorizations reinforce each other. The photographs appear all the more wondrous because of their visual “truth,” and the status of the photographs as spectacle is upheld by

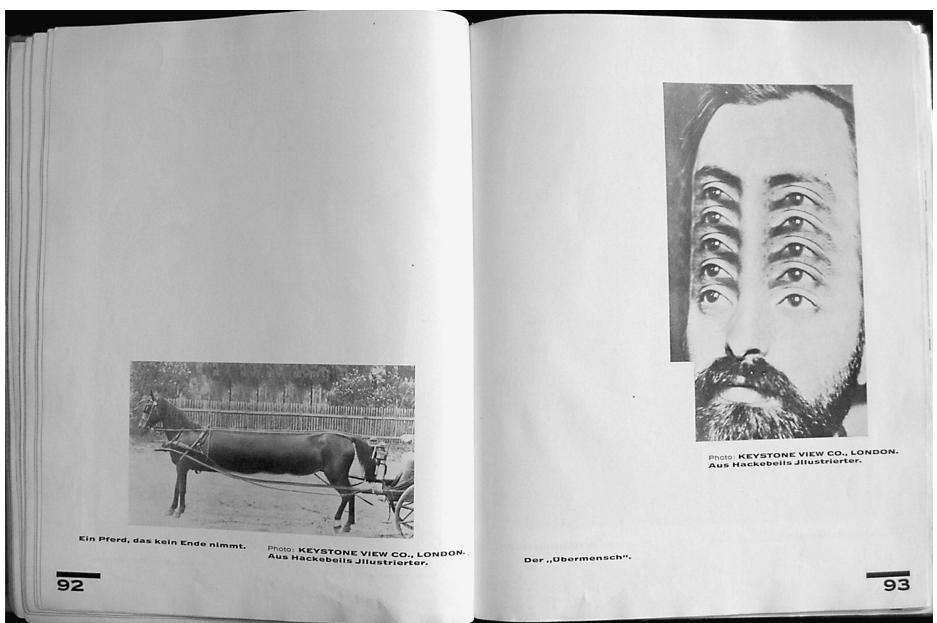
Top: László Moholy-Nagy.
Malerei, Photographie, Film
(Munich: Albert Langen, 1925),
92–93.

Bottom: László Moholy-Nagy.
Malerei, Photographie, Film
(Munich: Albert Langen, 1925),
46–47.

their foreignness to our own sense of sight. The photographs exemplify the double duty of the medium, capable of producing an objective, scientific truth while also providing a form of entertainment.

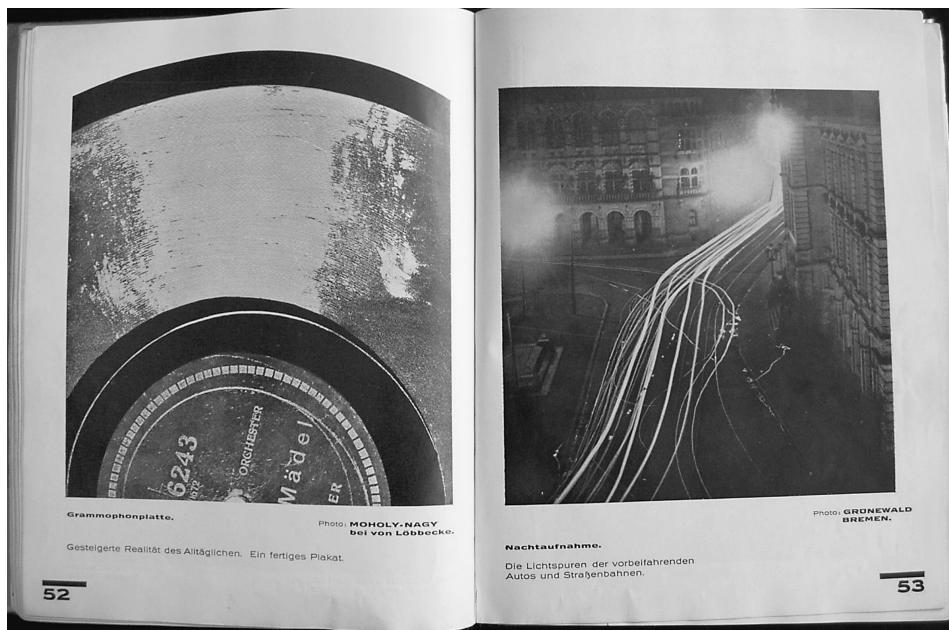
These first several pairs of images reinforce what Moholy-Nagy explains in the preceding text. But given his theorization of the new visual experiences made possible by photography, he likely would have been interested not only in the individual photographs but also the experience of viewing them as an unfolding sequence within the book. Moholy-Nagy introduces the sequence by stating, “I have separated the images from the text so that their continuity will make the problems raised in the text VISUALLY clear.”²⁵ That is, paging through the book’s photographic material will enact the instinctual, antimnemonic perceptual experience that his text previously described. This experience is largely based on the book’s temporal unfolding, but individual images also address the theme of photographic time. Pages 46 and 47 exhibit the camera’s ability to record split-second motion. The photograph of Gret Palucca in midleap is coupled with an image of a motorcyclist racing around a corner. This pair of images shows us motion not as our eyes see it, which would look something like an illegible blur, but as the camera captures it. To dispel doubt that the motorcyclist was in motion when the photo was taken, Moholy-Nagy includes the brisk phrase “Racing speed captured” in the upper-right corner. These photographs externalize and break up time experienced with our own eyes and replace it with a temporality that can be formed only in the photograph.

The temporal instant of the photograph has been understood as the basis for the paradoxical experience of time in the age of photography and film. If, as Mary Anne Doane has argued, time is re-created in film archivally, through the reassemblage of photographic instants, how does time within the photographic book compare?²⁶ Rather than conceiving of the photograph as a fragment or “point” of real time, as Doane does, Thierry de Duve has argued that the time captured is unique—that is, it never exists outside the space of the photograph.²⁷ It immobilizes the dancer forever in midleap, for example, and leads to a reconceptualization of time, which de Duve explores as an important feature of the photographic condition. He defines this condition as a paradox because there is no truly instantaneous photograph, only the asymptotic movement toward an indivisibly small measure of time. Each moment of exposure, however instantaneous, always defines a duration, and thus the difference between instant and duration is entirely arbitrary, the one dissolving into the other. The snapshot demonstrates a movement in time that depends on the camera. Yet it does not convey the sensation of seeing that movement in “real time.” When



looking at a snapshot, such as the one of the dancer or the motorcyclist, time is made strange and uncanny, only remotely related to the real. Moholy-Nagy uses the photographic series in the book to reinforce the paradoxical temporality of photography. Placing a photograph within a series emphasizes its status as a part within a whole, as instant within the overall temporal experience of flipping through the book. Yet the sequence of discontinuous instances in the book only faintly relates to the continuous flow of real time, to the experience and perception of time as duration.

Several pages after the pairing of dancer and motorcyclist, an image shows the movement of street traffic across the picture plane along with three circular glows that emanate from street lamps or other stationary sources. As in the earlier snapshots, this image complicates the difference between instant and duration. The split-second depiction of traffic is also a record of continual motion, of light moving



through space over a period of time. Inversely, the luminous glows appear like instant bursts of light from flash photography. As we move through the next few pages, the theme of light continues. From the eternity of the astral to the lightning flash, the subjects of the photographs grow increasingly ephemeral. On pages 56 and 57, photographs of celestial bodies, a “spectrum of stars photographed through a prism” and a “spiral cloud of stars” display the infinite reaches of photographic vision and reduce the subject of that vision to abstract contrasts between light and dark. Like the earlier photographs of the barnacle and head louse, these telescopic enlargements reveal imagery inaccessible to the human eye. Light is obviously fundamental to photography, part of the word itself. However, light appears entirely different in a photograph than it does to the naked eye. Photography’s representation of light thus exhibits the distinction of photographic vision from the perception of “real time” and “real space.” The theme of light continues on the next two pages, which show electrical currents and three images of lightning. These images are moments of split-second exposure, preserving an instant barely visible to the naked eye. The dramatic contrasts of dark and light and the changing formal patterns in this sequence evoke the intense visual experience of a lightning storm, but this series of images also suggests a film strip, time created through a series of punctuated events.

Painting, Photography, Film is filled with such temporal and spatial reconfigurations. Two photographs near the middle of the book show the perception of space through mirrored spheres. Toward the end of the book three strips of film show the creation of motion through the representation of successive instants. Such distortions are not limited to the individual photographs but shape the viewer’s own perception of the book itself. The serialization of these diverse instances leads to the experience of time as foreign and malleable, as a series of discontinuous fragments of the real. Vacillating between the two poles of instant and duration, the rhythm of paging through the book is jerky, caused by successive lags and restarts, drifts and commanding pulls, focusing, indifference, and refocusing. The book’s uneven pace forces us to readjust our attention on every page. Like contemporary experiments in nonnarrative, nonlinear cinema, the photographic sequence shows time and space fractured, warped, sped up, drawn out, multiplied, and externalized.²⁸ Time in *Painting, Photography, Film* is perpetually present yet also incoherent, and its fragmentary

László Moholy-Nagy.
Malerei, Photographie, Film
(Munich: Albert Langen, 1925),
52–53.

pace makes us particularly aware of the photographic sequence's paradoxical relationship to time.

In his analysis de Duve searches for photographic meaning beyond the semiotic, linguistic features by exploring the nature of our psychological response to the medium. The experience of timelessness, of nonspace that is associated with the photographic medium induces an uncontrollable, instinctual response.²⁹ “The sudden vanishing of the present tense, splitting into the contradiction of being simultaneously too late and too early, is properly unbearable,” de Duve writes.³⁰ Moholy-Nagy collected these photographs not as illustrations but as an assemblage that would create a complex perceptual experience, which he describes as “a state of increased activity in the observer.”³¹ Above all else, Moholy-Nagy valued photography as a cognitive tool that confronts the observer with new and inassimilable information based not on our own eyes but on the foreign, mechanical eye of the camera. The fragmentation of time and space in Moholy-Nagy’s sequence of photographic images can be understood as a series of shocks, instantaneous traumas, and the source of “kinetic” activity that he attempts to spark in his audience. The trauma de Duve discusses as the response to photography is similar to what Moholy-Nagy identifies as the incommensurability of photographic vision. Yet while de Duve emphasizes photography’s traumatic rupture of our once relatively stable perception, Moholy-Nagy directs photography’s ability to unsettle and distort toward the formation of a new epistemological model. *Painting, Photography, Film* can thus be understood as a photographic paradox itself, as an attempt to build a new form of communication and perception with what Moholy-Nagy also defines as inassimilable.

“Stop Reading! Look!”

Editors of illustrated magazines and newspapers were aware that the growing dominance of photographic media required their readers to possess new sets of perceptual skills. Weimar’s illustrated newspapers, magazines, and advertisements were experimenting with how to capture the modern viewer’s attention. An essay in the popular periodical *Uhu* from 1926 asks its audience, “Can you think quickly? Are you a good observer?” and presents the reader with a series of visual tests.³² One such test shows a photograph, a portrait of a stylish woman, and its mirrored copy and asks: “In an instant! Which one of these is the mirror image?”³³ Although the puzzles appear lighthearted, *Uhu* took the skills that they tested in earnest. “They are not a pointless pastime,” it states, “but a welcome way to train sharp vision and speedy thinking.”³⁴ By demanding a quick response to the visual puzzles presented,



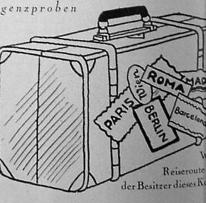
Können Sie schnell denken?
Sind Sie ein guter Beobachter?

Neue Intelligenzproben



Der „Uhu“ war das erste, der durch originalen Gedanken aufgebaut Schärferismus und Schlagfertigkeit seiner Leser und der Pünktlichkeit gestellt hat. Wie Kinderchen aus Kampfkreisen den Körper widerstandsfähig machen, so dienen diese Intelligenzübungen der Gymnastik des Geistes. Sie sind kein müßiger „Zwecktreib“, sondern wie die Übungen im Kampf beweisen — ein willkommenes Training für scharfes Sehen und rasches Denken.

108



magazines such as *Uhu* were drilling viewers in successful navigation through incessant confrontations with stimulation. “Good observers,” according to these tests, respond instinctively to the visual information put in front of them. Consumers of the illustrated press were

being conditioned to think on their feet and constantly search for more stimulation. What is being trained here is the impulse (and the desire) to sustain a coherent space of perception that at once overcomes and depends on a world of fragmentation, shock, and simultaneity. This is the type of “reading” that Moholy-Nagy incites in his book—a practice guided by an instinctual rather than conventional response to visual material.

Similarities between *Painting*, *Photography*, *Film* and the increasingly visual, rather than textual, face of magazines and newspapers were not lost on Moholy-Nagy’s audience. One reviewer described it as “A magazine, as it should be.”³⁵ The architecture and culture critic Adolf Behne brought *Painting*, *Photography*, *Film* into a discussion of the growing prominence of photography in Germany’s illustrated press. He wrote, “Moholy-Nagy has assembled the best material from German and foreign journals in his Bauhaus book *Painting, Photography, Film* (with Albert Langen in Munich); it will be known as a captivating, surprising, and famous book.”³⁶ Immediately after mentioning the book, Behne discussed the “tension between image and text that exists in today’s magazines. . . . More and more text becomes empty filler between images, and the *Weltspiegel* already refrains from text on principle and wants to be a pure image-magazine (with puzzle corners and novellas).”³⁷ The dominance of visual material in periodicals caused “new difficulties” for typography, for “one can not simply stuff in image after image.”³⁸ The challenge was building a unity between the images and the entire page, and Behne was aware that these issues were changing the way illustrated publications conveyed their information to the public. As he put it, “The schematic filling of four corners or the division of the mid-line is avoided. A loose balancing of images attempts to create various moments of form, details, contents, tendencies, black-white effects, size, image contrast, running parallels or movement that thrusts through the field.”³⁹ Behne’s description of the primacy of images reveals that the issue was not so much whether they were taking over the space of text (that seems to be understood) but how photography’s incorporation into newspapers and magazines was transforming the way in which visual information was organized. The challenge was to create connections between various parts of the visual field. Pages were no longer organized into stable

Opposite: Page from "Can you think quickly? Are you a good observer?" *Uhu* 2, no. 11 (1926), 108.

Right: Johannes Molzahn.
"Stop reading! Look!" *Das Kunstblatt* 12, no. 3 (1928), 81.

columns and quadrants, and the objective was now to move the eye through the entire field to create a stimulating and fluid design that would catch and retain the attention of consumers.

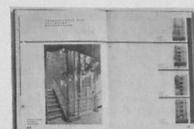
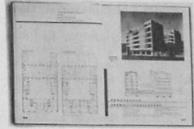
Declarations of the death of literature had been voiced at least since the invention of film in the late nineteenth century, just as the death of painting was announced with the invention of photography several decades before.⁴⁰ To many in the 1920s, the book seemed to cultivate a form of attention that was in opposition to the fluctuation of modern perception due to the simultaneity, pace, and variety of stimuli.⁴¹ In his manual of experimental psychology published in 1920, for example, Joseph Fröbes contrasted the variations in attention of modern environments to "something like the printed pages of a book at which we thoughtlessly look."⁴² In order to adapt to these new conditions, Moholy-Nagy argued that "even philosophical works" will one day be printed in the same way as today's "American magazines."⁴³ According to Fröbes, Moholy-Nagy, and others, the printed page and its gradual unfolding of text were outpaced as a model of communication when surrounded by immediate stimulation such as street advertisements, illustrated magazines, and motion pictures. The predominance of visual material in everyday life was straining the boundary between reading and seeing and the stable definitions of these practices. Photographic images, in movies theaters and within illustrated magazines, were pushing older perceptual habits to a crisis point. No longer defined as a continual duration of time in which the reader turned inward, reading now demanded "a state of increased activity in the observer."⁴⁴

An article featured in the art journal *Das Kunstblatt* from 1928 suggested a path for the book's future. "'Stop reading! Look!' will be the motto in education," the typographer Johannes Molzahn wrote, "'Stop reading! Look!' will be the guiding principle of daily newspapers." Next to the text of this essay, Molzahn positioned eight open-face views of his photographic book, *Max Taut: Bauten und Pläne*.⁴⁵ These reproductions are arranged vertically to resemble a filmstrip and are positioned side by side with the standard typesetting of Molzahn's essay. The layout suggests a comparison between reading the text and scanning the filmic reproduction of the book. Despite the differences between the steady sequence of pages of a book and the illusion of movement created in film, Molzahn's "Buchkinema" indicates that photographic books were seen as a new hybrid form of communication:

wunden und vergessen werden. Es kommt doch nicht darauf an, alles mit viel Mühe zu machen. Der Sinn der Handarbeit jedoch soll sich wieder vollenden in der Durchdringungsarbeit, die wir endlich leisten müssen. Den Gesetzen, die jede Werkarbeit, jede unserer Leistungen fundieren müssen, gilt es wieder Geltung zu verschaffen; jede Anstrengung muß gemacht werden, unserer Arbeit den Nährboden wiedergeben, den sie zum Leben bedarf.

Auf den optischen Kreis der Werkgebiete, deren Teil die Photographie ist, soll ein wenig mehr eingegangen werden. Trotz Mechanisierung kann dem Geiste intensiver Anschauung, Beobachtung und Materialverteilung der alten Handwerkskultur nicht entsagt werden. Im Gegenteil müssen diese Gesetze des Materials, die Kenntnis der Strukturwirkungen, der Polaritäten, des Optischen – so hoch und sicher entwickelt sein, wie es dem Sekundentempo unseres Handelns entspricht. Wir brauchen die entschlußsicheren Regisseure der optischen Gestalt, die Männer der Sekunde, elastisch und immer bereit zu handeln. Wir brauchen die Gestaltungsschulen, die diese Disziplinen entwickeln sollen, die der Gegenwart gerecht werden, dem neuen Tempo, der neuen Optik; diese Schulen fehlen noch, aber sie werden eines Tages sein. Die Kräfte sind da. Die Fundamente sind entwickelt. So wichtig es auch wäre, diese letzteren an diese Stelle näher zu bringen, zwingt doch der Raum zum Verzicht. Ein späterer Aufsatz soll diese Fundierungen behandeln und durch Experimentalarbeiten belegen.

Der Photofachmann der Vergangenheit ging bei der Entwicklung des Phototyps von der falschen Voraussetzung der Gemälde-nachahmung aus; noch heute belegen die Auslagen der Photoateliers diesen Verdacht – man erreichte jedoch nur ein klagliches Surrogat derselben. An den Form-



JOHANNES MOLZAHN: BUCHKINEMA

Top: László Moholy-Nagy.
“Dynamic of the Metropolis,”
Malerei, Photographie, Film
(Munich: Albert Langen, 1925),
116–17.

Bottom: László Moholy-Nagy.
“Dynamic of the Metropolis,”
Malerei, Photographie, Film
(Munich: Albert Langen, 1925),
126–27.

The new optics—that is the reason for the things handled here, whose effective forms above all must carry out the corresponding functions. We seize a territory that is totally dependent on photography: the illustrated book! The images on the surrounding pages show the possibilities. The book-cinema [*Buchkinema*], an optical, logical development formed from this material.⁴⁶

Molzahn’s intermedia neologism reinforces the association of his book with more modern and visual forms of communication. Molzahn’s “Buchkinema” transforms the book into a film, and the result is a hybrid object that is adapted to the “new optics” of the modern city.

Molzahn’s cinematic book—as illustrated in *Das Kunstblatt* and on its own—shares *Painting, Photography, Film*’s visual emphasis. In *Max Taut: Bauten und Pläne*, bold, black lines intersect at right angles to frame the photographs and then diverge, expanding our visual field and guiding us to other images or blocks of text. Often these lines continue across the gutter between the pages, flattening out the book and unifying our view of the two separate pages, which suggests the space of a newspaper or illustrated magazine rather than a book. Coming up with his own neologism, Moholy-Nagy referred to the film script at the end of *Painting, Photography, Film*, “Dynamic of the Metropolis,” as a “typophoto,” which is based on the combination of photomechanical printing techniques and modern typography. Moholy-Nagy explained the typophoto in an efficient tone: “Typography is communication composed in type. Photography is the visual presentation of what can be optically apprehended. Typophoto is the visually most exact rendering of communication. . . . The typophoto governs the new tempo of the new visual literature.”⁴⁷

As a form of “new visual literature,” “Dynamic of the Metropolis” is fourteen pages of graphically structured chaos, as if Moholy-Nagy felt the need to pick up the pace, increase the tempo of his visual onslaught, before the pages of the book ran out.⁴⁸ The script consists of a combination of photographic and typographic material that appears as much like a constructivist poem as a film script, thus adding to *Painting, Photography, Film*’s hybrid format.⁴⁹ “Dynamic of the Metropolis” belongs to a group of several “city symphonies” produced during the 1920s, including films such as Walther Ruttmann’s *Berlin: Symphony of a City* (1927) and Dziga Vertov’s *Man with a Movie Camera* (1929). But these pages seem less cinematic than the previous sequence of photographs, which are concealed then revealed one by one, strung out over a period of time. Simultaneity is the driving force behind the film script’s exhausting effect. “Dynamic of the Metropolis” relies on textual cues, letters, numbers,



abstract symbols, and photographs to re-create the stimulation of the modern city. The design of "Dynamic of the Metropolis" is meant to evoke the sounds as much as the sights of the metropolis, provoking an overall perceptual experience in the reader. This response is evoked through visual material, but it is meant to create more than a purely optical effect. On the next to last page of the typophoto the words, "Fortissimo-o-o" and "Pianissimo" dictate sound. Rhythm is evoked through elongation ("Tempo-o-o-o") or repetition ("Tempo Tempo Tempo") on several pages.

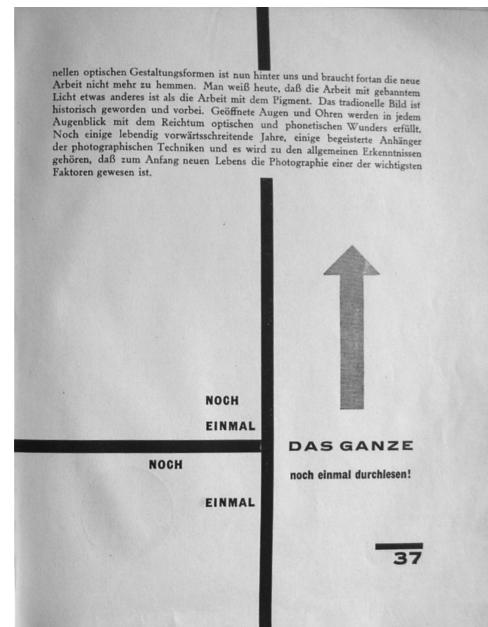
The script's abundant stimuli force the eye to constantly jump from image to text and prevent it from ever resting in one place. The organization of the film script into sections divided by black lines evokes the space of the newspaper. Due to the gridded format of the film, the black lines also suggest a maplike coordination of streets. These bands work to divide the pages into irregular quadrants, yet they do not extend

from edge to edge on the pages. Instead they fall short, indicating their status as dynamic parts of the design rather than stagnant boundaries around the images and text. The lines are accompanied by arrows, traffic indicators, and train signals that lead our eyes to various attractions and evoke the visual stimuli of the modern city. Although these road signs point us to photographs and words on which our visual attention should be focused, we are guided around in no particular order, all at once and to everywhere. The simultaneity—of the metropolis and the film script—is disorienting, and just like traveling through the streets of an unfamiliar city we often lose our way through these pages. Near the end of “Dynamic of the Metropolis” we read, “the entire film will be shown BACKWARDS (shortened) from here until the JaZZ-BAND (also reversed).”⁵⁰ Time in the space of photography moves backward and forward. Yet strangely, Moholy-Nagy’s instruction implies a sense of coherency, as if the film script had been progressing fluidly “starting from here,” in a continual, unfolding duration. But where, precisely, is “here?”

The type’s liberation from standard left-to-right, top-to-bottom progression in “Dynamic of the Metropolis” responds to the new relationships between word and image in modern advertisements and magazines. Pithy words are used in the script to give direction or to describe a scene. Like the new role of text in illustrated magazines that Behne noted, words act here as “empty filler” between the images. On the second page of the script the words “very clear—high above—train signals” are above abstract drawings of train signals, with the word “close-up” below. Scattered between rows of arrows, the words “up” and “down” unnecessarily reinforce what has already been conveyed visually. No longer serving as the primary carrier of meaning, the text serves as redundant instruction for what can be conveyed more efficiently through visual signs, ultimately adding to the cacophony of the page and the effect of simultaneity.

As a whole, *Painting, Photography, Film* encourages new hybrid perceptual practices that combine reading and seeing. “The Hundred Horsepower Office—No Utopia,” published in the illustrated magazine *Uhu* in 1926, shows how the replacement of books with machines and filing systems in the workplace was also encouraging such habits.⁵¹ The majority of space devoted to the piece is given over to a photo-essay designed by Sasha Stone. The text-based essay that accompanies Stone’s series of photographs discusses the mechanization of the modern business office and voices anxiety about the ultimate displacement of the office worker by more efficient writing, sorting, and counting machines. The essay describes a conference machine that the boss uses to do business with associates in distant cities:

László Moholy-Nagy.
Malerei, Photographie, Film
(Munich: Albert Langen, 1925),
37.



"On the white walls behind the desk the out-of-town branch managers gesticulate in an exchange of opinions. Their bodies remain in Hamburg, Frankfurt, Munich, in Vienna, Paris, London, but their transmitted images and their voices are collected in an imaginary sitting room with the boss of Priemappel & Co."⁵² Fritz Zielesch, the text's author, explains that modern workplaces "no longer want the heavy burden of books."⁵³ Instead, "the support of the overburdened human nervous system through clever mechanical apparatus and employment methods is the mark of the modern office."⁵⁴ This statement poses a contradiction—one that we sense in *Painting, Photography, Film* as well. The technological apparatus of the modern office, which enables the transmission and projection of images and voices, claims to support the overburdened body of employees, yet this "support" takes place through the fragmentation of perception. In the modern office, the telephone separates the voice from the body in which it originates and reconfigures it in the conference room. The transmission of voices and images leads to a space of simultaneity in which multiple conversations with people in distant locations can happen all at once. "Tempo! Tempo!" cry the times.⁵⁵ And like Moholy-Nagy's enthusiasm for the combination of sounds and sights of the modern city, Zielesch declares that simultaneity aims to ease the burdens and soothe the nerves of the worker who is unable to keep up with the demands of the modern world.

At the end of *Painting, Photography, Film*'s section of essays, right before the photographic series begins, Moholy-Nagy evokes the mechanization of the human voice. The words "Again, again, read through the whole thing again!" and an accompanying gray arrow, arranged on the page in relation to two black stripes, guide us back to the text we just read rather than continuing to the next page of the book. The phrase, set off from the other, more-controlled text on the page, gives the impression of an authorless exclamation, a voice separated from the body and trapped forever on the page to be read over and over again. The arrow creates a mechanical loop that enforces repetition and implies that the phrase can be repeated or replayed (so to speak) eternally, like a film or a record.⁵⁶ The mechanization of the voice thus also involves the automatization of language. Moholy-Nagy ends "Dynamic of the Metropolis," with the same phrase, "Quickly read through the whole thing again," further emphasizing the perceptual estrangement of mechanical reproduction.

How do modern office workers accomplish their daily tasks within this space of fragmentation? Dressed as a white-collar worker flipping through a filing system with a telephone pressed to his ear, Stone cast himself in the lead role of his photo-



Sasha Stone. From the photo-essay "The Hundred Horsepower Office—No Utopia," *Uhu* 2, no. 7 (1926), 56.

essay.⁵⁷ Performing an early form of multi-tasking, Stone shows how the filing cabinet was far from a means of calm control over the important documents of the modern professional. Rather, it contributed to the

"absolute triumph of technology over space and time," which allows for the accomplishment of several tasks concurrently.⁵⁸ The filing cabinet also implies a form of attention associated with the modern office worker that is born from a state of distraction. Reading information in a filing cabinet involves visually locating symbols or letters that will guide the viewer to the location of desired information. It is also a practice quite similar to Moholy-Nagy's description of his search for "good" photographs within the overwhelming quantity of images in the illustrated press—and the intensified form of this practice created by *Painting, Photography, Film*. These practices entail the fragmentation of the visual field and require the viewing subject to actively sort information into the categories of what is sought and what can be left to the overwhelming field of stimuli. Thus the modern visualization of reading demands the active synthesis of information within a space of potential overstimulation.

This practice, performed by Stone in the photo-essay, is spatial, involving vision as well as touch and sound. Weeding through the information in the file cabinet requires fingers to do the seeing, separating and pointing out the information sought once it is found. At the same time, Stone has the telephone pressed to his ear. Circles radiate like sound waves outward from the phone's base sitting on the nearby desk. Each wave is accompanied by lines of text shaped to its circular form, making visible what is being said through this otherwise invisible medium. The text transcribes notes about various appointments and conferences: "7:45 telephone with Klara," "5:45 visit with lawyer." The fragmentation of information into shortened forms of text allows for the more efficient and productive accomplishment of everyday tasks. Stone stages a competition between various forms of attention but appears to be able to attend to all senses—sound, vision, and touch—with equal care.

Moholy-Nagy describes a form of collection and storage that, like Stone's filing cabinet, means to organize an abundance of visual information:

Such [mechanically produced] images will naturally not be kept as they are today like lifeless room decorations, but rather in compartments on shelves or "domestic picture galleries" [*Haus-Pinakothek*] and brought out only when they

are really needed. . . . Just as today we store the film spools for private cinematographs in a cupboard in the home.⁵⁹

What Moholy-Nagy describes here is a particular type of storage device, but the text also draws our attention to the book's status as a collection of photographs. Like the *Haus-Pinakothek* that Moholy-Nagy describes, *Painting, Photography, Film* acts as a storage space filled with mechanical reproductions that can be "brought out" or turned to when desired. In making a distinction between "lifeless room decorations" and mechanical reproduction, Moholy-Nagy indicates a transformation in the way a viewer interacts with images.⁶⁰ The photographs in the book are printed in different directions and typography runs at various angles. Several times in the book we are instructed to return to a previous page and start over. For these reasons, the book must be flipped and turned, making our interaction with it deliberate yet disorienting.⁶¹ Vision and the body are incited in tandem, which thereby sparks an awareness of their connection. Like Stone's filing cabinet, *Painting, Photography, Film* thus demands the synthesis of various sensorial processes while simultaneously staging an experience of fragmentation and estrangement.

In Stone's modern office and in *Painting, Photography, Film*, the viewer must continually readjust and respond to stimuli. Instead of asking readers to follow a steady stream of words, Moholy-Nagy keeps the observer at a certain distance from the text. Engaged in a practice of searching, observers actively use their eyes to locate specific material. This practice is based on response rather than absorption, and it is rooted in the visualization of text. Like the continual readjustment of attention Stone performs in his photo-essay, *Painting, Photography, Film* obliges its viewers to search for keywords and page through photographs rather than to continually focus on text. Photographs, eye-catching abstract markers, oversize page numbers, and keywords printed in thick, bold font compel the viewer to scan the text. Rather than following the text word for word, our eyes sweep through it, pausing at those parts that are distinguished through visual emphasis. Although the beginning of the book is primarily text-based, Moholy-Nagy seems to have been intent on making even this section as visual and efficient as possible. At the beginning, he includes a list of keywords that should guide the reader. The list includes terms that summarize the essays, such as "**objective**," "**nonobjective painting**," "**static**," "**kinetic**," and "**light**."⁶² Rather than reading through the entire text, these words allow us to scan the field until we find the topic we are looking for.

The hybridity of *Painting, Photography, Film*—its combination of textual and visual

spaces and its evocation of film, newspaper, the illustrated magazine, and the modern metropolis—blurs the boundaries between reading and seeing. This new perceptual process is one of irreducibly mixed modalities, combining reading and seeing as well as evoking other nonvisual components such as touch and sound. Despite the apparent obsolescence of books in the face of more modern forms of communication, Moholy-Nagy employs the book format as a site of dialectical tension designed to train the viewer to manage perceptual overstimulation. *Painting, Photography, Film* stages the multimedia fragmentation of the modern city; yet its book format also collects and cohesively synthesizes its overwhelming content, training the viewer to overcome it via a “New Vision,” able to process it all simultaneously. This hybrid form of perception is best described as scanning. The term captures the lack of urgency to distinguish between verbal information and visual images. In *Painting, Photography, Film*, we experience a particular relationship to time that is catalyzed by the perceptual process of scanning—the incessant production of the present that crowds out the past. Scanning continually preoccupies the observer and provides no opportunity to process or reflect. To Moholy-Nagy, pausing for the contemplation of stimuli would have meant incorporating memory and the mind into the perceptual process, which would distance the observer from the “optical truth” of photography.

The liminal position of *Painting, Photography, Film*—barely a book, part magazine, and part film—shapes its perceptual experience. Yet if the photographic book is being used here as a perceptual model of “New Vision” in the age of photography, its fractured composition also induces anxiety over the very possibility of a perceptual system based on the photographic. Moholy-Nagy’s own obsession with the present, of defining a particular mode of viewing that is appropriate to the age, reveals an underlying uneasiness with time and its measure.⁶³ The book, therefore, presents a way to master time’s passage, to control its acceleration, and to give a concrete form to its new conditions.⁶⁴ Traumatic, fragmentary instances of perception are assembled within the book to maintain some sense of the viability of such an idea as a photographic worldview—that the very cause of the fracturing of time and space could also serve as the basis for a new form of perception. The bound form of the book accommodates both the destructive and constructive perceptual capacities of photography, and the world of the photographic is presented as a paradox: It is both too large and too small, and its inhabitants are faced with the trauma of the instability of modern time. This world extends from the tiniest organism to the most distant of stars, from the split-second to the endless duration. But it is also a space that cannot be occupied in any coherent way.

Notes

I would like to thank Margaret Werth and Christina Gerhardt for their close critiques of other versions of the material presented here. This text benefited immensely from Karen Beckman's advice and encouragement and from the indispensable suggestions of the anonymous reviewers of the manuscript. Unless otherwise noted, translations are mine.

1. László Moholy-Nagy, *Malerei, Photographie, Film* (Munich: Albert Langen, 1925). In keeping with the attempts of modern typographers to make German script more efficient, Moholy-Nagy changed the spelling in the title of the second edition, published in 1927, to *Malerei, Fotografie, Film*. Here I refer to the first edition of the book, unless stated, and all further references to it will be abbreviated as *PPF*.

2. *PPF*, 5.

3. See Eleanor Hight, *Picturing Modernism: Moholy-Nagy and Photography in Weimar Germany* (Cambridge: MIT Press, 1995), 175–95. Oliver Botar gives a short but relatively detailed analysis of *PPF* and describes it as a “manifesto of new, biocentric vision.” See Oliver A.I. Botar, “László Moholy-Nagy’s New Vision and the Aestheticization of Scientific Photography in Weimar Germany,” *Science in Context* 17, no. 4 (2004): 525–556. See also Alain Findeli, “László Moholy-Nagy und das Projekt der Bauhausbücher,” in *Das A und O des Bauhauses: Bauhauswerbung, Schriftsbilder, Drucksachen, Ausstellungsdesign*, ed. Ute Brüning (Berlin: Bauhaus-Archiv, 1995), 22–26.

4. See Andrea Nelson, “László Moholy-Nagy and *Painting Photography Film*: A Guide to Narrative Montage,” *History of Photography* 30, no. 3 (Fall 2006): 258–269. In her essay, Nelson addresses how the book challenges traditional definitions of narrative. With the exception of Nelson, any sustained visual analysis of the book produced up until this point has been limited to its final section, “Dynamic of the Metropolis,” which much more obviously serves a nonillustrative role than the sequence of photographic images printed before it. Frederic Schwartz limits his discussion of *PPF* to “Dynamic of the Metropolis” and claims this section to be the “focal point of the book.” See Frederic J. Schwartz, *Blind Spots: Critical Theory and the History of Art in Twentieth-Century Germany* (New Haven, CT: Yale University Press, 2005), 46–47. See also Hanne Bergius, “Die neue visuelle Realität: Das Fotobuch der 20er Jahre,” in *Deutsche Fotografie: Macht eines Mediums, 1870–1970*, ed. Klaus Honnef, Rolf Sachsse, and Karin Thomas (Bonn: Kunst- und Ausstellungshalle der Bundesrepublik Deutschland, 1997), 90–94.

5. Jonathan Crary, *Suspensions of Perception: Attention, Spectacle, and Modern Culture* (Cambridge: MIT Press, 1999), 3.

6. Moholy-Nagy was not alone in voicing such skepticism or the conviction that works of art were first and foremost epistemological models. One provocative point of comparison would be with the work of Carl Einstein, although, as Charles Haxthausen has pointed out, their perspectives on technology and modernity were completely antithetical. See Charles W. Haxthausen, “Reproduction/Repetition: Walter Benjamin/Carl Einstein,” *October* 107 (Winter 2004): 58, n. 48. Einstein remained skeptical of photography and film as perceptual models, and his writings reveal a disregard for photographic theories such as those laid out by Moholy-Nagy. Einstein’s brief comments on photography and film make it clear that he conceived of them only in their reproductive capacity and therefore as a threat to human creativity. His position is all the more surprising in light of the fact that Einstein was a constant companion to the photographer Florence Henri after 1923 and was no stranger to interests

in the most progressive of photographic theories. Henri studied with Moholy-Nagy and his wife Lucia at the Bauhaus in 1927. These curious connections beg a comparison of *PPF* with Carl Einstein's *Negerplastik* (1915), in which the author does not refer to a single one of the images of African sculpture that he reproduces in the second part of the book. For a discussion of the photographs of sculpture in *Negerplastik* in relation to Einstein's theory of perception, see Sebastian Zeidler, "Totality against a Subject," *October* 107 (Winter 2004): 14–46. My thanks to Charles Haxthausen for first bringing Einstein's *Negerplastik* to my attention.

7. *PPF*, 22.

8. *PPF*, 22.

9. *PPF*, 23.

10. *PPF*, 22. Moholy-Nagy expands this argument in the second edition of the book, rewriting sections of the essay "Photographie" to focus more on this issue. For example, he adds that with photography "everyone will be compelled to see that which is optically true, is explicable in its own terms, is objective, before they can arrive at any possible subjective position. This will abolish the pictorial and imaginative association pattern which has remained unsuperseded for centuries and which has been stamped upon our vision by great individual painters." László Moholy-Nagy, *Painting, Photography, Film*, trans. Janet Seligman (Cambridge: MIT Press, 1969).

11. For a discussion of tactility and photography at the Bauhaus after 1928, see T'ai Smith, "Limits of the Tactile and the Optical: Bauhaus Fabric in the Frame of Photography," *Grey Room* 25 (Fall 2006): 6–31.

12. *PPF*, 4. See Brigid Doherty, "Photography, Typography, and the Modernization of Reading," in *A New History of German Literature*, ed. David E. Wellbery (Cambridge, MA: Belknap Press, 2004), 733–737.

13. Born in Hungary, Moholy-Nagy moved to Berlin from Vienna in 1920. Although Moholy-Nagy, with the assistance of his first wife Lucia Schultz, began experimenting with cameraless photography in 1922, he was just beginning to take photographs with a camera when *PPF* was published. In *Picturing Modernism*, Hight notes that "his photography no doubt flourished in Dessau after the Moholys set up their darkroom in 1926." See Hight, *Picturing Modernism*, 103–104. The first edition contains ten works by Moholy-Nagy, including photograms, photomontages, and advertisement posters. The close-up of a phonograph record on page 52 is the only photograph taken with a camera that he included. The second edition of *PPF* includes seven photographs taken with a camera by Moholy-Nagy. This is just one of the many significant, yet often overlooked, discrepancies between the first and second editions of *PPF*.

14. László Moholy-Nagy, "Neue Wege in der Photographie," *Photographische Rundschau und Mitteilungen* 65, no. 32 (1928): 33–34.

15. *PPF*, 26.

16. See Gunda Luyken, ed., *Hannah Höch: Album* (Ostfildern, Germany: Hatje Cantz Verlag, 2004).

17. On Berlin Dada photomontage, see Brigid Doherty's essay in Leah Dickerman, ed., *Dada: Zurich, Berlin, Hannover, New York, Cologne, Paris* (Washington, DC: National Gallery of Art, 2005), 87–112.

18. See Benjamin Buchloh, "Gerhard Richter's *Atlas*: The Anomic Archive," *October* 88 (Spring 1999): 117–145. On Höch's scrapbook, see also Melissa Johnson, "Souvenirs of Amerika: Hannah Höch's

Weimar-Era Mass-Media Scrapbook," in *The Scrapbook in American Life*, ed. Susan Tucker, Katherine Ott, and Patricia Buckler (Philadelphia: Temple University Press, 2006); and Maud Lavin, *Cut with the Kitchen Knife: The Weimar Photomontages of Hannah Höch* (New Haven: Yale University Press, 1993).

19. Among the many discussions of collecting photographs in relation to memory, see Roland Barthes, *Camera Lucida*, trans. Richard Howard (New York: Hill and Wang, 1981); and Geoffrey Batchen, *Forget Me Not: Photography and Remembrance* (New York: Princeton Architectural Press; Amsterdam: Van Gogh Museum, 2004).

20. *PPF*, 40.

21. *PPF*, 41.

22. Given Moholy-Nagy's interest in scientific photographs, publications and illustrations, he would have been familiar with conventions of photographic illustrations in scientific manuals and books. A history of scientific illustration can be drawn here that predates the invention of photography. Robert Hooke's *Micrographia; Or, Some Physiological Descriptions of Minute Bodies Made by Magnifying Glasses . . .* (London: J. Martyn & J. Allestry for the Royal Society, 1665) could possibly serve as the beginning. The history of scientific illustration dovetails with a fascination with the hidden or unseen, in which photography plays an important role. For more on Moholy-Nagy's relationship to contemporary scientific trends, see Botar, "László Moholy-Nagy's New Vision"; and Oliver A.I. Botar, "Prologomena to the Study of Biomorphic Modernism: Biocentrism, László Moholy-Nagy's 'New Vision,' and Ernö Kallai's Bioromantik" (Ph.D. diss., University of Toronto, 1998).

23. *PPF*, 22.

24. Examples also include F. W. Murnau's *Nosferatu* (1922) and Luis Buñuel's *L'age d'or* (1931). Films of microscopic organisms by Jean Painlevé were first screened at the Académie des Sciences in Paris in 1923 and astonished avant-garde artists such as Buñuel, Man Ray, and Sergei Eisenstein. On Painlevé, see Brigitte Berg, Andy Masaki Bellows, and Marina McDougall, eds., *Science Is Fiction: The Films of Jean Painlevé* (Cambridge: MIT Press, 2000). Microscopic cinema or "microcinematography" was commercially promoted by the Urban-Duncan Micro-Bioscope company as early as 1903. See Rachel Low, *The History of British Film: 1906–1914* (London: George Allen & Unwin Ltd., 1949), 160–161.

25. *PPF*, 39. Where possible, I have tried to preserve Moholy-Nagy's formatting in the original text (bold font, variations in type spacing, etc.) in order to give a sense of the visual considerations that went into the typographical design of *PPF*.

26. See Mary Anne Doane, *The Emergence of Cinematic Time: Modernity, Contingency, and the Archive* (Cambridge: Harvard University Press, 2002), esp. 172–205. See also Garrett Stewart, *Between Film and Screen: Modernism's Photo Synthesis* (Chicago: University of Chicago Press, 1999).

27. Thierry de Duve, "Time Exposure and Snapshot: The Photograph as Paradox," *October* 5 (Summer 1978): 113–25. This essay has influenced my thinking on how photography and time are experienced within the book, and I find it compelling that in two other recent studies of photographic books (from entirely different historical moments than the Weimar Republic), de Duve's essay is mentioned. See Mark Godfrey, "Photography Found and Lost: On Tacita Dean's *Flo*," *October* 114 (Fall 2005): 90–119; and Kevin Hatch, "'Something Else': Ed Ruscha's Photographic Books," *October* 111 (Winter 2005): 107–126.

28. Compare Moholy-Nagy's statements in *PPF* to Dziga Vertov's claim in "Kinoglaz" that "the eyes of children and adults, the educated as well as the uneducated, are opening, as it were, for the first

time.” Yet Moholy-Nagy focuses more closely on the physiological transformations potentially accomplished by photography rather than emphasizing the sociopolitical implications of such a change, as is the case with his Soviet counterparts. See, for example, “On the Film Known as *Kinoglaz*,” “*Kinoglaz*,” and “The Birth of Kino-Eye” in Dziga Vertov, *Kino-Eye: The Writings of Dziga Vertov*, ed. Anette Michelson, trans. Kevin O’Brien (Berkeley and Los Angeles: University of California Press, 1984), 34–35, 38–42.

29. See the discussion of de Duve’s essay in Doane, 206–232.
30. De Duve, 121.
31. *PPF*, 18.
32. “Können Sie schnell denken? Sind Sie ein guter Beobachter?” *Uhu* 2, no. 11 (1926): 108–112, 132.
33. “Können Sie schnell denken?” 108.
34. “Können Sie schnell denken?” 108.
35. Martin Knauthe, “Die Bauhausbücher,” *Die Baulaterne* (1926): 5–7.
36. Adolf Behne, “Die Illustrierten,” *Die Weltbühne* 22, no. 31 (1926): 187.
37. Behne, 188.
38. Behne, 188.
39. Behne, 188.
40. See Anton Kaes, “The Debate about Cinema: Charting a Controversy (1909–1929),” *New German Critique* 40 (Winter 1987): 7–33; Anton Kaes, ed., *Kino-Debatte: Texte zum Verhältnis von Literatur und Film, 1909–1929* (Munich: Deutscher Taschenbuch Verlag, 1978); and Anton Kaes, ed., *Manifeste und Dokumente zur deutschen Literatur 1918–1933* (Stuttgart: J. B. Metzlersche Verlagsbuchhandlung, 1983).
41. In fact, the number of new books published annually in Germany rose steadily from 1920 (32,245) to 1927 (37,886). The increase then fell off: 1928 saw only 34,000 new book publications. See Reinhard Wittmann, *Geschichte des deutschen Buchhandels* (Munich: Verlag C. H. Beck, 1991), 329. For a discussion of the book and the repeated declarations of its obsolescence in modernity, see Priscilla Coit Murphy, “Books Are Dead, Long Live Books,” in *Rethinking Media Change: The Aesthetics of Transition*, ed. David Thorburn and Henry Jenkins (Cambridge: MIT Press, 2003), 81–93.
42. Joseph Fröbes, *Lehrbuch der experimentellen Psychologie*, vol. 2 (Freiburg: Herder & Co., 1920), 72.
43. László Moholy-Nagy, “Zeitgemäße Tyographie—Ziele, Praxis, Kritik,” *Gutenberg-Festschrift*, 1925, 307.
44. *PPF*, 18.
45. Max Taut: *Bauten und Pläne. Mit einem Beitrag von Dr. Adolph Behne* (Leipzig: F. E. Hübsch, 1927).
46. Johannes Molzahn, “Nicht mehr lesen! Sehen!” *Das Kunstblatt* 12, no. 3 (1928): 82.
47. *PPF*, 30–32.
48. “Dynamic of the Metropolis” appears in Hungarian and in a different form—most significantly without photographs—as “Filmváz a Nagyváros dinamikája,” *MA*, no. 8–9 (September 1924).
49. For a reading of “Dynamic of the Metropolis” in relation to Constructivist and Futurist poems, see Edward Dimendberg, “Transfiguring the Urban Gray: László Moholy-Nagy’s Film Scenario ‘Dynamic of the Metropolis,’” in *Camera Obscura, Camera Lucida: Essays in Honor of Annette Michelson*, ed. Richard Allen and Malcolm Turvey (Amsterdam: Amsterdam University Press, 2003), 109–126; and Michael Opitz, “László Moholy-Nagys Filmskizze *Dynamik der Gross-Stadt*: Ein

Bild-Text der Moderne,” *Jahrbuch zur Literatur der Weimarer Republik* 3 (1997): 209–236.

50. *PPF*, 126.

51. Fritz Zielesch, “Das 100 pferdige Büro—keine Utopie,” *Uhu* 2, no. 7 (1926): 52–59.

52. Zielesch, 52–53.

53. Zielesch, 54.

54. Zielesch, 54.

55. Zielesch, 53.

56. For an excellent discussion of experiments in sound and the recorded voice in the late 1920s and the 1930s, see Thomas Y. Levin, “‘Tones from out of Nowhere’: Rudolph Pfenninger and the Archaeology of Synthetic Sound,” *Grey Room* 12 (Summer 2003): 32–79. Levin compellingly argues that the recorded voice is on the order of the Derridean concept of writing, which operates in radical absence of its creator. See also Douglas Kahn, *Noise, Water, Meat: A History of Sound in the Arts* (Cambridge: MIT Press, 1999); and Juliet Koss, “Reflections on the Silent Silver Screen: Advertising, Projection, Reproduction, Sound,” *Kritische Berichte* 32, no. 2 (2004): 53–66.

57. For more on Stone, see Eckhardt Köhn, “Die Intelligenz des Fotografierenden: Zu Leben und Werk Sasha Stones,” in *Sasha Stone: Fotografien 1925–1939*, ed. Eckhardt Köhn (Berlin: Verlag Dirk Nischen, 1990). For a discussion of Stone’s and Moholy-Nagy’s connections to Walter Benjamin, see Schwartz, 37–101.

58. Zielesch, 53.

59. *PPF*, 19.

60. The similarities between Moholy-Nagy’s system of storage and Walter Benjamin’s theory of mechanical reproduction have been noted. See, for example, Haxthausen, 49, n. 9; and Krisztina Passuth, “Moholy-Nagy et Walter Benjamin,” *Cahiers du Musée National d’Art Moderne* 5 (1980): 398–409. Benjamin discusses the connection between books and collecting in “Unpacking My Library: A Talk about Collecting,” in *Selected Writings*, ed. Michael W. Jennings (Cambridge, MA: Belknap Press, 1996), 486–493.

61. Moholy-Nagy was familiar with the Soviet-artist El Lissitzky’s design for Vladimir Mayakovsky’s book of poems published in 1923 in Berlin. *Dlia golosa* (For the Voice) allows the reader to conveniently enter it by using a thumb index, which shatters the book’s assumed front-to-back progression and instead allows the reader to be in control of its unfolding. Yet in its preoccupation with the potential of photographic perception, *PPF* is significantly different from Lissitzky’s accomplishment. Also in 1923, Mayakovsky published *Pro Eto*, which included photomontages by Aleksandr Rodchenko. See Margit Rowell and Deborah Wye, *The Russian Avant-Garde Book, 1910–1934* (New York: Abrams, 2002).

62. *PPF*, 8.

63. “Each era has its own optical orientation. Our time is of the film, electric light advertisements, the perceptual effects of simultaneity.” *PPF*, 31.

64. Pamela Lee’s study of conceptions of time in postmodernism has been extremely helpful to my own thinking about time at this earlier moment. See Pamela Lee, *Chronophobia: On Time in the Art of the 1960s* (Cambridge: MIT Press, 2004).

Copyright of Grey Room is the property of MIT Press and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.