

László Moholy-Nagy and Chicago's War Industry: Photographic Pedagogy at the New Bauhaus

Emma Stein

To cite this article: Emma Stein (2014) László Moholy-Nagy and Chicago's War Industry: Photographic Pedagogy at the New Bauhaus, *History of Photography*, 38:4, 398-417, DOI: [10.1080/03087298.2014.949487](https://doi.org/10.1080/03087298.2014.949487)

To link to this article: <https://doi.org/10.1080/03087298.2014.949487>



Published online: 27 Nov 2014.



Submit your article to this journal [↗](#)



Article views: 1244



View related articles [↗](#)



View Crossmark data [↗](#)



Citing articles: 1 View citing articles [↗](#)

László Moholy-Nagy and Chicago's War Industry: Photographic Pedagogy at the New Bauhaus

Emma Stein

László Moholy-Nagy came to Chicago to head the New Bauhaus in 1937 after the Nazis closed the school in Dessau. By the time the USA became involved in the war, investors had forced the school to change its name from the New Bauhaus to the American School of Design – a change that resulted directly from US ambivalence toward foreign, and especially German, influence. Of course, the school's name was not the only change brought by the war. A study of the wartime context of Chicago industry and politics, as well as the school's unique photographic pedagogy based on the photogram and its application to visual war strategies, reveals a fascinating attempt to convert an interdisciplinary Bauhaus curriculum based on the melding of art and industry into an artistic contribution to Chicago's war industry. This article investigates how the interdisciplinary pedagogy of the Bauhaus was influenced by its new context in the heart of US industrial markets, and how the war affected both the city and the course of the school, its faculty and students. The article discusses how photographic pedagogy was adapted from its modernist origins to address the most pressing question facing the art school – namely, how artists could productively contribute to wartime efforts. Pedagogy based on mastering light and shadow was directly applied to new theories of combat vision and camouflage techniques developed by the faculty alongside numerous military guest lecturers, while students and faculty used art as a source of catharsis, producing haunting wartime images of destruction.

Keywords: *Walter Gropius (1883–1969), László Moholy-Nagy (1895–1946), György Kepes (1906–2001), Nathan Lerner (1913–97), James Hamilton Brown (active 1940s), Chicago Bauhaus, photogram, Second World War, School of Design, camouflage*

When László Moholy-Nagy came to the USA at the request of former Bauhaus director Walter Gropius in 1937, his arrival and subsequent establishment of the New Bauhaus in Chicago was met with a palpable ambivalence. Moholy-Nagy and Gropius were two of many distinguished mid-career artists and instructors who left Europe in the years leading up to the war and found opportunities to continue their practices in the USA, teaching a generation of artists who would become arguably the most renowned in the history of American art.¹ When Chicago's Association of Arts and Industries appealed to Gropius to head the new school of design in Chicago after numerous disappointing attempts by the Art Institute of Chicago to offer an adequate curriculum in the field of industrial arts, the former Bauhaus director urged them to procure Moholy-Nagy instead, due to Gropius's own recent appointment in the Department of Architecture at Harvard University.

I would like to thank Catherine Zuromskis and Kirsten Buick for their generous guidance, in addition to the archivists at the University of Illinois at Chicago, the Chicago History Museum, the Ryerson and Burnham Libraries at the Art Institute of Chicago, and the Museum of Modern Art in New York, as well as Aimee Quinn at the University of New Mexico's Fine Arts Library.

Email for correspondence:
emmabstein@gmail.com

1 – Josef Albers and Hans Hoffmann are two other examples of European modernists who came to the USA and taught some of the most celebrated artists of the next generation, such as Robert Rauschenberg, Cy Twombly and Lee Krasner.

The debates surrounding the new relationship between art and industry, as well as fascinating conversations between European and US artists brought into proximity during the war, makes the history of the New Bauhaus a compelling subject of study. Yet, despite the attention that has been paid to the original revolutionary Bauhaus pedagogy and the experimental modernist photography that resulted later in the USA, little scholarship has been dedicated to the period when the war dramatically altered the course of Bauhaus-inspired industry and design in Chicago. While the narrative of Moholy-Nagy's and Gropius's respective journeys to their new US context always addresses the contributing factor of war, the effect that this same war had on Moholy-Nagy's pedagogy remains to be explored.² During the years that the USA was involved in the Second World War, dramatic changes were implemented by Moholy-Nagy as the director of the newly named American School of Design. This change from the New Bauhaus to the American School of Design, which resulted from US ambivalence toward foreign, and especially German, influence, was only the beginning.

During the early years of the 1940s, a new generation of artists in the US Midwest were grappling with how they could contribute to the war effort abroad. This connects them more to European avant-garde movements in practice than the formal influences of Surrealism, Constructivism and Futurism often identified in the work that emerged from the New Bauhaus's photography programme. One prominent view in scholarship of the relationship between the New Bauhaus and European pre-war avant-garde movements comes from photography scholar Abigail Solomon-Godeau who has described a transformation of Soviet radical formalism to muted formalism as style in the USA. As evidence of photography's mutability, Solomon-Godeau proposes that photographic strategies invented by artists for the purpose of revolution were easily appropriated for the promotion of other ideologies. She places Bauhaus photography as a middle ground between the Soviet and US models of formalism, and tracks the continued dissolution of the medium's political efficacy at the New Bauhaus under Moholy-Nagy, followed by Chicago formalists Henry Holmes Smith, Harry Callahan, and Aaron Siskind after Moholy-Nagy's death in 1946.³

The School of Design's artists' and educators' unique response to the Second World War complicates Solomon-Godeau's position. By combining a distinctly interdisciplinary pedagogy based on combating the division of artistic labour, a fascination with the photogram as a teaching tool, and an application of modernist principles of photographic vision to war strategies such as camouflage and reconnaissance, the leaders of the School of Design adapted their photographic pedagogy to match wartime needs in industry. They proposed a curriculum that was intended to keep 'constant pace with wartime and post-war requirements', implementing a social context for art photography.⁴ As an investigation of newly implemented pedagogical strategies and formal exercises in the early 1940s, this article will explore the diverse conversations about art practice, war industry, and photographic pedagogy that took place under Moholy-Nagy's leadership at Chicago's School of Design, revealing how the school adapted their photography curriculum to address the urgency of war while promoting formal experimentation as a means of artistic catharsis.

A New Context, the Same Debates

When Hitler and his thick-headed henchmen dissolved the college [...] the leaders of this International movement fled Germany and set up shop in Chicago's Near North Side.⁵

The establishment of the New Bauhaus in Chicago came at a pivotal point in the city's industrial history. Moholy-Nagy arrived in Chicago only a few months after the 'Memorial Day Massacre' of 1937 – one of the many violent conflicts that arose

2 – A recent article by Robin Schuldenfrei has given some much-needed attention to this period of the School of Design's history. While Schuldenfrei's article aims to connect wartime efforts to postwar technological progress and only mentions photography in passing, her discussion of Moholy-Nagy's pedagogy is a welcome addition to the limited scholarship on the topic. See Robin Schuldenfrei, 'Assimilating Unease: Moholy-Nagy and the Wartime/Postwar Bauhaus in Chicago', in *Atomic Dwelling: Anxiety, Domesticity and Postwar Architecture*, ed. Robin Schuldenfrei, New York: Routledge 2012, 87–126.

3 – Abigail Solomon-Godeau, 'The Armed Vision Disarmed: Radical Formalism from Weapon to Style' (1983), in *Photography at the Dock: Essays on Photographic History, Institutions, and Practices*, Minneapolis: University of Minnesota Press 1991, 52–84.

4 – [László Moholy-Nagy], Course Catalogue (promotional material), 1943–44, School of Design, Institute of Design collection, ca. 1934–55, Ryerson and Burnham Libraries, Art Institute of Chicago. In most cases, the course catalogues cited in the following notes are self-published, promotional materials produced several times a year to update the school's schedule.

5 – Nathan Lerner, Lerner Papers, Chicago History Museum Research Center.

from dangerous conditions for industrial workers.⁶ One of the results of industrialisation in Chicago was that it became a centre for the Arts and Crafts movement in the USA. The Chicago Arts and Crafts Society, founded in 1897, specifically addressed the issue of the alienation of labourers in its constitution, stating that the society would ‘insist that the machine no longer be allowed to dominate the workman and reduce his production to a mechanical distortion’.⁷ Chicago became the site of a debate that stretched over multiple decades at the beginning of the twentieth century surrounding the functionality of modern design and the place of the machine in the highly industrialised city. Artists and architects alike tried to find new methods that would allow them to move beyond the fundamental contradiction between expensive handiwork and industrialisation.⁸ Frank Lloyd Wright was one local architect who posited his own theories of architecture as a possible solution in a lecture that Moholy-Nagy attended, arguing for ‘the machine [as a] legitimate tool in the hands of the creative artist’.⁹ It was in the midst of this discussion about the complex relationship between art and industry, as well as the interests of the workers versus the capitalists who sponsored the progress of modernist design, that the New Bauhaus was established.

As an immigrant, a socialist, and a constructivist, Moholy-Nagy found himself in a particularly sensitive situation as the promoter of Bauhaus pedagogy in a US context. The transition from Dessau to Chicago was not quite as smooth as might be implied by Nathan Lerner’s description of the Bauhaus ‘set[ting] up shop’ on US soil. Moholy-Nagy’s sponsorship by Chicago’s most wealthy capitalists – such as Walter P. Paepcke, who went on to fund the School of Design after the New Bauhaus was forced to close due to loss of funding from the Association of Arts and Industries – led him to alter his formerly constructivist pedagogy so as to be, according to Hal Foster, ‘pared of its residual socialism’, making modernism ‘not only teachable but exploitable’.¹⁰

While Foster’s condemnation of Moholy-Nagy’s alliance with Chicago industrialists could be considered to be overstated, his point illustrates the complexity of the artist’s position relative to the debate over the role of industry in modern design, both as a constructivist and as a European immigrant. Moholy-Nagy was repeatedly compelled to explain to the press the precise intentions of his pedagogy, and in numerous articles in *The New York Times* and *The Chicago Tribune* readers and reporters alike expressed ambivalence and hesitation towards the notion of a foreign pedagogy taking root in the USA.

The School of Design and the Second World War

In late 1938, the director of the Museum of Modern Art, Alfred H. Barr, responded to the criticisms of Natalie Swan, a former student of the Bauhaus in Dessau who had written to *The New York Times* to express her distaste for the concept of a new Bauhaus opening on US soil. Swan’s editorial is underwritten with a palpable wartime anxiety regarding the presence of European ideologies:

I profited greatly from a close contact with the best European culture, but I do not believe that this culture [...] can or should be transplanted here. [...] In America we have our own tradition and, we hope, our own future. In the field of design we must be continually watchful for valid ideas based on our own ecological and social needs and we must always beware of dated ideologies.¹¹

The author is responding to comments made by Barr regarding the Bauhaus exhibition at the Museum of Modern Art, in which he stated that ‘the Bauhaus “has a message for America and for the future”’.¹² Swan’s anxiety around the possible results of this transplanting of ideologies is most audible in her sombre statement: ‘In America we have our own tradition and, we hope, our own future’. In addition to the charge that there was no longer a place for art pedagogy during war, the Bauhaus faced the stigma that came with its German origins. Barr

6 – Lloyd C. Engelbrecht, ‘The Chicago Years, 1937–1946’, in Lloyd C. Engelbrecht, Hattula Moholy-Nagy, and Regan Brown, *Moholy-Nagy: Mentor to Modernism*, Cincinnati, OH: Flying Trapeze 2009, 533.

7 – Ibid., 538.

8 – Lloyd C. Engelbrecht, ‘Modernism and Design in Chicago’, in Sue Anne Prince, *The Old Guard and the Avant-garde: Modernism in Chicago, 1910–1940*, Chicago: University of Chicago Press 1990, 123.

9 – Engelbrecht, ‘The Chicago Years’, 539.

10 – Hal Foster, ‘The Bauhaus Idea in America’, in *Albers and Moholy-Nagy: From the Bauhaus to the New World*, ed. Achim Borchardt-Hume, London: Tate Publishing 2006, 96.

11 – Natalie Swan, ‘Opinions Under Postage’, *The New York Times* (18 December 1938), 162.

12 – Ibid.

defended the Bauhaus, responding to Ms Swan's xenophobia by stating that she was:

making no startling revelation by pointing out that various European art movements had their influence on the Bauhaus. The Bauhaus never denied this. After all, did not Gropius invite several teachers to work with him at the Bauhaus primarily because they were already leaders in such movements as Expressionism, Cubism (in its German form), and Constructivism?¹³

13 – Alfred H. Barr, 'Bauhaus in Controversy: Alfred H. Barr, Director of the Museum of Modern Art, Answers Criticisms', *The New York Times* (25 December 1938), 112.

14 – Adam J. Boxer adopts a stance similar to Swan's perspective that the New Bauhaus would allow all kinds of European avant-garde principles to be transplanted to the USA: 'While the photographic work of the masters of the New Bauhaus/School of Design in Chicago had its roots firmly in Constructivist principles [...], what makes the work so tantalizing and engaging [...] is its appropriation and integration of Dada and Surrealist vocabulary. The artists [...] were consistently successful in blending the rigorous structuring of Constructivism with the unconscious fantasy of Surrealism'. While, as opposed to Swan, Boxer refers to the pre-war avant-garde movements of Constructivism, Dada and Surrealism as positive influences, what is lacking from the scholarship on this period is an understanding of the work put forth by this group of artists not based on formal similarities, but on their underlying principles of the productive power of visual knowledge. See Adam J. Boxer, 'Introduction', in László Moholy-Nagy et al., *The New Bauhaus, School of Design in Chicago: Photographs, 1937–1944*, New York: Banning + Associates 1993, 6.

15 – Phyllis Ford, 'Moholy-Nagy Brings Life of Future – Today. Designer's School Uses Odd Mediums', *The Chicago Daily Tribune* (1 August 1943), n.p.

16 – László Moholy-Nagy, 'Commencement Address at the End of the Spring Semester 1942', reprinted in Hans M. Wingler, *The Bauhaus: Weimar, Dessau, Berlin, Chicago*, ed. Joseph Stein, trans. Wolfgang Jabs and Basil Gilbert, Cambridge, MA: The MIT Press 1969, 200.

17 – Ibid.

18 – Engelbrecht, 'The Chicago Years', 531.

19 – László Moholy-Nagy, 'Better Than Before', *The Technology Review*, 46:1 (November 1943), n.p., reprinted in Wingler, *The Bauhaus*, 200.

Barr's rebuttal is a show of support for European avant-garde movements as a point of pride. His tone hints at disbelief that the influence of leaders of such prominent avant-garde movements could ever be considered anything but a blessing to the US art scene.¹⁴ Despite Barr's response, the New Bauhaus continued to be met with scepticism. In other articles explaining the unique pedagogy of the school, reporters often assumed dubious tones and emphasised the foreignness of both Moholy-Nagy and the information presented about the school. These reporters used headlines such as 'Designer's School Uses Odd Mediums', and repeated that Moholy-Nagy 'is sometimes difficult to understand'.¹⁵

Once the school was established, it was only a few years before the attacks shifted from a focus on the school's foreign origins to a debate about the productive value of art in the context of war. By the time Moholy-Nagy felt the need to defend the significance of art and design pedagogy in the commencement address of the first class of graduates from the School of Design, the USA had been involved in the war for six months. Responding to criticisms in the press, Moholy-Nagy stressed the importance of education. He appealed to the graduates:

It is a great privilege to be allowed the exercise of one's skill and ambition in times of war when millions die and additional millions barely survive. But it is a privilege granted to you by society, an investment made for the future benefit of man. [...] You are the men and women on whose sincerity and effort depends the future progress of education.¹⁶

The rhetoric of Moholy-Nagy's commencement speech, just months after the attack on Pearl Harbour, highlights the heaviness of the mood at what was supposed to be a celebratory occasion. Speaking of hope that the students' creativity could one day contribute to the 'productive and harmonious existence of a new generation', Moholy-Nagy clearly wished to paint the future as less sombre than the current circumstances, while simultaneously defending his pedagogy to its critics; this would not be the last occasion on which he would be required to defend the school's place in the wartime climate.¹⁷

In response to his own experience during the First World War and the critics who spoke of the supposed luxury of studying art during the war, Moholy-Nagy implemented creative programmes specifically for veterans of both wars in order to show how the Bauhaus pedagogy could be put to use for a multiplicity of purposes.¹⁸ 'Rehabilitation' is the term Moholy-Nagy used to describe what he believed the distinctly cross-media pedagogy of his creative programmes could provide for injured veterans and their caregivers. His programme was meant to aid 'disabled [...] members of the armed forces of the present and past World War, servicemen discharged from Army camps because of breakdowns, [...] psychopathic cases, [...] and injured industrial workers'.¹⁹ Moholy-Nagy is specific in his use of language, referring to 'breakdowns', 'operational stresses', and 'psychopathic cases' as different categories of injury. Yet even more striking is the fact that the final category is reserved specifically for industrial workers. For Moholy-Nagy, the kind of trauma caused to the body and mind of a soldier by war was analogous to the trauma caused by industry to the worker. To combat this problem, he calls for a progressive pedagogy: 'Such a person must be trained in the use of all his faculties. In order for his buried energies to be released for contemporary orientation, he has to overcome his old habits, ideas, and judgments not any longer

applicable to our age'.²⁰ According to Moholy-Nagy, creativity was something that 'can be applied to all types of work in the artistic, scientific, and technological sphere. It means inventiveness, resourcefulness, the ability to establish new relationships between given elements'.²¹ To this implementation of his Bauhaus pedagogy, he gave the name 'conditioning to creativeness'.

20 – Ibid.

21 – Ibid., 201.

Reversing the Division of Artistic Labour

Before investigating how Chicago's wartime climate affected the curriculum at the School of Design, it is important to address one of the most fundamental aspects of Bauhaus design pedagogy – namely, its basis in interdisciplinarity. In one of his initial descriptions of the pedagogy of his new school to the press, Moholy-Nagy uses a metaphor of the alienated factory worker to stress the importance of interdisciplinarity:

But why [...] has the specialist always to think down his channel? Age of conveyor belt, of disintegrated part, of screw driven into machine of which purpose and function he doesn't know. [...] We don't want to add to the art-proletariat that already exists. We don't teach what is called 'pure-art', but we train what you might call the art engineer. It is a remodelling of art-meaning we are undertaking.²²

22 – László Moholy-Nagy, 'Outlines of an Educational Program', 23 September 1937, reprinted in Wingler, *The Bauhaus*, 193.

In this citation, Moholy-Nagy compares the alienation of labourers from the commodities they produce to the separation of art forms. Not only does this hint that his constructivist background might not have been entirely 'pared of its residual socialism', as Foster stresses, but it speaks to the same concerns expressed in the constitution of the Chicago Arts and Crafts Society about the treatment of industrial labourers.²³ His 'remodelling' of art practice is meant to counteract the problem of the narrow-minded specialist by implementing a distinctly interdisciplinary, cross-media pedagogy. Contrary to Foster's and Solomon-Godeau's claims that Moholy-Nagy's formalism was de-radicalised, Moholy-Nagy attempted to integrate his socialist and constructivist background with the message of the Bauhaus's synthesis of crafts, fine arts, and industrial design. Many leaders of different European avant-garde movements with conflicting political and theoretical positions were brought together to approach this same problem at the Bauhaus in Germany. Yet, in Chicago, Moholy-Nagy alone was charged with finding a voice for the school that could be understood and appreciated in an escalating US context of pre-war xenophobia, making his Marxist theorisation of interdisciplinarity all the more significant. This passage makes clear that Moholy-Nagy's socialist background is not completely erased by his capitalist affiliations with the Bauhaus in Germany or the USA, and in fact forms the basis of his notion of interdisciplinarity.

23 – Foster, 'Bauhaus Idea in America', 96. Robin Schuldenfrei appears to share Foster's position, although expressed with a less critical tone, when she writes that Moholy-Nagy changed 'almost overnight from a left-leaning artistic milieu to American government collaborations'. Schuldenfrei, 'Assimilating Unease', 89.

As described in the course catalogue from 1941, the School of Design's pedagogy was based on the principle of 'synthesis'. The catalogue states that 'the description of these courses gives naturally only a foretaste of the synthesis which may originate when the fundamentals are understood and governed by the student. Then he will be able to integrate them with the physical, psychological and social sciences, intellectual integration and history'.²⁴ This emphasis on synthesis and integration of art forms was proposed as an answer to the same pressing question of the relationship of man to machine. A Bauhaus education promised 'an indivisible education. The integration of art, science and technology may produce the genius needed for the socio-biological mastery of the machine – the problem of our generation'.²⁵ The text of the catalogue blames the industrial revolution in particular as the cause of 'not only the division of labour, but the division of mind as well'.²⁶ Throughout the catalogue, this vocabulary of integration, synthesis, and unification proliferates, and the stakes for ignoring such a strategy are proposed to be high: 'Without this unifying experience the over-rich complexity of our

24 – [László Moholy-Nagy], Course Catalogue, School of Design, 1941, Ray Pearson's School of Design Collection, 1930–79, Chicago History Museum Research Center.

25 – Ibid.

26 – Ibid.

27 – Ibid.

28 – [Moholy-Nagy], Course Catalogue, 1943–44.

29 – László Moholy-Nagy, 'Relating the Parts to the Whole', *Millar's Chicago Letter* (5 August 1940), 6, in Institute of Design collection, ca. 1934–1955. Ryerson and Burnham Libraries, Art Institute of Chicago.

30 – Ibid.

31 – Charles Sanders Peirce, 'Logic as Semiotic: The Theory of Signs', in *Philosophical Writings of Peirce*, ed. Justus Buchler, New York: Dover Publications 1955, 111.

32 – To clarify terms, photocollage here refers to the practice of adding multiple media to a photograph, including drawing or painting on the image itself; this is in contrast to photomontage, which indicates that most of the elements combined are photographic (for example, cutting and pasting elements of different photographs or mass-produced images to create one unique piece).

33 – Stephen Prokopoff, 'The New Spirit in American Photography', in Krannert Art Museum and Bowdoin College Museum of Art, *The New Spirit in American Photography*, Urbana-Champaign: University of Illinois 1985, reprinted in Boxer, *New Bauhaus*, 10.

civilization would appear as a terrifying chaos'.²⁷ The school's interdisciplinary pedagogy is premised on the notion that 'the whole field of contemporary architecture and design must be based upon an indivisible unification of formerly separated and independent fields'.²⁸ While this problem is not unique to the US context, Moholy-Nagy singles out US markets in a local newsletter called *Millar's Chicago Letter*, declaring 'Americans, a most resourceful people in technology and production, have in one respect over-done specialization. Processes and institutions have developed which, however ingenious, are wasteful because they are poorly related, each to the other'.²⁹ He cites the specific context of the impending US involvement in the war, declaring boldly that 'whether or not Hitler wins, whether or not we get into the war [...] America is now the country to which the world looks'.³⁰

One example of how the photography department at the Bauhaus and later School of Design practised this pedagogy was through their reliance on the photogram as a teaching tool. While Moholy-Nagy was producing photograms long before he came to Chicago, the School of Design provided the first opportunity for his use of the technique as a pedagogical tool, since Moholy-Nagy did not teach photography at the Bauhaus in Germany. Considering the severe financial constraints on the New Bauhaus during its early years, the photogram provided a cheap and simple method for teaching new students the most basic principles of photography, composition, and form. The photogram can be considered a type of photograph, since it is an image created on light-sensitive paper; yet it is distinct simply because there is no camera involved. Objects are placed on light-sensitive paper and exposed to light, creating darker areas where exposure has been blocked. Like Charles Sanders Peirce's definition of the index, the photogram tends to create more abstract images than traditional photographs, precisely because of its closer, more direct physical or existential connection with the objects pictured.³¹ There is no better example of the photogram's relationship to the index than the prominent featuring of the artist's hand, a common motif in photograms such as Moholy-Nagy's *Untitled* from 1926 (figure 1). The hand acts as a symbolic trace of authorship in the form of the artist's imprint as indicative of his or her presence, bringing to mind Peirce's own famous indexical example of the footprint. Yet with the photogram there is also a variance in the levels of abstraction. Multiple exposures to light can create more abstract layers within one image, or one single silhouette of an object can remain to provide an identifiable sign or representation.

The flat orientation of the photographic paper on the surface of a table, the unique images that are created in contrast to the multiples that can be produced from a traditional negative, and the compositional emphasis required by the organisation of elements on the page all speak to a creative process that resembles the practices of drawing and painting, in addition to collage techniques that combine these media.³² The photogram was put to use by the instructors as a method for combining an understanding of the ontological properties of the medium of photography with an artistic approach that resembled traditional media. As Stephen Prokopoff has stated, 'the photogram, in Moholy-Nagy's view, emancipated the photographic image from the camera's faculty. [...] The photographer was afforded thereby the same freedom exercised by the painter in reordering forms on his canvas'.³³ The act of physically arranging objects on the surface of the photo-paper, as opposed to relying on the frame to organise elements within the traditional field of one-point perspective provided by the camera, connects the photogram in practice to painting, drawing, collage, or photomontage.

Another artist credited alongside Moholy-Nagy as the modern creator of the photogram – namely, US photographer Man Ray – also saw affinities between the photogram and painting. Man Ray is most well known for his haunting surrealist images taken during his career in Paris, yet his early experiments with the photogram have been described by scholar Susan Laxton as connected to the artist's

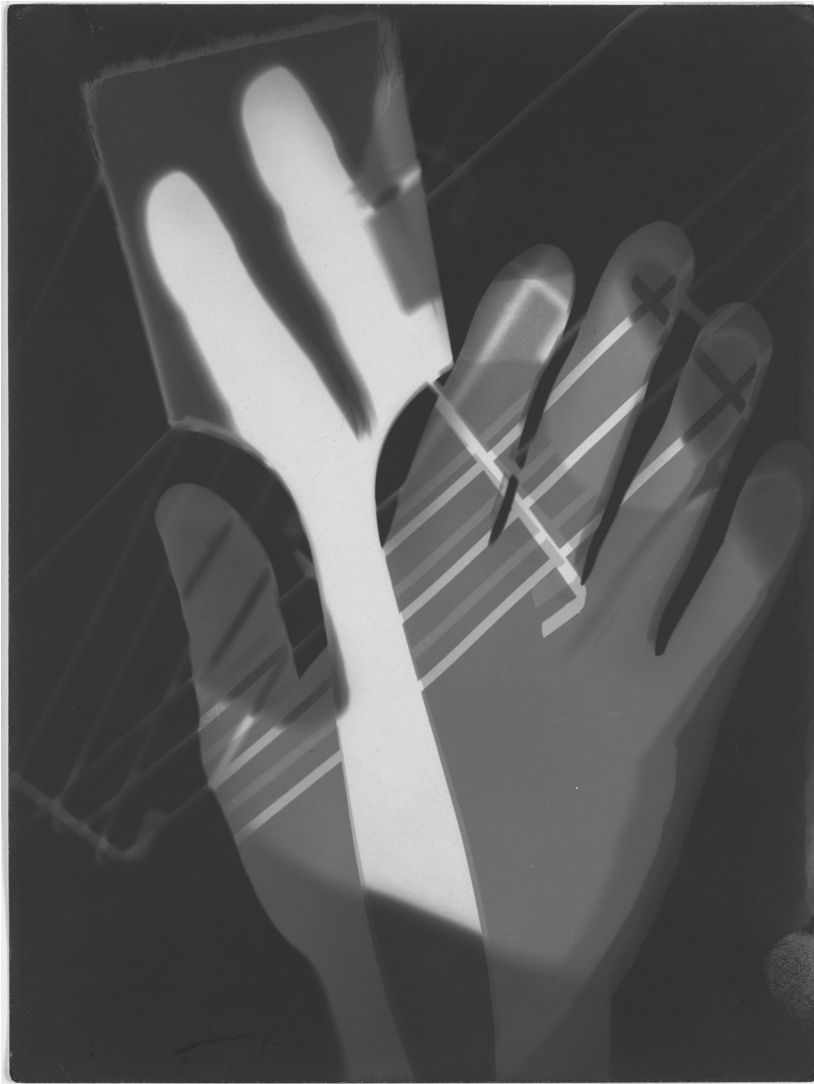


Figure 1. László Moholy-Nagy, *Untitled*, photogram, 1926. Image © The Metropolitan Museum of Art. Image source: Art Resource, New York. László Moholy-Nagy: © 2014 Artists Rights Society, New York/VG Bild-Kunst, Bonn.

painterly practice. Laxton explains: ‘Man Ray himself would come to look back [...] and see painting: “I was trying to do with photography what painters were doing,” he would write, “but with light and chemicals, instead of pigment, and without the optical help of the camera”’.³⁴ For both Moholy-Nagy and Man Ray, manipulating the chemical surface of the photo-paper with the transfer of light evoked a painterly process. As the students were instructed during their first year of study, ‘the specialist in photography cannot ignore the discoveries of contemporary painting’.³⁵

This shared notion of treating photochemicals and light as pigment in a painterly manner is clearly present in *Untitled* by James Hamilton Brown, an artist instructor at the School of Design whose work will be examined more closely in the final section of this essay (figure 2). In this strikingly painterly photograph, a woman turns her body with her arms slightly raised, tilting her head upwards and away from the viewer, her body resembling a metallic liquid as a result of solarisation. The technique of solarisation was primarily employed by the surrealists, and consists of re-exposing the positive of a photographic print during the printing process. The effect results in the lightening of the darkest areas of the image, producing a silver colour. Since the darkest areas usually define the outline of objects, solarisation can often give the appearance that boundaries of objects are being dissolved. In her discussion of surrealist photography, Rosalind Krauss

34 – Susan Laxton, ‘Flou: Rayographs and the Dada Automatic’, *October*, 127 (Winter 2009), 26, quoting from Man Ray, *Self Portrait* (1963), Boston: Little, Brown and Company 1988, 109.

35 – [Moholy-Nagy], *Course Catalogue*, 1943–44.

Figure 2. James Hamilton Brown, *Untitled*, gelatine silver print from solarised negative with hand-applied chemical splatter, ca. 1940. From László Moholy-Nagy, Gyorgy Kepes, Arthur Siegel, Nathan Lerner, James Hamilton Brown, and Adam J. Boxer, *The New Bauhaus, School of Design in Chicago: Photographs, 1937–1944*, New York: Banning + Associates 1993.



36 – Rosalind E. Krauss, *L'amour fou: Photography and Surrealism*, London: Arts Council 1986, 70.

describes this effect as a 'representation of a violent deliquescence of matter'.³⁶ This description is particularly apt when examining the work that Brown produced at the School of Design, because he frequently implemented solarisation as a photographic tool of manipulation to create an effect of dissolution. In this example, the woman twists in a network of black and white splatters that create a web of pigment around her. Closer inspection reveals that the splatter is not paint but photochemicals. The splatter is both positive and negative, the violent dissolution of pigment and the positive accumulation of tone. Is this network of drips an enclosing field around the body or marks on the body itself? It is, in fact, both. The figure seems to interact with the spray of chemicals as if it was a liquid mist in the air, at the same time as it literally dissolves the contour of her body. The actual dissolution of the image is visible in the areas of white splatter, where tonality reveals the breakdown of the photographic imagery, whereas the black drips resemble a three-dimensional surface of dark ink or paint. It is hard to say whether this would be considered a photograph or a photocollage, since the chemicals remain part of the photographic process, yet are treated as layers of painterly pigment.

Similarly, in the case of the photogram, light was conceptualised as an almost liquid entity that could pass through semi-translucent objects and be captured on photo-sensitive paper. As Moholy-Nagy described in the course catalogue for the

New Bauhaus's first year, the transfer of light is the basis of his photographic pedagogy. The catalogue explains: 'The photographic experiments reveal the fluid plasticity of light, its ability to radiate, pass, infiltrate, encircle'.³⁷ His conception of 'chiaroscuro in place of pigment' does not propose the familiar modern notion of the demise of painting in favour of photography, but instead the photogram as a kind of painting with light.³⁸

The interdisciplinary benefit of the photogram's flat orientation and compositional freedom did not make the photogram less photographic than straight photography. On the contrary, for Moholy-Nagy the photogram represented the essence of the medium. While the mechanistic aspect of photography appealed to his desire to merge art and industry in order to be freed of market value, the photogram allowed for a kind of pedagogical transparency valued by constructivists and teachers alike, albeit for different reasons. Moholy-Nagy's students would know the purpose and function of each element of artistic labour, demystifying all artistic processes and eliminating any possibility of concealment. The photogram was valued for its simplicity in explicating the ontology of the medium, yet also pointed to the expressive capacities of photography that far exceeded a traditional one-point perspective or compositional frame provided by the camera. As explained in a description of a course entitled 'Light as a Medium of Expression': 'Thus photography is taught at the start without a camera, using instead only photo-sensitive emulsion, creating photograms. This is the real key to photography'.³⁹ Understanding the photogram as the essence of photography proposed that abstraction, expressive composition, and even gesture came just as easily to the medium of photography as mimetic representation.

The photography department was so confident in the photogram as a teaching method that when the work of the students was shown at the Museum of Modern Art in 1942, the exhibition – entitled 'The Making of a Photogram or Painting with Light' – was curated around the idea of the photogram as an educational tool. In fact, the purpose of the exhibition was to educate viewers about the photogramic process. The Museum of Modern Art press release explained that the curation was specifically designed 'to show the relationship between photograms and photographs. [...] By concentrating on the light patterns in the photograph, the visitor is led to see the next step toward photogram-making'.⁴⁰ The photograms were arranged so as to create a pedagogical narrative for the viewer, emphasising the medium as a representation of the school's cross-media programmes. At the end of the exhibition, viewers were invited to create their own photogram using 'blue "print-out" paper which you have to expose to daylight, putting on it objects which you will find in the transparent container'.⁴¹ Additionally, both Moholy-Nagy and György Kepes, the head of the photography department at the School of Design, show the centrality of the photogram to their photography pedagogy in their respective articles in *Popular Photography*, which emphasise the importance of photographic process to the Bauhaus model.⁴²

Cross-media Meets War Industry

Studying the school's promotional materials, exhibitions of student work, and daily schedules of guest lectures reveals a striking shift toward the implementation of the war industry into this cross-media pedagogy. By 1942 the art history courses had been specifically altered to address the 'social usefulness of twentieth century art and its relation to a nation at war'.⁴³ New classes offered during the war included occupational therapy, model airplane building, soldering, welding, displays for war services, and blueprint reading. Additional 'Opportunities for women created by the war needs' are also specifically advertised.⁴⁴ From 1942 to 1944, servicemen were brought in to lecture the students on the importance of camouflage.⁴⁵ The previously concentrated efforts of the students to master light and shadow were directly applied to new theories of combat vision. Whereas previously a reversal of the

37 – [László Moholy-Nagy], Course Catalogue, 1938, New Bauhaus, Institute of Design collection, ca. 1934–55. Ryerson and Burnham Libraries, Art Institute of Chicago.

38 – László Moholy-Nagy, *Painting, Photography, Film*, trans. Janet Seligman, Cambridge, MA: The MIT Press 1969, 6.

39 – [Moholy-Nagy], 'Evening Classes', Course Catalogue, School of Design, 1941.

40 – 'The Making of a Photogram or Painting with Light Shown in Exhibition at Museum of Modern Art', press release, New York: Museum of Modern Art 1942.

41 – Moholy-Nagy's original panel sketches and descriptions for 'The Making of a Photogram', 1942, Department of Circulating Exhibitions Records II.1.65.1, The Museum of Modern Art Archives, New York.

42 – László Moholy-Nagy, 'Making Photographs without a Camera', *Popular Photography*, 5 (December 1939); and György Kepes, 'Modern Design! With Light and Camera', *Popular Photography*, 10:2 (February 1942), both reproduced in Lloyd Engelbrecht, 'Educating the Eye: Photography and the Founding Generation at the Institute of Design, 1937–46', in *Taken by Design: Photographs from the Institute of Design, 1937–1971*, ed. David Travis and Elizabeth Siegel, Chicago: Art Institute of Chicago and University of Chicago Press 2002, 31.

43 – [László Moholy-Nagy], Course Catalogue, 1941–42, School of Design, Institute of Design collection 1927–70. University of Illinois at Chicago, Daley Library Special Collections.

44 – [Moholy-Nagy], Course Catalogue, 1943–44.

45 – For a thorough discussion of the intersection of photography, film and camouflage from the nineteenth century through both world wars, see Hanna Rose Shell, *Hide and Seek: Camouflage, Photography and the Media of Reconnaissance*, Brooklyn, NY: Zone Books 2012. Robin Schuldenfrei also mentions the camouflage courses at the School of Design and their affiliations with other institutions advancing the field during the Second World War. See Schuldenfrei, 'Assimilating Unease', 104–09.

46 – [Moholy-Nagy], Course Catalogue, 1943–44.

division of artistic labour was the focus of cross-media pedagogy, in the context of the war the arts were unified under a new urgent call for the implementation of visual knowledge in the war industry. As the course catalogue states, ‘The School of Design in Chicago – because of its past educational policy – has readily adapted its program for designers and architects to the present emergency as well as to the problems of post-war production’.⁴⁶ A conscious and public effort was put forth in redesigning the curriculum, not by simply creating new material but by *adapting* the school’s established pedagogy, to address the urgency of world war.

47 – ‘Lecture Notes for Lt. Carson’, 1942, Ray Pearson’s School of Design Collection, 1930–79, Chicago History Museum Research Center.

Guest lecturers from the military served to underscore the importance of this contribution on the part of the students, putting into practice Moholy-Nagy’s belief in the privilege of studying art in a wartime context. Lieutenant Carson, a guest lecturer from the Army Air Corps in Dayton, Ohio, articulated the important connection between photography and the war industry when he addressed the students, claiming that ‘in World War I photography played a prominent part’. He elaborated by quoting ‘one of Hitler’s strategists’ who claimed that ‘the military organization with the best photographic reconnaissance will win the next war’.⁴⁷ The students were informed of their potential contribution in photographic form to the elimination of the Nazis. As Carson explained, ‘photography is the most vital weapon of the RAF [Royal Air Force]. At first their bombings were sadly inaccurate, but today because of photography, they hit their targets. Photography revealed the reasons for past errors’.⁴⁸ Photography, in particular, was singled out by the lecturer as an important tool for both reconnaissance and effective strategies of warfare.

48 – Ibid.

Another guest lecturer, George F. Kock, described how tactics used for camouflage were directly related to the experiments with photography using the photogram, specifically the importance of the transfer of light and shadow. He instructed the students that ‘vertical aerial survey pictures show a shadow pattern which reveals the relief of the object. This shadow pattern is always changing and if the day and hour of the exposure and the latitude of the place is known, the height of any structure can be computed’.⁴⁹ These lectures show an application of Bauhaus pedagogy to a new wartime interest of camouflage as a way for the art students to contribute to war efforts. In the photography programme, objects with varied levels of opacity were often used in photograms in order to experiment with how light was filtered through objects to produce variations of shadows. The light can pass through the material in some areas, darkening those areas that are exposed while leaving traces of white where the material blocks the light. The material leaves an uneven abstract pattern, where some of the holes bleed into others. The process of light passing through the holes in the objects could be seen to mimic the photographic method, imitating the way light is filtered through a camera lens. It also, in effect, transfers the pattern from the object to the photogram.

49 – George F. Kock, ‘Summary of Lecture on Sun Orientation’, School of Design, 2 December 1942, Ray Pearson’s School of Design Collection, 1930–79, Chicago History Museum Research Center.

These photographic techniques based on the transfer of light through objects of varying transparency and opacity are illustrated by many photograms produced by Moholy-Nagy, including his *Untitled* from 1938, and can also be seen in correlation to his mechanical light sculptures such as *Light Space Modulator* (figures 3, 4). In Moholy-Nagy’s photograms, many of which date from before he came to the USA, experiments in positive and negative space and abstract composition become more complex with the introduction of materials patterned with holes, including everyday objects such as graters, cheesecloth, strainers, and even fabrics and film strips. In *Untitled*, for instance, crooked lines and gridded patterns emerge as abstract compositions as a result of light filtering through semi-transparent objects (figure 3). The *Light Space Modulators* put the abstract compositions of the photograms into motion, using any available surface surrounding the mechanised sculpture as a surface for the projection of light and shadow that changed with each inch the mechanism turned. Moholy-Nagy used the *Modulators* to create more images related to his photogramic experiments with positive and negative space, taking close-up photographs of the machine’s varied surfaces and even filming the machine in motion.

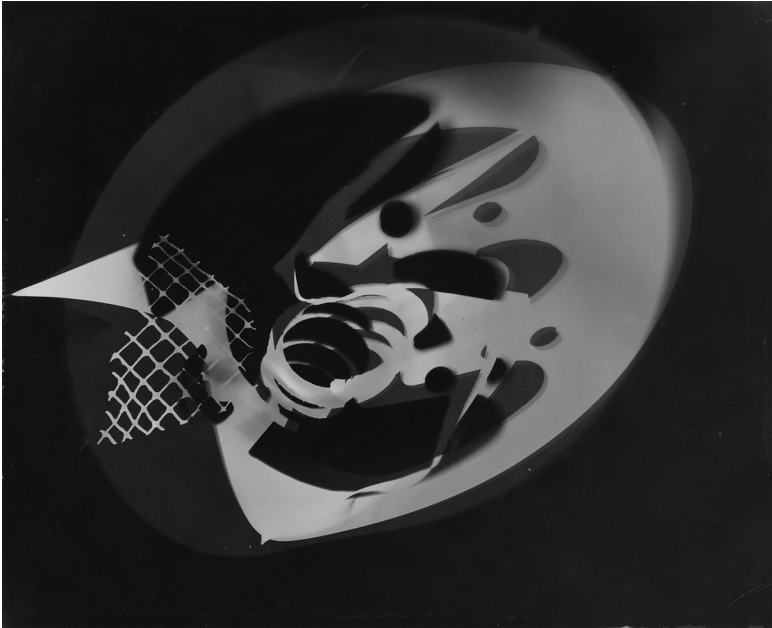


Figure 3. László Moholy-Nagy, *Untitled*, photogram, ca. 1938. Collection Swiss Foundation for Photography, Winterthur. László Moholy-Nagy: © 2014 Artists Rights Society, New York/VG Bild-Kunst, Bonn.

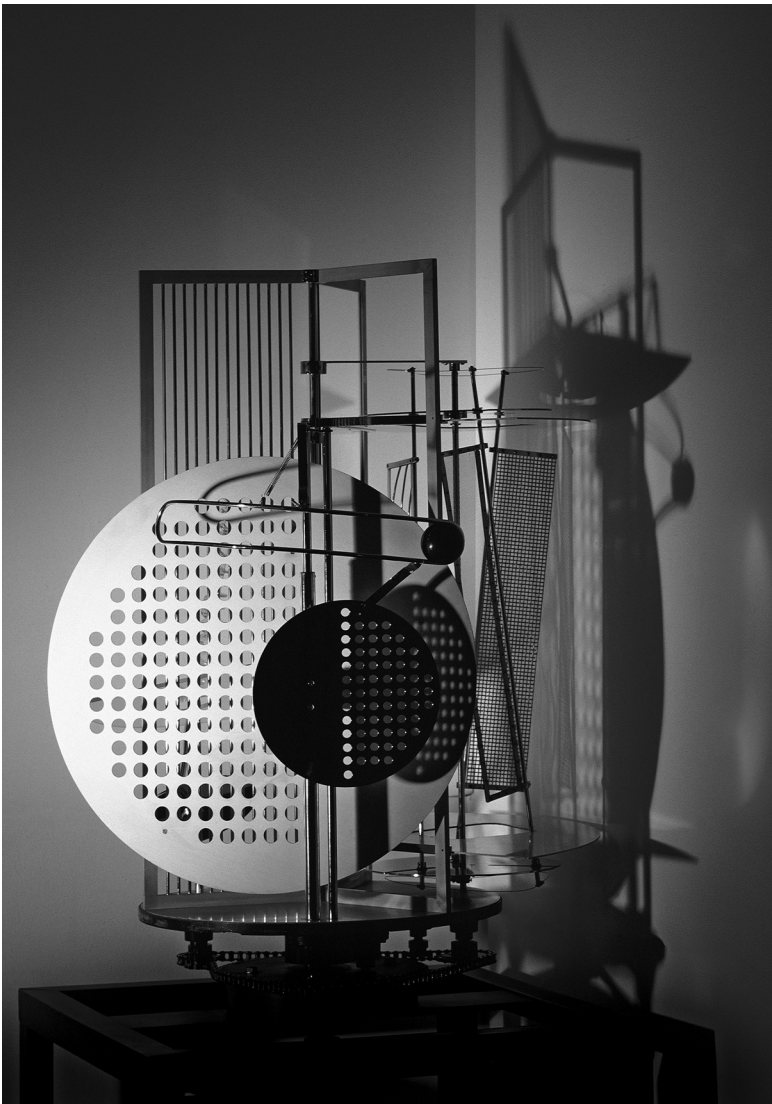


Figure 4. László Moholy-Nagy, *Light Space Modulator*, 1922–30. Bauhaus-Archiv Berlin, Photograph: Hartwig Klappert. László Moholy-Nagy: © 2014 Artists Rights Society, New York/VG Bild-Kunst, Bonn.

A newspaper photograph from January 1942 illustrates the connection between this fundamental aspect of the school's photography pedagogy and its application to wartime vision. It depicts Nathan Lerner demonstrating how military illusions can be created by shining a light through a wooden model, casting shadows onto a white surface (figure 5). In the newspaper image of Lerner on the left side of the page, we see the same process of light filtration resulting in abstraction applied to the wartime context in order to aid in the creation of camouflage and illusion, using theories of optics developed in their photography programme. As Lerner angles the light source, elongated patterns stream through creating abstract distortions that are used in diverse camouflaging projects to change the appearance of skyscrapers and roads. This connection is described in detail in the article, where Kepes uses a device to create patterns of light and shadow for the purpose of creating camouflage:

Pointing out that the study of light is very important in camouflage, Kepes produced a device constructed for the examination of the characteristics of light and shadows, and the effect of light on textures. He explained the mobility of the device produces great flexibility, and that by manipulating the forms on the device, which appear as airplanes, it will be possible to change the aspect to the flying observer.⁵⁰

50 – M.Z., 'Study the Science of Illusion', *Herald American* (12 January 1942), afternoon edition, 1.

This mobile device constructed to produce patterns of light and shadow by implementing texture further brings to mind Moholy-Nagy's *Light Space Modulators*. The article goes on to describe how one of their proposed plans includes placing 'strips of material' over light sources on roads that 'cast irregular shadows, breaking up the visual symmetry of the roads'. Kepes's and the students' familiarity with the abstract patterns created by filtering light through strips of hole-patterned material onto photo-sensitive paper leads to their proposal to use the same positive/negative space interactions to break up the regular surface of the road; the resulting luminous abstraction distracts pilots overhead and makes it much more difficult for war planes to use the road as a surface for landing.⁵¹ Moholy-Nagy's untitled photogram from 1939 demonstrates how the layering of semi-translucent materials creates overlapping abstract grids that could easily confuse a pilot attempting to land (figure 6). Abstraction becomes both a pictorial strategy and a wartime strategy, and art photography is the vehicle of both.

51 – Ibid.

In a lecture from 1942 Kepes stressed the importance of phenomenology to wartime vision, stating: 'we tend to see objects as we know them, that is, as we believe they really are, rather than as they appear at any given moment in the turmoil of the changing visual conditions of light, distance, movement'.⁵² In applying lessons of design to war conditions, Kepes defines combat vision as necessarily in flux, showing how the moving abstract patterns created by Moholy-Nagy's *Light Space Modulators* once again inspire camouflage techniques. Kepes argues that the true nature of vision is dependent on perception and a changing environment. The kinetic shapes of the *Modulators* on the wall might be seen to resemble the changing conditions of light and shadow that appear on the ground below as a bomber takes aim on the target, Chicago's Merchandise Mart, as pictured by the same newspaper article that illustrates Lerner's photogramic experiment on the right side of the page (figure 5). The caption reads: 'If they ever fly over Chicago, pilots of German-built Jap bombers like these may find themselves "lost in the woods!" For, if camouflaging experts now feverishly at work have their way, no invading air armada will be able to detect our loop's great skyscrapers'.⁵³ The students, those referred to by the article as 'feverishly at work', were compelled to reconceptualise their notion of the object of representation in new terms that were relevant to war practices. The notion that 'light could reform objects to the point of virtual dematerialization', an artistic tactic employed previously in the use of photograms, was applied to the illusionistic dematerialisation of camouflaged structures. Kepes additionally describes the centrality of light

52 – György Kepes, 'Form and Space Perception in Camouflage', School of Design, 21 October 1942, Institute of Design Collection, University of Illinois at Chicago, Daley Library Special Collections.

53 – M.Z., 'Study the Science of Illusion', 1.



Figure 5. Unknown photographer, *Wooden Planes!*, from *Herald American* (12 January 1942) afternoon edition, 1. Photo: Chicago History Museum. © 1942 Chicago Tribune. All rights reserved. Used by permission and protected by the Copyright Laws of the United States. The printing, copying, redistribution, or retransmission of this Content without express written permission is prohibited.

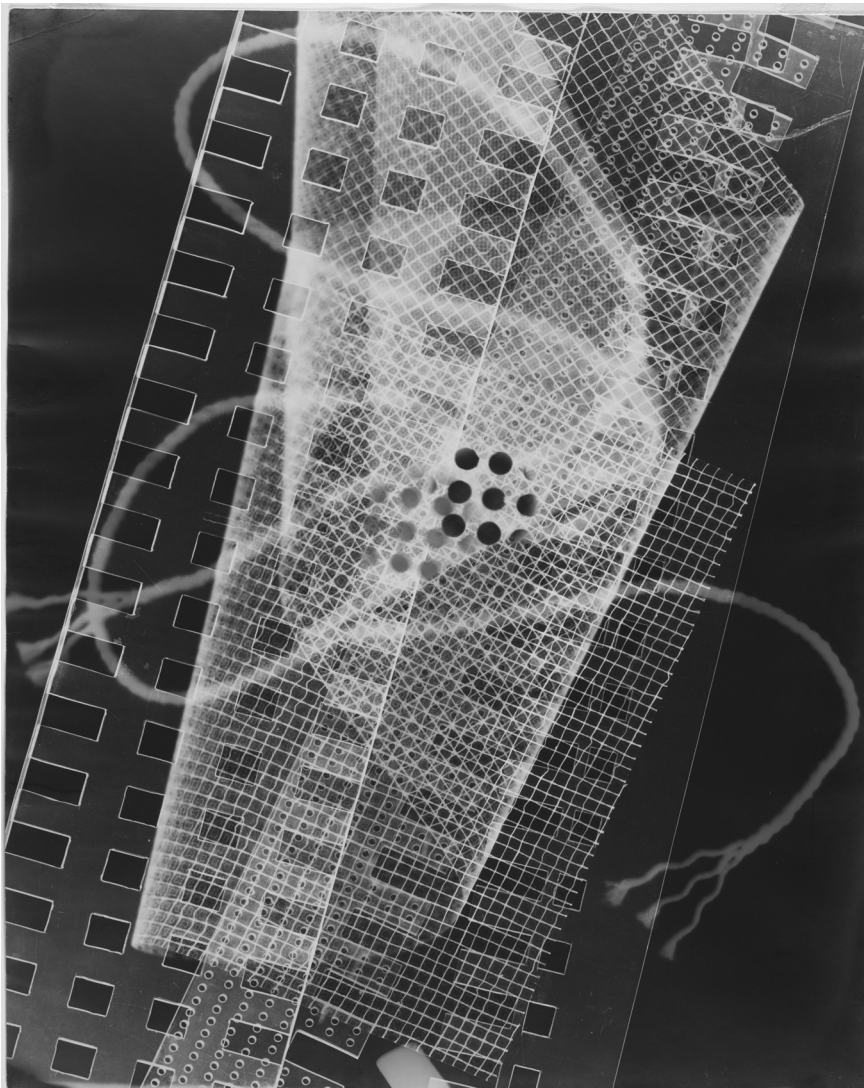


Figure 6. László Moholy-Nagy, *Untitled*, gelatin silver print, photogram, 50.6 cm x 40.3 cm, 1939. The Cleveland Museum of Art, Andrew R. and Martha Holden Jennings Fund 1992. László Moholy-Nagy: © 2014 Artists Rights Society, New York/ VG Bild-Kunst, Bonn.

54 – ‘Summary of the Introductory Lecture for the Camouflage Course by George Kepes, Head of the Camouflage Department, School of Design in Chicago’, 18 September 1942, Institute of Design Collection, University of Illinois at Chicago, Daley Library Special Collections.

55 – War Art Exhibition Catalogue, School of Design, Institute of Design Collection 1927–70, University of Illinois at Chicago, Daley Library Special Collections.

and vision to camouflage by directly conflating the medium of photography and vision, naming the eye as the ‘human camera’.⁵⁴

The students also produced an exhibition entitled ‘War Art’ to document their efforts. The illustrated cover depicts a bizarre silhouetted bird of prey, possibly an eagle representing the Nazis, and a small, yellow line of warplanes flying in the shape of a ‘v’ evoking a flock of migrating birds (figure 7). In the foreword to the exhibition catalogue, the importance of applying art practices to war efforts is stressed: ‘The creative and inventive mind of the artist has always been alert to human needs. So today, the arts, the applied or practical arts in particular, are serving to meet the urgent needs of the present, and new techniques and developments are utilized to aid in the national effort’.⁵⁵ While there are no images of the art produced in the type-written, stapled paper catalogue, there is a list of objects that includes posters, sketches for a mural, watercolours depicting the history of aviation, a wood carving entitled ‘Parachutist Card Players’ made for the recreation room of an aviation field, light panels, blue prints, and camouflage charts. Interestingly, the text explains that, due to security measures, the works could not be visually reproduced.

While students were learning camouflage techniques, they also used their artistic practices as an opportunity for reflection on wartime violence. Looking at some examples of the photographic work produced at the School of Design during this period reveals how teachers and students alike were processing the violence of war with their cross-media photographic experimentations. The work discussed in the following section represents a range of photographic techniques used by the teachers and students in the programme. As the work reveals, the curriculum was focused more on diverse photographic techniques than on implementations of a specific medium. In other words, as opposed to setting out to create a photo-montage, solarisation could be used as a manipulation technique in order to create

Figure 7. Ralph Graham (attributed), *War Art* exhibition catalogue, front cover, 1942. Courtesy of The Renaissance Society at the University of Chicago.



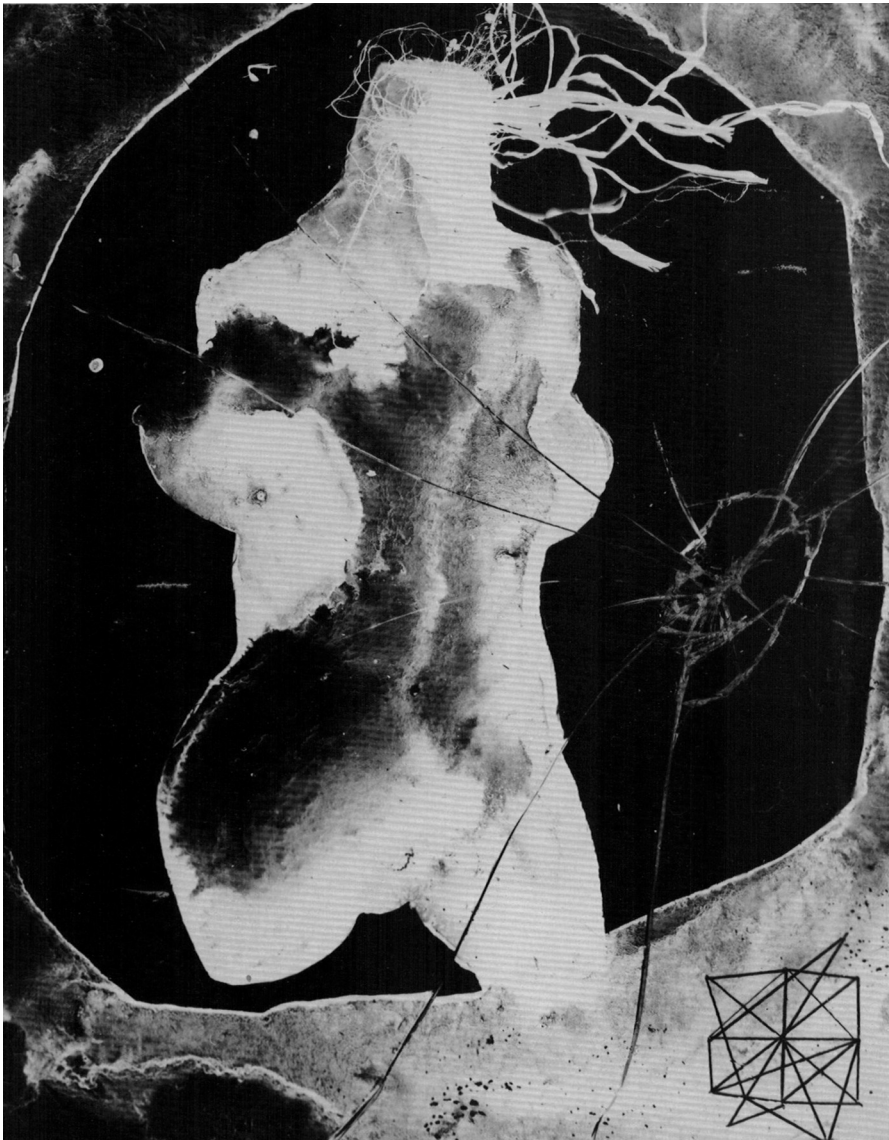


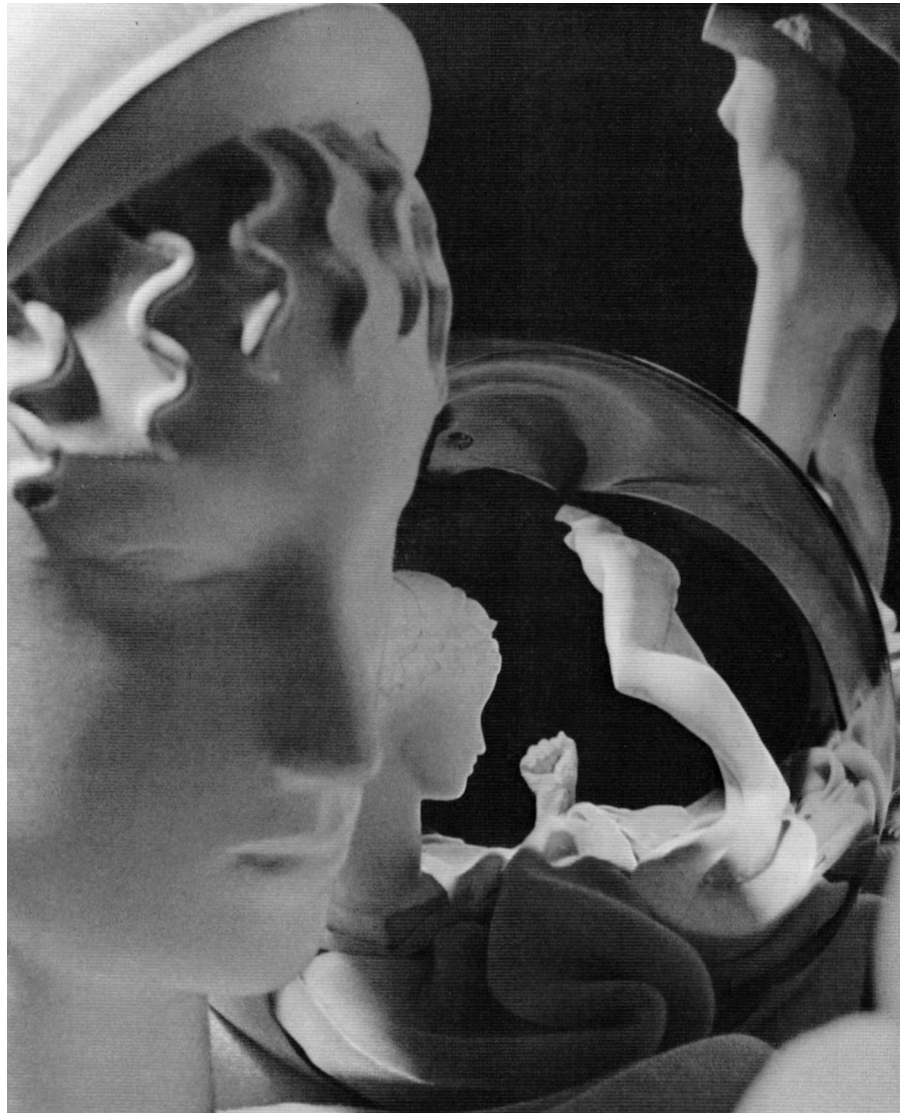
Figure 8. György Kepes, *Broken Venus*, gelatine silver print, 1938. Courtesy of the Estate of György Kepes.

the appearance of photomontage just as readily as other media could be introduced to the photographs to produce a photocollage.

Kepes produced a photograph depicting a fragmented female torso, aptly entitled *Broken Venus* (figure 8). This title references the classical female torso as a subject for sculpture as well as its specific associations with ruination and iconoclasm. Kepes's *Venus* is painted with photochemicals and rendered in chiaroscuro in order to model a sculptural form, yet maintains a gestural, painterly outline. Streaming from the stump of the decapitated neck flow strings that allude to a tangled mess of veins or nerves. Finally, the destructive context of the *Venus* is reiterated in the violently smashed spider web formation of the shattered glass, as if one was viewing the image through a broken camera lens. In this mainly abstract photograph, the only representational item – namely, the figure of the woman – is rendered by hand in gestural strokes as opposed to captured photographically. The breaking glass and small, geometric drawing in the right corner introduce other media, making the final product appear to be a photocollage. At the same time, the dramatic contrast of the wiry material protruding from the woman's neck would suggest that the original layer of imagery was created using a photogrammic technique to which more elements were added. Overall, the integrating of media is so seamless in this image that it becomes difficult to define, seeming to straddle the line between photogram, photograph, and photocollage.⁵⁶

56 – The most probable scenario is that the image was captured as a photogram (a unique image), with the broken glass sitting on top of the painted torso, then exposed to light and later documented with a camera from which the silver gelatine print was made. It was a common practice at the School of Design to use glass, or in this case broken glass, to press paint or other pigment onto the photo-sensitive paper, which was then washed away after exposure.

Figure 9. James Hamilton Brown, *Untitled*, toned gelatine silver print, ca. 1940. From László Moholy-Nagy, Gyorgy Kepes, Arthur Siegel, Nathan Lerner, James Hamilton Brown, and Adam J. Boxer, *The New Bauhaus, School of Design in Chicago: Photographs, 1937–1944*, New York: Banning + Associates 1993.



Another set of examples comes from a photography instructor at the School of Design whose work was previously examined in regard to the painterly use of photochemicals in *Untitled* (figure 3). A native Chicagoan, James Hamilton Brown was a graduate of the Art Institute of Chicago, spending the early part of his career as a commercial photographer before going abroad to fight in the First World War.⁵⁷ In his résumé of the early 1940s, Brown mentions his veteran status in both the ‘Mexican Border War’ and the First World War, his work in ‘Photo sensitometry in connection with Radar and Radio homing Signal work for the Special Devices section of Navy Aviation’, and finally, with a firm sense of pride at the end of the document, his membership in the thirty-third Division American Legion of the War Veterans Association.⁵⁸ Brown’s series of untitled photographs depicts the decapitated female body of a sculpture repeated at a variety of angles and reflected in multiple convex and straight mirrors.⁵⁹ The various sculptures pictured in the photographs were in fact probably produced as part of the sculpture department at the school, in line with their valuation of unifying practices across disciplines.

Brown fragments the female sculpture by consistently positioning the figure so that the head disappears into a barely noticeable, foreshortened smudge, leaving the stump of a decapitated torso. In *Untitled*, a torso appears twice as it is reflected in a spherical reflective surface (figure 9). On the right side of the photograph, the sculpture is turned in such a way as to obscure the head, while also coming close to

57 – Elizabeth Siegel, ‘James Hamilton Brown’, in *Taken by Design*, ed. Travis and Siegel, 238.

58 – James Hamilton Brown, curriculum vitae, ca. 1940, Institute of Design Collection 1927–70. University of Illinois at Chicago, Daley Library Special Collections.
59 – The photographs come from two different exhibition catalogues: *Light and Vision: Photography at the School of Design in Chicago, 1937–1952*, Chicago: Stephen Daiter Photography 1994; and Moholy-Nagy et al., *The New Bauhaus, School of Design in Chicago*.

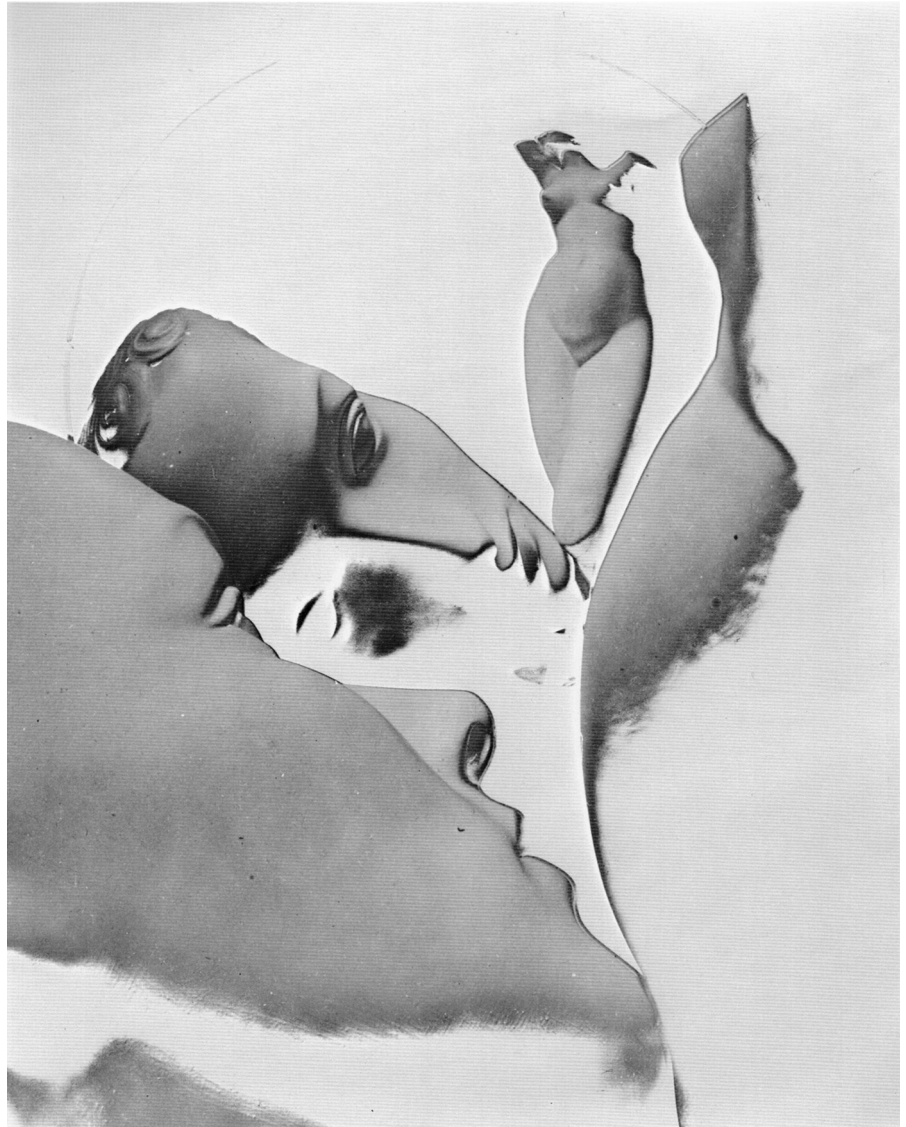


Figure 10. James Hamilton Brown, *Untitled*, gelatine silver print, ca. 1940. From László Moholy-Nagy, Gyorgy Kepes, Arthur Siegel, Nathan Lerner, James Hamilton Brown, and Adam J. Boxer, *The New Bauhaus, School of Design in Chicago: Photographs, 1937–1944*, New York: Banning + Associates 1993.

being cut-off by the edge of the photograph. As it appears in the reflection, the head is entirely indistinguishable, as the distortion from the convex surface renders the figure elongated to the point of complete obscurity. In the foreground of the image on the left side, a disembodied head faces the viewer in a three-quarter position. The reflection of the head therefore faces away, looking off towards the reflection of the headless torso. Both fragments seem paradoxically autonomous, yet it is impossible not to wonder if the head at one time belonged to the body.

In two additional untitled photographs from the same series, the female torso is doubly fragmented (figures 10, 11). Most noticeably, the figure is fragmented by the removal of the arms and legs, and the obscuring of the head. In addition, the structure of the body is even more worn away by the effect of solarisation. Similar to the premise that light can be used in a painterly manner, Brown's photographs reveal an interest in the ability of light to transform the seemingly solid boundaries of objects. Brown's use of techniques of photographic manipulation such as solarisation creates raw, rough, messy textures along the contour of the body that allude to the destruction of flesh. This is especially true of the photograph with the black background, where the darkness of the image defines the edge of the form, giving it the appearance of a torn edge. Additionally, the abstraction of the smaller torso and outline in white creates the impression that there is a distinct gap

Figure 11. James Hamilton Brown, *Untitled*, gelatine silver print, ca. 1940. From László Moholy-Nagy, Gyorgy Kepes, Arthur Siegel, Nathan Lerner, James Hamilton Brown, and Adam J. Boxer, *The New Bauhaus, School of Design in Chicago: Photographs, 1937–1944*, New York: Banning + Associates 1993.



in place of the woman's head. The head is pushed back so severely that it is barely noticeable, and instead there is only a 'v' shape where the head and neck should be. The outline also rounds the edges, emphasising that the body is not fragmented due to foreshortening or other plausible photographic effects, but actually appears to be broken, with stumps where the legs and arms should be completely visible. While Kepes mixes many different media, painting and drawing on the surface and using glass to produce the spider-web shatter pattern, Brown's images are photographs that use manipulation to simulate the effects of photomontage. While it looks like the bodies are torn at the edges from solarisation, placed on a page like they were ripped from a magazine, in actuality the images were produced using a mirror. Brown uses photographic manipulation techniques to create a play of ambiguous surfaces, using the reflective capabilities of the mirror to create a surreal, extended space within the photograph while simultaneously dissolving any clear surface boundaries with solarisation.

In a course description, Kepes writes of 'a genuine "language of the eye" whose "sentences" are the created images and whose elements are the basic plastic signs, line, plane, halftone gradation, colour, etc'.⁶⁰ Understanding the formal elements of pictorial composition as a kind of visual syntax made of signs points to yet another way in which violence is introduced into these photographs. In Rosalind

60 – György Kepes, 'Education of the Eye', *More Business*, 3:11 (November 1938), n.p., reproduced in Wingler, *The Bauhaus*, 197.

Krauss's interpretation of Jacques Derrida, the mark as sign represents an inherent duality and violence. The temporal fissuring of the mark from its moment of making results in a splitting of the subject that is necessarily violent. Like a photograph, the mark is an index, and the 'index's violence is [...] a condition of the structure of the marker's having been cut away from himself'.⁶¹ Derrida describes this gesture of 'arche-writing' or marking as 'arche-violence, loss of the proper, of absolute proximity, of self-presence, in truth the loss of what has never taken place, of a self-presence which has never been given but only dreamed of and always already split, repeated, incapable of appearing to itself except in its own disappearance'.⁶²

The violence pictured in Brown's solarised untitled photographs is uncannily similar to Derrida's description of the process of arche-writing. On the one hand, these images seem explicitly to represent the Derridian temporally split subject. This female figure is already split in her clear decapitation, just as the disjointed parts are repeated and doubled. The mirroring of the self speaks to self-presence, yet in her disappearance and blank stare it is a presence that seems dream-like and unattainable. As the model's vacant eyes stare into her reflection, the solarisation allows her to witness her own disappearance – the disintegration of her own body – in a manner akin to Krauss's definition of solarisation as 'a violent deliquescence of matter'.

Returning to Brown's painterly *Untitled* with this Derridian framework for violence, the mark in Brown's image can be interpreted as visibly violent, as the marks of the photochemicals dissolve the body's presence at the same time as they claim their own (figure 2). With the knowledge that this photograph was produced in the USA in the 1940s, it is hard not to see a parallel to the paintings of Jackson Pollock. According to Krauss, Pollock's mark-making process of splattering paint onto the canvas *below him* results in the finished paintings inhabiting the flat realm of the horizontal.⁶³ Like Pollock's technique, the chemical splatter on Brown's photograph is an index of the position of the artist above the surface. The chemicals pool on the surface of the photo-paper, allowing the image to be dissolved. In Krauss's account of Gestalt psychology, the horizontal realm symbolises the process of *bassesse*, of lowering; in contrast, in Brown's work the realm of the horizontal, or the flat surface of the table or floor below the artist, was tied to the production of the photogram. As opposed to the vertical orientation of the photograph, which is an index of the stance of the photographer's one-point perspectival relationship to the subject, as we have seen, the photogramic process relates to the acts of drawing and painting in its flat orientation. For Brown, the lowering of the photograph from its vertical orientation to the flat realm of the horizontal symbolised a unifying of media, a distinctly cross-media representation of the mark as violence against the body. It is the melding of media practices – of painting and photography – that mobilises the violence in Brown's image.

Conclusion: The Productive Power of Visual Knowledge

What is at stake in understanding this period of Bauhaus history is recognition of the hard work of students and teachers alike to contribute their artistic labour and visual knowledge to the war industry of Chicago. After Moholy-Nagy's death in 1946, the leaders of the new incarnation of the school as part of the Illinois Institute of Design brought notoriety to the institution's photography programme. In applying Clement Greenberg's Modernist theories to photography, Callahan and Siskind turn the school toward Solomon-Godeau's notion of deradicalised formalism as style. With this dramatic shift, grasping a more complex and social role for art photography during the School of Design years is especially important in breaking through a limiting binary that persists in scholarship between art photography and social documentary. Art photography in a US context functions as

61 – Rosalind E. Krauss, *The Optical Unconscious*, Cambridge, MA: The MIT Press 1993, 260.

62 – Jacques Derrida, *Of Grammatology*, trans. Gayatri Chakravorty Spivak, Baltimore, MD: Johns Hopkins University Press 1976, 112.

63 – Krauss, *The Optical Unconscious*, 276.

64 – Solomon-Godeau cites the return of art photography in the context of McCarthy-era targeting of Leftist documentarians, creating a binary and positing art photography as essentially conservative when compared with social documentary projects. The example cited is the suppression of the New York Photo League by the conservative anti-socialist political administration. Solomon-Godeau, 'The Armed Vision Disarmed', 79.

65 – György Kepes, Introduction of Nathan Lerner's Chicago Exhibition, 1973, Nathan Lerner Papers, Chicago History Museum Research Center.

more than just a conservative tool used to counteract the socially conscious imagery of documentarians in the tumultuous Cold War years to come.⁶⁴

In this particular chapter of the Bauhaus legacy, the story of the artists at the School of Design during the early 1940s reveals a desire to implement artistic labour in the most practical, concrete and innovative ways, setting it apart from the High Modernist formalism that follows. An investigation of the wartime pedagogy shows students optimistically struggling to find a strategy for art in a time of devastation and destruction. Yet, if the pedagogy based on the integration of artistic media was meant to function as a unifying force against the alienation of industrial life and the violent disjunction caused to society by war in principle, the work produced did not always evoke a similarly utopian message. At the same time, Brown's and Kepes's photographs reveal an unresolved tension between the artistic creation and wartime destruction of the human body. This tension was expressed beautifully by Kepes when he reflected on this period decades later: 'In photography we found a potent tool, that was not only capable for revealing man's fears and predicaments, but also of expressing his hopes'.⁶⁵ The Bauhaus did not leave the war behind in Germany after the school's closure by the Nazis in 1933. Instead, as the examples of pedagogical innovation and creativity highlighted in this article illustrate, Moholy-Nagy's strategic confrontation of wartime challenges for artists had only just begun upon his departure from Europe.