Rhetoric Matters
Image, Textures, and the Discussion around Modern Ornamentation (1932-1961)

Volume I

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Abstract: Rhetoric Matters
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This thesis explores the historical conditions and material transformations underlying the heightened interest in ornamental form following the institutionalization of modern architecture. After 1932, I argue, the materials employed in modern architecture grew increasingly rhetorical, that is, they began departing from and standing in opposition to modernism’s earlier commitment to the flat continuous surfaces of the 1920s and beyond. This transition took place around discussions on the ornamental and superfluous in architecture. My central argument here, however, is that the reawakening of ornamental practices in modern architecture was as much a material, morphological, and ontological evolution as a discursive project. The evolution responded, on the one hand, to the gradual and explicit incorporation of light as building material, and, on the other, to the emphasis on textures in industrial elements as traces of shared subjectivities within the mode of production of modernity. Both responses, I claim, were intimately related to the praxis and language that new art forms of reproduction (and production) brought about.

The photograms and photographic works that Moholy-Nagy made between 1922 and 1946 as well as his latest experiments with plastics provided a new ontology for future discussions on the ornamental in the materials of modernity. The increasing interest in the tactile and textures introduced by debates on photography, the structural discussion of ornament and style in America’s “consumer’s Republic,” and the selective and photographic recuperation of history are significant episodes in the profound metamorphosis of materials that unfolded in the postwar years. The thesis concludes with an analysis of the formal and material evolution of Marcel
Breuer’s work of this same period. His emphasis on textures as the quintessential rhetoric expression of modern materials illustrates the historical and conceptual distance between postwar modern architecture and earlier periods. The ornamental use of modern materials by architects like Marcel Breuer unveils a fundamental strata in the archaeology of postmodernity: After the Second World War, modern architecture was no longer about social utopias but about material persuasion.
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Introduction
Rhetoric Matters

[Rhetoric Art] Supreme hand increasing the work of its sisters
and once [the task] is completed, it perfectly adorns it.
A. de Insulis, Anticlaudianus, s.XIII

The ‘project’, understood in the philosophical sense of the term, is the most typical result of the age of Humanism.
And characteristic of every project is a foretaste of the future at the expense of the present.

If it wasn’t for the needless multiplication of the rib, the decorative version of it,
they wouldn’t have had the intuition of things defined by surface first,
in which the ribs become subordinate arrangement. That means that the surface becomes structure.
A tremendous revolution was made possible by the particular understanding of ornament as we now describe it.
It seems to me that such an observation about what seems to be subordinate is always active
in techniques or theories. It just indicates a way of looking at buildings.

0.1 “For those who wish to go modern…and stay there.”

I will begin this dissertation with a quote and an image. The quote is by the Italian architecture
critic and historian Bruno Zevi. It was written in 1948, four years after he returned to his home
country following the completion of his architectural studies in the United States:

After a century of predominantly decorative, sculptural and a- or non-spatial architecture, the
modern movement, with the splendid intent of returning architecture to the expression proper
to it, banished decoration from building, insisting on the thesis that volumetric and spatial
values are the only values legitimate to architecture…It is clear then, that as architects we
should not underscore the decorative rather than the spatial in architecture, then as critics and
historians we should not advance our preferences or dislikes in the field of decorative or
figurative means and expressions as the sole yardstick for our judgment of architecture of all
periods. This is all the more true because decoration (not in the form of applied ornamentation,
but in a new play of contrasting natural materials, in the new sense of color, and so on) is now
quite properly, coming back into architecture after twenty years of architectural nudism, glacial
volumetrics, stylistic sterilization and the purging of decorative details, contrary to
psychological and spiritual needs. “Freedom from decoration,” as an architectural program, can

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1 Supremasque manus apponit opusque sororum, perficit atque semel factum perfectius ornat.
Zevi’s paragraph here is simply anecdotal, illustrative of the myriad of similar mid-century considerations about the status of ornament in postwar modern architecture. That Zevi paradoxically identified a return to ornament in modernism with a renewed materiality was not uncommon. Claims against the cold, naked solutions of modern architecture were frequent by mid-century. Also commonplace was Zevi’s rhetoric of the “play of contrasting materials,” reminiscent of the language employed in media of reproduction. And yet, there were not many examples circulating in architectural magazines by the end of the 1940s that could be identified with an explicit interest in ornamentation and the decorative in buildings, neither were there new ornamental forms that could be unequivocally associated with modernism. Instead, Zevi’s words reveal a changing postwar visual attitude towards architecture: how to look at buildings and fine-tune the modern eye to stay alert about minute, marginal accidents in the very surfaces of architectural materials.

The image depicts a temporary construction built only ten years later. Between 1958 and 1959, nine architects participated in the design for the American Concrete and Masonry Association’s pavilion presented at the Concrete Industries Exhibition in Cleveland. [Fig. 001] William P. Markert, director of promotions for the National Concrete Masonry Association, commissioned the structural form of the building to the Ohio-based architects George F. Dalton (1915-2011) and Robert A. Little (1919-2005), the latter having been a student at Harvard during Walter

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3 The ones available—J. J. P. Oud’s Shell Headquarters in The Hague (1938-1948) and the works of Frank Lloyd Wright come to mind—were highly controversial for their return to figurative, naturalistic, or realistic modes of representation.
Gropius’s chairmanship. The participants combined personal contributions and ‘design by choice,’ that is, the selection of existing industrially-produced concrete blocks for playful compositions. Among the contributors we find such members of the second generation of modern architects as Marcel Breuer, Paul Rudolph, and Victor Lundy. The structural and spatial arrangement of the pavilion follows the formal logic of modern architecture and is vaguely reminiscent of a landmark piece of the modern movement: the 1929 German pavilion for the Barcelona International Exposition. This small albeit significant construction partakes of a very specific genealogy of modern architecture while opening up new possibilities for representation: indeed, the fashioning of the walls renders its final aspect uncanny. The enticing aspect of the vertical surfaces is underscored by the ‘dramatic’ use of light to emphasize contrasts and textures between different elements. If Adolf Loos’s or Mies van der Rohe’s ornamental appropriation of the polished finishes of marble, onyx, and travertine showed the path for the seductive interplay of natural surfaces as rendered by modern industry, the design of the prefabricated piece for the sake of aesthetics pushed visually-oriented modern architecture towards more tactile territories. This singular, marginal pavilion epitomizes the cacophonous status of architecture by the late 1950s in relation to the industries of fabrication. In this pavilion, the great panes of glass and white-washed walls that characterized the landmarks of modern architecture during the 1920s had been replaced by a series of repetitive elements: material streaks and trellises of light and shadows announcing a new prefabricated garb. [Fig. 002]

There was a correspondence, however, between image and language. The pavilion, described as “the fashion gateway” for the use of concrete blocks, intertwined matter and physiognomic
metaphors for the sake of commercial eloquence. Manufacturers of prefabricated concrete blocks asserted that by using them, the architect could achieve “walls of fashion, sculptured to your own personality.” For instance Shadowal—the commercial name of one of these blocks—was a product marketed to render “1000 faces.” The postwar advertising industry rejected the idealized identification between content and form to favor variation, customization, and circulation. Several of the combinations featured at the pavilion exploded complex symbolic associations in relation to labor and fake craftsmanship: for instance, “the mottle-textured wall” employed by architect Alfred B. Parker from Miami, was “reminiscent of the hand-hewn stone walls of the Aztec civilization.” Screens as “ornamental breezeways,” patterns for “eye-catching luxury,” walls providing “kaleidoscopic magic,” “wealthy” continuous “motifs,” “notched effects” thanks to the “rugged gun-metal grey,” and “dart-like” compositions where underscored to fulfill the “enthusiasm for decorative grills” with a “little twist of the imagination.” The target was to achieve maximum effect and circulation with minimum expenditure. Matter, light, and language intermingled to propose a renovated subjectivity halfway between design, production, and consumption.

Advertisements promoting the appeal of variations in the colors, patterns, and textures of industrially produced building components were ubiquitous in professional media from the late 1940s on, a commercial strategy to market the material stock accumulated during World War II.⁴ [Fig 003] Many of these commercial endeavors, as in the case of the pavilion to which I am

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⁴ Catalogue of the Exhibition, Smithsonian Archives of American Art, Marcel Breuer Papers, Box 34.
⁵ Catalogue of the Exhibition, Smithsonian Archives of American Art, Marcel Breuer Papers, Box 34.
referring, hired architects, graphic designers, and even filmmakers such as Saul Bass to design or compose the final appearance of materials in a playful way. The industrial expressive qualities of plywood, clay, concrete, stone, plastics, and metals were purposefully voiced, and corporations such as Alcoa (Harrison & Abramovitz, 1952), De Bijenkorf Department Stores (Marcel Breuer, 1955), and the Reynolds Metal Company (Minoru Yamasaki, 1959) commissioned representative buildings halfway between shop windows and billboards. The US Office of Foreign Building Operations, under the supervision of an architectural advisory committee during the 1950s, backed the formal language of patterns, screens, and material details for the construction of American embassies and consulates around the globe, camouflaging this aesthetic preference under the spell of culturally sensitive “contextual” gestures. However, the Cleveland pavilion was as exemplary and prescriptive as it was symptomatic: according to the promoters, “[t]ime was when a wall was just a wall: A flat uninteresting surface, expensively covered and painfully lacking in depth, definition and texture.” The moment of redemption had arrived and with it “a complete and relieving change from the silent, stereotyped walls of yesterday [that] is reserved only for those who wish to go modern…..and stay there.” The loud and hyper-customized modernity that the pavilion proposed is entrenched in the optical eloquence that building matter provides. Postwar modernity relied on the media-like qualities of matter and building components as fundamental units in the construction of its ‘image’ for rapid dissemination and consumption within a thriving market. By then, modern architecture was no longer about social utopias but about material persuasion.

8 Catalogue of the Exhibition, Smithsonian Archives of American Art, Marcel Breuer Papers, Box 34.
Between 1945 and 1960, the spokesmen of various major strands within modern architecture—tastemakers such as Henry-Russell Hitchcock and Philip Johnson, advocators of organic architecture like Zevi, modernists sympathetic with organicism such as Sigfried Giedion, and Anglophile antiquarians like Nikolaus Pevsner—had explicitly welcomed the need for variety of expression in modern architectural buildings through the invigoration of their materiality.

Towards the end of the 1950s, it was common to find in professional architectural magazines in the United States the presence, sometimes marginal, sometimes central, of material patterns and textures in the façades of private and public commissions.

This thesis explores the historical conditions and the formal transformations underlying the return of ornamentation in modern architecture, once the materials employed for its representation had become increasingly rhetorical. By rhetorical I refer to the use of materials by architects that departed from, and were presented in opposition to, previous subscriptions to the flat continuous surfaces identifying modernism in the 1920s and beyond. The central argument of this dissertation is that the reawakening of ornamental practices in modern architecture followed as much a material and morphological evolution as a discursive project.

The morphological developments responded, on the one hand, to the gradual and explicit incorporation of light as a building material and, on the other, to the embodiment of collective subjectivities through the multiple agents involved in industrial labor resulting in a myriad of superficial solutions for building materials. Both aspects, I argue, are intimately related to the praxis and language employed in new art forms of reproduction and production. The photograms and photographic works by Moholy-Nagy done between 1922 and 1946 exemplify this visual evolution and provide the intellectual and systematic framework for a discussion of
materials within modernity. In addition, these techniques helped to envision the ongoing reconceptualization of matter and energy that took place in science by the beginning of the twentieth century while transitioning towards more complex socio-environmental forms derived from this new ontology.

From an economic and social point of view, the collapse of hierarchical cultural categories and the increasing commodification of building materials revamped their exchange value as crucial agents and signifiers of individual ‘lifestyles’ and tastes. The increasing appreciation of the aesthetic qualities and possibilities of building materials within an industrial consumer-oriented society changed radically the visual cartography of postwar modern architecture. It is in this discursive and all-encompassing approach to the material environment that the recuperation of past architectures—always mediated through the lenses of the photographic apparatus—became as inspirational as they were advantageous in relating disparate genealogies of modern architecture and modernity. The postwar discussion on ornament became instrumental in introducing the nominal and intellectual conditions paving the ground for the arrival of postmodernism. By the late 1950s, the locus of modern architecture production moved from abstract space to building matter.

The steady change taking place in the material forms used by modern architects had many strands that, although certainly related, are not the focus of the present dissertation: Scandinavian empiricism, Italian neorealism, and the rapid dissemination of Brazilian architecture in the 1940s, are among the multiple episodes of a different postwar materiality that, although indeed enlarging the visual outlook of interwar and postwar architecture, deserve close autonomous consideration. Instead, the materiality I am seeking is a sophisticated response
to the outbreak of new art forms. This thesis argues that in postwar architecture, the materials used for the construction of a “second” or late modernity responded to techniques of image formation, imitating the tenets of these new art forms in relation to light manipulations, in particular, the techniques of light capture and transference that the avant-garde praxis of photography—and photograms—entailed. Materials were isolated, selected, analyzed, designed, and composed as elements of a larger image: commodities in themselves, incorporating new motifs and morphologies for the global circulation of architecture. The photographic appropriation of materials became the cornerstone of the larger construction of architecture as “image.” The familiarity with reproduction techniques and apparatuses made architects not only see materials in a different way but also urged them to design, manufacture, and compose building components according to the laws of light capture to produce new architectural forms. Architects where no longer designing dressings or claddings for modern structures but proto-screens ready to travel globally. To achieve this goal, architecture representation had to be reduced and compacted into what the Anglo-American art critic Herbert Read called the “constructive image,” the paradigmatic materialization of an idea unfolding the “spatial and plastic consciousness” in any give historical time. Read followed Freud’s “thinking in pictures,” understanding a process of image-object embodiment as the middle ground between aesthetic intuition and rationalization, between image and idea, to produce icons of universal artistic signification.

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Issues of style within modern architecture came hand in hand with an epistemological shift in the perception of materials and the possibilities of a renewed form of humanism. The Italian
architect and editor of the magazine *Casabella* Edoardo Persico⁹ provided an example of this discursive material paradigm when he underscored in the 1930s that modern architecture was not about the use of modern materials but about the modern use of materials. In decoupling material technology from modernity, Persico opened up the space of modernism to geographies where neither the industrial mode of production nor the materials employed were comparable to the ones available in central Europe. This thesis colonizes the actual and mental territory between these geographies of modernism, oscillating between the European artistic avant-gardes and the arrival of Bauhaus émigrés in America in the mid-1930s. The United States became the epicenter of postwar synthesis, experimentation, and development of material expressions, as well as the place of a heated debate in relation to ornamental practices. The triumph in the United States of a pervasive grammar of patterns and textures owed as much to a local conservative defense of ornament as it did to the democratization of aesthetic values spawned by new technologies of production and reproduction. The novel political space opened by this twentieth century art forms and media, however, had an underside, responding to larger class and corporate interests and dovetailing with a renewed capitalist attention to ornament.¹⁰

Although the periodization of this research has proven elusive, the institutionalization of modern architecture as the International Style in the United States in 1932 represents an end as well as a beginning, marking a period of evolution of modernity running in parallel with the development of American consumerism. The internationalization of modern architecture came hand in hand with several forms and dictums that corresponded also with the internationalization of its future

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¹⁰ By political space I refer to the social change that medias of reproduction such as film and photography introduced in the appreciation of works of art, so eloquently described by Walter Benjamin in 1935.
grammar and language: 1932 was also the year that the first English edition of *The New Vision* by Moholy-Nagy appeared. To be modern was to look at the world with modern eyes and to consider the use of materials in architecture as partaking in the larger logic of image-formation as the receptacle of common subjectivities. It is for this reason and no other that I do not consider the present work to be a thesis about architecture but one, instead, around the elements constructing an idea of modern architecture. And it is for this reason and no other that, as my research advanced, I felt the need to revisit the remote provinces where this shift became formally as well as discursively explicit in relation to architecture. The incorporation of electrical light as a building material, the use of photograms as models for production in plastics, the renewed interest in the tactile and textures as introduced by debates on photography, the structural discussion of ornament and style within the American “consumer’s Republic,” and the selective and photographic recuperation of history are just episodes partaking ontologically in a profound metamorphosis of the postwar environment. These were the “conditions of possibility,” to use Foucault’s expression, of a renewed architectural vision selecting the adequate material expression for what qualified as modern architecture within a rhetoric of postwar humanism. A materiality mediated by apparatuses of reproduction linked modern aspirations towards technological command with a postwar return to primitivism and atavism. It is in this context that the last chapter of the dissertation is situated: a case study concerning the assimilation and development of Marcel Breuer’s work in the United States. Photograms and photography brought about a full spatial construct: a symbolic, analytical, and discursive space that nonetheless resonated with scientific recalibrations of matter by early twentieth century

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physics. These modalities of image-formation became a referential medium that nonetheless had its own ‘agency’ in opening up the visual landscape of modernity for new material explorations.¹²

0.2_ A Few Notes on The Scientific Status of Matter

Until the nineteenth century, the definition of matter as a set of atoms or particles having mass and volume—weight and space—was a precondition for the development of Newtonian physics. This definition was stable and instrumental, since it excluded other natural phenomena such as electricity and electromagnetic radiation whose behavior had been explained through wave models. Light, radio waves, and X-rays necessitated a different field to be measured, visualized, and experienced. Scottish scientist James Clerk Maxwell had unified electricity, magnetism, and visible light as the same phenomenon in his theory of electromagnetic radiation by the mid-nineteenth century. It was in 1905 when Albert Einstein, building upon Maxwell’s new field and following Max Planck’s investigations on the light emission of black bodies, determined the relative status of light, whose behavior could be explained intermittently as a particle, following the rules of classic mechanics, and as a wave, that is, following the physics of electromagnetic fields. The new epistemology of light was contingent on the “quantification” of energy, that is, the assignment of different values of energy according to discrete levels within atomic structures. From the combination of these previously separated fields in classic physics, that is matter and energy, a new field emerged, quantum physics, and with it, a more comprehensive explanation

¹² On the agency of the photographic medium in the perception and design of architecture see Claire Zimmerman, *Photography and Architecture in the Twentieth Century* (University of Minnesota Press, 2014).
of the phenomena of light.\textsuperscript{13} The condition of the indeterminacy of atomic matter was named the dual wave-particle theory, that is, the ambiguity of atoms, electrons, etc. in their behavior as particles—and therefore with given positions in space—and waves, following undulatory movements in given fields. Einstein would develop in subsequent years the theoretical grounds for the concept of the “photon” (Lichtquant) as quanta of matter and energy without mass, responsible for the photoelectric effect of electromagnetic radiation. Quantum physics unified matter and energy, suspending the natural identity until the observation of the phenomena, that is, to the \textit{relativity} of the scientific experience. Later on, mathematicians and physicists like Hermann Weyl, Niels Bohr, and Erwin Schrödinger would further develop atomic models, building upon these previous scientific achievements.

Laymen poorly understood the material fallouts of quantum theory, least of all the special and general theories of relativity formulated by Albert Einstein. A philosophical attempt to clarify the questions that modern physics entailed came from Bertrand Russell who wrote in 1927 \textit{The Analysis of Matter}.\textsuperscript{14} Russell, who was educated as a mathematician before studying philosophy, expressed some reservations in relation to the continuity of matter and the phenomena expressed by quantum theory, pending further scientific investigation. Having as a reference the work of Arthur Eddington, physicist and astronomer of idealistic and psychological leanings who popularized Einstein’s theories in the English speaking world—and against Hermann Weyl’s explanation of Einstein’s model—Russell concluded that, from a philosophical point of view,


matter was “a system of events” triggering a psychological “phenomenalism” in perception and stimuli:

I suggest that the world consists of steady events accompanied by rhythms, like a long note on the violin while arpeggios are played on the piano, or of rhythms alone. Steady events are of various sorts, and many sorts have their appropriate rhythmic accompaniments. Quantum changes consist of “transactions,” i.e. of the substitution, suddenly, of one rhythm for another. \(^{15}\)

Russell took the musical references from the theories of Arnold Schönberg, for whom the abandonment of ‘ornaments’ in early twentieth century music corresponded with the substitution of subsidiary notes for developments and accompaniments in the transition from polyphonic contrapuntal forms to homophony. Harmony of rhythms, repetitions, and sequences responded to the modern need for comprehensibility among the masses, substituting the figurative, independent, and decorative ‘matter’ between notes, for the performance of the theme as a whole. \(^{16}\) Simplicity was required for wider communication.

I am invoking the new condition of matter arriving with quantum theory at the beginning of the twentieth century for the discussion on architecture and ornament not only because it helps to explain the almost environmental project beneath the decorative characters of series, patterns, and textures in postwar architecture but also because there were several biographical and intellectual overlaps between quantum physics and modern architecture theories. Herman Weyl’s *Space, Time, and Matter* published in 1918 interpreted Einstein’s theories and served as a reference for Giedion’s later *Space, Time, and Architecture*. Giedion would include Weyl’s formal and geometric investigations in ornamental matters and mathematical groupings in the seminars he taught at the end of the 1950s at Harvard University. Weyl, in his work on mathematical


symmetry, continued Andreas Speiser’s early 1920s investigations, who in turn incorporated images of patterns and motifs taken directly from Alois Riegl’s *Stilfragen*. On the other hand, Bertrand Russell became a close friend of Peter Blake, architect and future editor of Marcel Breuer’s work, while Russell was in Philadelphia at the Barnes Foundation in Merion, Pennsylvania in 1940. Russell had arrived there after teaching at the University of Chicago two years earlier, where he established a long friendship with American philosopher and pedagogue John Dewey, a member of the board of The Institute of Design in Chicago during Moholy-Nagy’s directorship. Dewey’s ideas about education conformed with the evolution of the experiential curriculum of The New Bauhaus.

In addition, there was an increasing desire for the integration of science and the humanities. Belgian-American chemist and historian George Sarton advocated for the continuity and collegial construction of knowledge among the different branches of science as the foundation for a “new humanism.” Lecturing frequently in the United States, Sarton taught history of science at Harvard University during the 1940s and was a reference for material scientist Cyril Stanley Smith, collaborator of Kepes in his Vision+Value series and follower of Hermann Weyl, who understood the new epistemology of material at the center of a larger aesthetic, humanistic project. It is then not a coincidence to find common narratives of continuity, internationalism, humanism, and the unity of science among authors such as Sigfried Giedion, László Moholy-Nagy, Herbert Read, Walter Gropius, Marcel Breuer, and György Kepes, before and after World War II in relation to materials. In this intellectual climate, the formal developments that

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This thesis presents echo the material findings and scientific models of modern physics. The manipulation of light in Moholy-Nagy’s work spins around the same oscillating idea: light as a material phenomenon and matter as the embodiment and representation of light. Moholy-Nagy managed to master light in photographic paper, the photogram, and plastic or plexiglass sculpture, providing in turn a new visual reference for the construction of architecture as image. If, following Karl Marx, the history of industry illustrates the real history of nature, the influence of photographic techniques in postwar years contributed to the visualization of the continuity between matter on a micro- and macro-cosmic level. Postwar ornament provided a new paradigm, intermingling energy in its visible form, materials, technology, and language; a paradigm that still haunts current architectural narratives.

0.3 Loos’s Ghost: Ornament and the State of Exception.

This thesis began as an inquiry into the status of ornament in postwar architecture. Applied ornament had been criminalized, banished, and displaced to the province of material surfaces in Europe by intermingling fashion logics with criminal, gender, and anthropological bigotry, pinpointed by the vulgar reading of the intellectual work of Adolf Loos by the beginning of the twentieth century. Despite the radical division between exteriority and interiority that Loos’s project represented, ornament underwent a process of public reprobation affecting the exterior face of modern architecture much more than the interiority of its objects, spaces, and environments. This process was formal as much as linguistic: the negative dialectic of

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ornament became motif and motivation of modern architecture, extending beyond the influence of the pioneers’ generation. The struggle of Marcel Breuer to address the decorative quality of his postwar surfaces or Giedion’s advocacy of the “revitalization of the wall” might be an example of this kind of elliptic linguistic roundabout.¹⁹ For many modernists, the use of ornament, and in particular, the use of applied ornament, became a disciplinary taboo, embracing wholeheartedly the professional, cultural, and anthropological consequences.

At the same time, the reduction of the commodity to its exchange value in early twentieth century European architecture and design, identified modern de-ornamentation as an “effective agent of circulation,” facilitating the distribution of goods by reflecting the “vanished form of labor” of a no-longer operative craftsmanship. From an economic point of view, Loos’s anti-ornamentalism matched the ethos of rationalization and optimization taking place under capitalist modes of production that extended to the very use of language, meaning, and form. ²⁰ European de-ornamentation staged the on-going strategy of “dispossession” and removal of the superfluous put into practice by capitalism to subsume subjects into the conditions of production. ²¹ It was also popularized in Germany at a moment of integration between austerity and objectivity (Sachlich) that cannot be disentangled from the economic situation affecting the Weimar Republic after World War I.

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²¹ Juan José Lahuerta, Humaredas. Arquitectura, ornamentación, medios impresos (Madrid, Lampreave, 2010).
However, despite the ideological impact of Loos’s narrative—or precisely because of it—and despite his alleged preference for an American and English tailored modernity, the significance, influence, and reception of Adolf Loos’s work was uneven in the English-speaking world. With few exceptions, past scholarship dealing with issues of subjectivity, surface, and ornament in modern architecture coincide almost verbatim in two important features: these narratives are Eurocentric, and vanish as soon as they arrive to the 1930s. In them, the paths that ornament, subjectivity, and modernity followed are sufficiently stated and problematized. In the United States however, Adolf Loos’s arguments against applied ornamentation were not necessarily central for the definition of modern architecture. A reaction towards outlandish impositions on American traditional taste for ornament, architects and critics viewed often the International Style Exhibition at MoMA with disdain—as “old new stuff”—, an architectural “lingo” appealing only to “The United Order of the Sobsisters and Trainedseals” and in direct confrontation with the deeply engrained American values of “freedom of choice.”


23 The International Style is forced on us by its apostles with all the fervor and dogmatism of a Moslem religieux…Utility was the watchword and ornamentation was eliminated.” Arthur T. North, “Old New Stuff,” See the guest-edited issue of Shelter (formerly T-Square) by Alfred Barr Jr., Henry Russell Hitchcock, and Philip Johnson apropos the exhibition where reactions and criticism to the show was included. Shelter, 2: 3 (April, 1932): 12-14.
about ornament was ideological and nationalistic, with occasional references to race and the banishment of alcohol consumption by the Eighteenth Amendment to the United States Constitution. If anything, the banishment of ornament had to do with the mismanaging of modern materials in the construction of the architecture of “the free enterprise.” In addition, references concerning Loos were scarce: Philip Johnson rarely mentioned the Austrian architect and Henry-Russell Hitchcock, who published an article on Le Corbusier’s and Adolf Loos’s built work in 1929, understood the contribution of his texts in his Modern Architecture: Romanticism and Reintegration, indicating that Loos’s “curious” intellectual position described ornament as “anachronistic.” The obituary of Loos in the American Magazine of Art described him as “the Frank Lloyd Wright of Austrian architecture,” and few references to his work appeared in international magazines in the twenty years after his death. Although reductive citations of his banishment of ornament circulated by 1934, Loos’s articles were not translated into English until 1966. However, by the end of the 1950s, there was an increasing interest in his architectural and theoretical work. Reyner Banham spoke about the “anathema against

North described the Tugendhat house by Mies as a “casino in a public park or a high-grade roadhouse” and criticized Le Corbusier’s forms in Villa Savoye as “difficult to negotiate by a sober man.”

Ralph T. Walker for instance, identified the modernism implicit in the banishment of ornament as the aesthetic response to the eighteenth amendment to the American Constitution, the one that outlawed alcohol from 1920 to 1933. Ralph T. Walker, “Prophets or Isms,” The T-Square Club Journal of Philadelphia, 1: 12 (November 1931): 5.

“Ornament…was Sullivan’s claim to originality as distinguished from great technical competence: he represented that surviving tradition in architecture which differentiated buildings as much through their symbolic effects in ornament as through their structural means of expression. Sullivan’s ornament was frequently not related to the forms of materials of the buildings: it was as arbitrarily applied as acanthus leaves.” Lewis Mumford, The Brown Decades. A Study of the Arts in America, 1865-1895 (New York: Dover Publication, 1931), 154.


ornament” as a form of indoctrination of young practitioners that was far from being resolved, and included for the first time translated paragraphs of Adolf Loos’s “Ornament und Verbrechen” for the English speaking reader in *The Architectural Review*. Critical studies and monographs in *Domus, Aufbau, Casabella*, and the *Architect's Year Book* by the end of 1960 contributed to the dissemination of Adolf Loos’s work among the new generation of architects on an international level. In 1956, Ludwig Münz had published the first monograph on Loos’s built work and few years later, a new edition of Loos’s writings (*Sämtliche Schriften*) appeared in Germany as a prelude to the English translation of Münz’s work, prefaced this time by Nikolaus Pevsner who had accused Loos as “declared enemy of all ornament” in 1936. To revisit and reawaken Adolf Loos’s heritage during the end of the 1950s was a signal of the thorough revision of modern architecture as a style, knowing that Loos’s position towards the decorative could only circulate during that period as an impersonation, a ghost, or an act of ventriloquism, often conducted thanks to the earlier publication of “précurseur” Loos’s “Ornement et Crime” in the pages of *L'esprit nouveau*. The insistence on the uncomfortable presence of ornament in the discourses of modern postwar architecture reveals the heavy dependence of architecture on appearance, surface, and fashion, as has already been demonstrated in recent scholarship, but also on the lightness of language and the flippancy of historical references as building blocks.

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towards the construction of a particular style. Ornament was ultimately superfluous, and as such, it remained, gliding across the surfaces of architectural elements and discourses for most of the twentieth century: it is in the surface gestures; in the redundancies of texts; in the excesses of language; in the triviality of indulgence; in the bountiful figurative speeches; and, ultimately, in the marginal oversupply of textures, that we find the perfect habitat for its discussion.

But perhaps there is yet another condition to address the status in which ornament was placed right before the mid-twentieth century in the American context. Modern architecture had been codified and precisely identified by architects, historians, and critics. The rejection of ornament belonged to the holistic hypnosis as polyhedral narrative that modern architecture put into practice. This denial was a clause, a fundamental one, in the contract that allowed modern architects to wear the badge that recognized them as such. And the rejection had to be explicit, formulaic, not only in its practice but also in its utterance. To be modern meant to have a different attitude towards ornament. It was a *sine-qua-non* condition, a rule that acquired one of its most well known apexes in Philip Johnson and Henry-Russell Hitchcock’s 1932 book *The

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32 On a burlesque note referring to the construction of the International Style: “The formula must be observed or excommunication follows. Itemized as (1) no basement (2) flat roof positively (3) gas-pipe railing for parapets (4) a semi-circular wall somewhere or any place (5) a portion of the second story must project beyond the first story wall supported on Lally columns (good business for Lally) (6) if possible introduce a cantilever concrete slab somewhere or any place (7) pent house or a screen wall on roof (8) outside ramp similar to the hog-runs in the Chicago Stock Yards, if possible (9) a continuous window across one entire front made of plate glass extending from floor to ceiling if enough money is available and if not a continuous row of metal windows (10) never use one window alone but use two or more joined together (11) stairs must have windows covering a semi-circle in plan (12) leave out all possible partitions (13) waste floor area is no consequence (14) exterior walls finished in white stucco (15) stripes of red, blue, or yellow permissible (16) balcony made of cantilevered concrete slab with a gas pipe-railing (17) no ornament whatever (18) interiors absolutely bare and must look like an empty newly plastered store room with show windows on two sides if possible (19) no cornice, but inconspicuous coping permissible (20) between adjoining houses place a wire, wired glass, or concrete screen width of rear balcony or rear terrace […] To design, assemble these elements into parallelepipeds of any shape and size…above all, give no heed to proportions, mass, or coherence. Shake well, let settle and carefully decant the surplus.” Arthur T. North, “Old New Stuff,” *Shelter*, 2: 3 (April, 1932): 12-14.
International Style and the eloquent, although controversial, associated exhibition. By introducing three main principles for the identification of modernism—clear volumes, regular composition, and the absence of applied decoration—Henry-Russell Hitchcock and Philip Johnson packed the practice of modern architecture for rapid circulation, increasing exchange value at the expense of use value. However, there were significant exceptions to the rule: architectural details, colors, lettering, advertisements, gardening, etc. The very formulation of modern architecture ‘principles’ by Henry-Russell Hitchcock and Philip Johnson concealed an act of hegemony. It was an “aristocratic rather than puritanical” tenet, describing the rule as well as its exceptions, that is, the universal and the particular.\(^{33}\) Let’s digress briefly here and pay attention to Soren Kirkegaard’s thoughts on these matters:

The vigorous and determined exception…sustains himself. The relation is as follows. The exception also thinks the universal in that he thinks himself through; he works the universal in that he works himself through; he explains the universal in that he explains himself. Consequently, the exception explains the universal and himself, and if one really wants to study the universal, one only needs to look around for a legitimate exception; he discloses everything far more clearly than the universal itself. The legitimate exception is reconciled in the universal; basically, the universal is polemical toward the exception, and it will not betray its partiality before the exception forces it, as it were, to acknowledge it. If the exception does not have this power, he is not legitimized, and for that reason it is very sagacious of the universal not to allow anything to be noticed prematurely.\(^{34}\)

Italian philosopher Giorgio Agamben invoked Kirkegaard’s passage and Carl Schmitt’s political theory in his \textit{Homo Sacer, Il potere sovrano e la nuda vita}, to discuss the ‘paradox’ of the sovereign: this political figure has the ability to be inside and outside of the legal order since he or she holds the prerogative to install the state of exception, in other words, the temporary suspension of freedom and the legal system. Philip Johnson and Henry-Russell Hitchcock’s rules in relation to


\(^{34}\text{Soren Kierkegard, Fear and Trembling. Repetition, edited and translated by Howard V. Hong and Edna H. Hong (Princeton; NJ: Princeton University Press, 1983), 227.}\)
modern architecture and ornament opportunistically kidnapped the specificity of architecture as a style while dovetailing with previous narratives that made ‘advisable’ the ‘suspension’ of the use of ornament, particularly in the turn-of-the-century architectural theories of architects such as Louis Sullivan and Hermann Muthesius: “better none at all unless it be good.” Ornament was distracting in the development of a new construction method corresponding with new sensibilities towards space. Turn-of-the-century narratives advocated the temporary suspension of the praxis of ornamentation in architecture until new conditions of production could provided the aesthetic ‘order’ or Aufbau guiding the production of ornament towards more significant territories. When Henry-Russell Hitchcock abandoned the lack of ornament as a fundamental principle for modern architecture in 1950, the state of exception in which modernism had linguistically and formally confined ornament was rhetorically terminated. In so doing, the boundaries of the meaning and evolution of architectural modernism expanded. This theoretical analysis does not attempt to recognize any hegemony in aesthetic matters for Henry-Russell Hitchcock and Philip Johnson, although their influence in the American context was certainly considerable. But this framework indicates how opportunistically the literary banishment and re-incorporation of ornament operated in mid-century architectural criticism. Between these years, from 1932 to 1950, the rejection of ornament by modern architects fulfilled three different programs. First, it became the marker of the immune system against the non-modern: recall, for instance, that the majority of architecture schools in the United States

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by the end of the 1940s where still following the Beaux Arts curriculum. Second, the rejection constituted a paramount agent in what we can call a theory of emigration within impending economic and cultural conditions of globalization. How else could modern architecture travel so easily around the globe than once devoid of burdens from the past? In so doing, modern de-ornamentation as a “travelling theory,” could evolve morphologically accordingly to local cultural conditions, as this thesis argues. 36 Third: on a political level, the lack of ornament acted as the *Maginot Line* of modernism against the formal threads of architectural realism and monumentalism with which totalitarian regimes staged their power. Once World War II terminated, the surfaces representing Western liberal democracies and economies had to unfold their enticing and rhetorical power. 37 Modern de-ornamentation functioned as narrative and praxis as long as it was required by capitalism, and was banished once its negative dialectic hampered the rapid and effective circulation of commodities.

Architecture is indeed a largely rhetorical construct. To talk about architecture is to talk about its buildings and its discourses, its materials and its representations. Architecture is defined as much by the spaces and images that it produces as it is by the controversies that the field generates. Because of this polyhedral condition of architecture, the final aesthetic eloquence of architecture becomes a discursive combination of words and building matter, intertwined in


their social, economic, and cultural tissue. If from the mid 1930s to the mid 1940s, architects, critics, and historians, frequently used euphemisms, ellipsis, and circumlocutions to refer to the use of ornament in modern architecture, by the end of the 1950s the references to ornamental forms in articles, conferences, and symposiums became explicit. In those years, ornament underwent a thorough process of metamorphosis and embodiment in building materials, internalizing modern subjectivities in the very epidermis of its space but also in the meandering meanings of language. In so doing, modern architecture undertook its quest for performance at the expense of functionalism.

The field of rhetoric contains a dual and antagonistic signification: one stemming from Aristotle’s writings, the other one from Cicero’s. The latter conception is associated with deception, trickery, masking and effacement: in sum, dishonest persuasion. This approach is described as an illegitimate way of presenting an argument, sustained by half-truths and imprecision for the advantage of the speaker. The former conception, instead, understands discourse as a form of rationality, an epistemology that requires all human capacities, from memory to management and gesticulation: it is about the election of the most effective means of persuasion. As a radical technique of social discussion, Aristotle’s approach entails the mobilization of cultural assumptions. These unspoken assumptions and shared agreements, as Carlo Ginzburg argued, provide invaluable cultural and historical content. The rhetoric that I initially associated with the expressive and lavish qualities of design and the construction

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38 “...la retórica no pertenece a ningún género definido…su tarea no consiste en persuadir, sino en reconocer los medios de convicción más pertinentes para cada caso, tal como ocurre con todas las otras artes,” Aristotel, Retórica, trans., Quintín Racionero (Madrid: Editorial Gredos, 1990); 170.

industry after World War II acted as a catalyst, first to understand the discursive formation in those years and, later, to describe the literary and formal strategies of this new materiality.

Ornament reemerged in the provinces of language: patterns, textures, rhythms, grilles, effects, etc. were common euphemistic expressions to deal with the decorative qualities of modern surfaces. Ornament also appeared in epistemological continuation with the grammar that the advertisement and media industry brought about. Prefabricated materials such as boards, bricks, blocks of concrete, clay, metal, plastic, etc. were no longer accepted in their idealized abstract version from Sweets Catalog or Neufert’s Architect’s Data but had to persuade purchases in increasingly competitive markets. This persuasion was achieved by maximizing a material’s capacity for variation in terms of design, sizes, and thickness, but above all through surface aspects: the incorporation of effects into industrially mass-produced commodities in order to affect consumers.
Chapter I
Inventio: Electric Light Knots

Ornament may be defined as a form of auxiliary light and complement to beauty.
L.B. Alberti, De re aedificatoria, 1452

Space, time, material—are they one with light?
[... ] Light, ordering Light, where are you? Far away.
László Moholy-Nagy, Poem, 1917

There is a world of difference between adorning one’s flesh with rouge and eau-de-cologne and doing it with tattoos that later will never wear off...
Camilo José Cela, The family of Pascual Duarte, 1983

1.1 Introduction: ‘Usui civium, decori urbium’

In May 1882, the British architect John Slater addressed his colleagues and fellows at the Royal Institute of British Architects in London with a lecture entitled “Recent Progress in Electrical Lighting of Buildings.” In front of a large audience, he advocated for the increased adoption of incandescent light as substitute for the use of gas in which “the glowing material was continually disintegrated and burning away.” Yet, durability and obsolescence were not eloquent enough arguments: by combining flexibility, security, and neatness, the adoption of arc-light bulbs would have a significant impact on architectural and urban aesthetics:

The readiness with which the incandescent bulbs lent themselves to any scheme of decoration was one of their chief attractions. It would be undesirable to follow the lines of gas fittings, as the conditions were so completely altered, but points of light could be placed wherever they were required, and there was no fear of blackening ceilings, or of setting fire to the most easily ignited materials. The progress of this system of lighting had been so rapid that
architects had as yet had no time to turn their attention to its decorative capacities, but when they did so they would find it fulfill every requirement for perfect lighting.¹

Electric light promised a full array of decorative solutions given its technical fitness and formal indeterminacy. Slater concluded his speech with a celebration of “the new power” placed in the hands of mankind, and he encouraged architects to study the unexplored possibilities of electrical light by domesticating its “nature and advantages,” in accordance with the maximum “Usui civium, decori urbium”—civic use, urban embellishment. Thomas Leverton Donaldson had introduced the Latin motto—referring to the civic and aesthetic mission of architecture as public service—upon The Royal Institute of British Architect’s foundation in 1834.

If Reyner Banham had not invoked John Slater’s remarks in The Architecture of the Well-Tempered Environment in 1969, they would have been forgotten. Banham’s book followed a calculated agenda to redefine technology as an environmental and perceptual project by acknowledging the influence of its less mechanistic qualities in the pre-histories of modern architecture.² Nonetheless, despite the overwhelming impact that the electrification of the urban environment had had during the last decade of the nineteenth century and the beginning of the twentieth, electrical light had a secondary role in the fashioning of the environment for Banham. Portrayed as subordinated energy, as John Slater envisioned, the impact of electrical light was marginally addressed in a few chapters—most notably “Environment of the Machine Aesthetic” and “Concealed Power”—far from the importance that Willis Carrier’s air-conditioning apparatus

had in the evolution of architectural typologies for the British architectural historian.³ Often related through anecdotes—the hand-drawing of a lamp-bulb for the Villa Cook by Le Corbusier in his Oeuvre Complète being probably the most hilarious—the presence of artificial light in the book is minimal and hasty: from Taut and Scheerbart’s expressionism to abstract plays of light and shadow in the theater section of the Bauhaus; from integration in the false ceilings of corporate offices, to the Electrographic Architecture present in the “artificial environment” of Las Vegas, the book emphasizes the mechanic, geometric, even typological impact that energy and environmental control brought about rather than unveiling the essence of the tectonic change that light entailed.⁴ [Fig.001]

And yet, light was indeed a paramount feature in the definition of the modern urban environment. As David E. Nye argues, artificial light was first and foremost a spectacle of man’s powers to control the inevitable cycles of the planet on a large scale.³ It changed the psychology and language of modern men, from now on depicted almost as living appendages of the new technology. Its seductive power, whose drawbacks were neglected in popular media, was sexualized and commercialized as the very extension of life. Because of its excessive pernicious

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character, full of accidents, fires, and discharges causing fear and awe among laymen, the use of electrical light became a spectacle whose magic had to be domesticated. The control of artificial light was central for the creation of a twentieth-century spirit of modernity, embracing dreams of economic progress, urban life, social reform, and a renewed understanding of biology and the material sciences alike. Light was the “universal sign of its age,” and it was in public spaces where this technology deployed all its enticing eloquence. ⁶ Thus, the progressive familiarization with electrical light happened mostly in World Fairs and Exhibitions at the turn of the century: from Chicago’s 1893 White City at the World’s Columbian Exposition to Berlin’s Grosse Gewerbeausstellung of 1896, Paris’s 1900 Exposition Universelle, and Buffalo’s Pan American Exposition in 1901, the orgy of light and colors of the recently mastered form of energy endorsed architecture as its preferred medium. ⁷ [Fig.002] In all these instances, the form light took and the very canvas in which it appeared was architecture, and its context, the urban modern metropolis. Building’s façades were invigorated thanks to the unrestrained use of bulbs, soon titillating harmonically following the development of automatic mechanisms. Neon lights, flood lights, and fluorescent lights, completed by the 1930s a new phenomenology expressed in a grammar of glowing points and flashing lines on architectural planes.

In the twentieth century, however, light also touched new cultural grounds: on the one hand, Art Nouveau architects such as Henry van de Velde understood the modern illuminating powers as the source of life and beauty, attentive as he was to the “countless rays on shop windows and

signs” as generative of “endless garlands.” On the other, industrialists and shopkeepers maximized the commercial future in the design of the new landscape of objects that the electricity brought about—although probably not in the form John Slater would have approved. To this end, a radical, albeit ephemeral, division between technology and aesthetics had to be delineated. In 1912 Peter Behrens, architect and chief designer for the German AEG Company, recommended geometric ornament as the “impersonal” and “sober” form of decoration suited for elements of a subordinated nature such as electric lighting in households.9 Substituting chandeliers for lighting elements responding to the existing architectural elements such ceilings and walls was a necessary precondition to find the formal expression of modernity. The 1914 Werkbund Cologne exhibition witnessed a split between the partisans of normative design (Typisterung) and the defenders of a subject whose expression (Kunstwollen) could accommodate a larger organization of society. Whether instigators of German mass production, standardized design as objective form, or conveyors of chiliastic popular sentiment through the purifying use of glass and light, both groups wore the imprint of the increasing electrification of the environment and its requirements for precision, efficiency, and social reform. The Glassarchitektur characterizing German expressionism had in light one of the main sources of inspiration. In 1912, for instance, Paul Scheerbart published The Light Club of Batavia, a utopian novel where a female engineer decides to establish a very particular club in an abandoned mine to assuage the “light addiction” concomitant to modern society: “The hunger for light”, states the

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protagonist, “is the most outstanding sign of our times.”

Frühlicht, the magazine Bruno Taut founded in 1920, speaks about the increasing fascination for light as a primary concern for architectural and social developments. Remember that almost every single representation and drawing in Taut’s Alpine Architektur shows light coming from inside the building: architecture radiated a new form of energy, helping to transform society from its very core. [Fig.003]

Right after the First World War, in the Weimar Republic, the increasing electrification of cities via exterior advertisements, the rapid development of movie theaters, the spectacle of commodities in urban shop windows, and the transformations in architecture and the fashion industry contributed to the creation of sober Neues Sachlichkeit style. The combination of artificial light and new mass-media like film, photography, and advertisements changed the urban landscape of European cities. Years later, in his quest for efficiency and functionalism as the source of architectural beauty Bruno Taut would write:

> even though it sometimes might appear as though an enemy to architecture might be discerned in the requirements of advertisements, yet the individual character of such business houses can be admirably expressed by means of signs and inscriptions, without detriment to the architecture itself, which on the contrary, takes its particular note and its decoration from them. Such signs, if in themselves suggestive and significant, constitute opportune ornamentation in place of more out of date and meaningless decoration.

Taut intuited the double path that the presence of light was taking in the urban context, halfway between the functional and the decorative. Light presented an opportunity to synthesize abstract knowledge and emphatic perception. The spectacle of the commodity needed more efficient and sophisticated materials transforming the urban stage set in which it was disseminated. In this

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cultural and technological context, Moholy-Nagy’s work at the intersection between photograms, photography, and new materials signified a conceptual shift in the domestication and materialization of light: the displacement of light from utilitarian energy to pictorial technique transformed light as an expressive medium and transient matter, dressing, albeit temporally, its own material support. The cultural experience affecting the modern subject at the arrival of electrical light, found in the figure of László Moholy-Nagy a perfect agent, developer, and disseminator. Moholy-Nagy articulated a new formal grammar in the combination of plastics and media of reproduction and production, altering some of the basis tenets in the construction and tectonics of architecture. The synthesis between early twentieth century media, materials, and technologies, marks a leap in the understanding of surfaces eventually influencing the transition of architectural façades from a form of textile or canvas, characteristic of early modernism, to abstract screens of information: not by chance, Le Corbusier’s whitewashed walls appeared first as surfaces flooded with white light in the multiple International Expositions where light was tested against the background of architecture. Moholy-Nagy acted as a knitter of media and materials, but above all, as a knitter of light in space. His research with light found continuation in the work of his disciple, collaborator, and colleague György Kepes who came to the United States to head the Light Department of the New Bauhaus in Chicago in 1937 at Moholy-Nagy’s invitation, his experiments with light continuing after the Second World War. This new material position of light became relevant for the representational transformation of modernism during the 1950s, when materials acted as conveyors of natural light emulating the properties of photographic paper.
1.2 Lines of Force, Materialartistik

Let me return to Reyner Banham in order to concentrate on his critique of Moholy-Nagy’s book *Von Material zu Architektur*. The relevance and reception of this book for postwar architecture cannot be underestimated. The significant attention that Banham dedicated to this publication in the last pages of his ground-breaking *Theory and Design in the First Machine Age* (1960)—no other text gets as much consideration as *Von Material zu Architektur* if we exclude the literary production of Adolf Loos and the multiple references to *L’Esprit Noveau*—confirms this impact. Banham considered *Von Material zu Architektur* the perfect alibi to develop his intellectual agenda.

According to the British architecture historian, Moholy-Nagy’s publication had more “liberal” grounds than the inherited strand of dogmatic modernism, opening the way to

[...] a kind of non-Determinist Functionalism, based no longer in the bare logic of structural Rationalism, but upon the study of man as a variable organism. Though he [Moholy-Nagy] probably accepted ideas like Le Corbusier’s besoins-type…. his system was built on more liberal foundations than these, and was capable of interpretation and reinterpretation in a wider context than that of the International Style. For this reason, if for no other, it occupies the unexpected position of being at the same time the first book entirely derived from the Modern Movement, and also one of the first to point the way to the next steps forward.13

Banham championed a renewed architectural vocabulary in postwar architecture that nonetheless preserved the lineage of modernism. Translated into English in 1931 as *The New Vision*, Banham relocated the pedagogical content of the book as the appropriate formal synthesis between biology and mechanics, between nature and technology: a very appealing pairing for Banham’s operative agenda. Canadian art historian Oliver A. I. Botar has labeled this synthesis as “biomorph modernism,” the formal response to the biocentrism—*biozentrik*, vitalism, and other *Lebensphilosophie*—as proposed by neo-Haeckelian monist scientific imagery and

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Certainly, turn-of-the-century preoccupations with the status of matter stemming from the latest findings in quantum theory, that is the continuity and interdependence between energy, form, and matter, be it organic or inorganic, resonates with Moholy-Nagy’s reconsideration of the visual environment. For Banham instead, Moholy-Nagy’s book was as prescriptive as it was universal: thanks to a “fortunate historical irony” \textit{The New Vision} became the “pedagogic textbook” that made “the Bauhaus method available to the world,” in direct confrontation and “almost exactly opposite in bias” to Sigried Giedion’s \textit{Bauen in Frankreich} (1927), which naively relied on the tradition of “Grands Constructeurs.”\footnote{15 Reyner Banham, \textit{Theory and Design in the First Machine Age} (London: The Architectural Press, 1960), 311. The historical irony Banham refers to is the lack of pedagogical modern textbooks available in Anglo-Saxon countries.} Moholy-Nagy was an encyclopedist of modernity and the Modern Movement. That status was also granted to \textit{Vision in Motion}, a book so “lexikalisch” in its materials and methodologies, that it could well respond to Le Corbusier’s claim for the “\textit{formation del’optique moderne}.”\footnote{16 Reyner Banham, \textit{Theory and Design in the First Machine Age} (London: The Architectural Press, 1960), 312-14.} Banham reassessment of the book was biased, helping in the construction and dissemination of an open-source modern grammar as inferred by the visual universe of Moholy-Nagy’s book. But which were the new tectonic contracts that
Moholy-Nagy proposed for architects and artists alike? Banham’s response to that aesthetic teleology seems unequivocal. Among the modern techniques Moholy-Nagy favored, the use of collage and the “consuming interest in light” as experienced in transparent plastics opened the door to a different relation between artist, subjects, and public: the former indicating a taste for fragmentation and juxtaposition; the latter showing the aesthetic mastery of artificial light as pictorial element. If so, what epistemological consequences did the embodiment of light in matter have for postwar architecture? And how did Moholy-Nagy achieve this historical synthesis? Was Banham focused on Moholy-Nagy’s immediate post-Bauhaus years or was he influenced by the more recent images Moholy-Nagy had made once in the United States? In the gradual conceptual and epistemological transformation of matter in Moholy-Nagy’s work with photograms, I would argue, several objects and techniques were paramount: the Nickel Constructions with Spiral (1921), his evolutionary use of the technique of photograms, and finally the production of images after the plastic “space-modulators” he manufactured during his later years. [Fig.004-006] These three instances run against his 1930 “Light Prop for an Electric Stage” presented at the Deutscher Werkbund Exhibition in the Grand Palais in Paris the following year and his never fulfilled dreams of an urban “light architecture”: the former being media for capturing, absorbing, and circulating light within matter; the latter being modalities of centrifuging light against existing interiors and exterior architectures. [Fig.007] To Moholy-Nagy’s oft-referenced discourse of production and reproduction, these objects staged an alternative material grammar circumscribed to instances of expelling and absorption, embodiment and disembodiment.

But perhaps Banham and Moholy-Nagy shared interests other than media and technology: for Banham, the graphic resources Moholy-Nagy used to illustrate his arguments brought up “the visual richness of a magazine-culture.” And it was indeed in the optical confluence of technology and imagery in popular culture where Moholy-Nagy’s aesthetic project began. Moholy-Nagy’s photograms synthesized Dadaist and Constructivist re-appreciation of the material landscape of urban culture as mediated by the popular understanding of new technologies of production and reproduction. The earliest contact Moholy-Nagy had with electricity and light studies happened during his years at the gimnázium in Szeged. At that time, he was far from considering a career as an artist. The classical curriculum of the school included classes in the Latin, Greek, and German languages. Moholy’s training led scholar Lloyd Engelbrecht to suggest that he was educated as a “Renaissance man,” well versed in science and the humanities while keeping inklings towards the pedagogical formation of the self. The school he attended stimulated students via small prizes such as travel, books, and modest stipends to increase competitiveness. Moholy-Nagy received as a reward either Charles R. Gibson’s 1906 Romance of Modern Electricity or his 1912 Electricity of To-day after winning one of these contests in 1912. Gibson was a turn-of-the-century scientist and prolific author whose use of metaphors,

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language, and more importantly, images seem already a compendium of the topics Moholy-Nagy will develop in the years to come. [Fig.008] Gibson (1870-1931) was a doctorate lawyer, author, businessman, Fellow of the Royal Society of Edinburgh since 1910—where he coincided with D’Arcy W. Thompson—and president of the Royal Philosophical Society of Glasgow from 1922 to 1925. Gibson acquired some reputation through the publication of a series of books under the spell of modernity—*Romance of Modern Photography* (1908); *Romance of Modern Manufacture* (1910); *Romance of Scientific Discovery* (1914)—as well as educational texts on electricity and science where energy acquired almost anthropomorphic qualities. The images Gibson used were as eloquent as the language employed in his descriptions: the X-ray of an infant’s thorax, the autograph of an electric spark, electric furnaces, and even patterns of sand on metallic plates. These images came mainly from scientific institutions and journals and included experiments in popular science, like a non-electrical system to produce X-ray photographs at home. [Fig.009] The visual repertoire of Gibson was meant to familiarize his readers with the power of electricity. To maximize this effect, he showed in his *Romance of Modern Photography* a preference for the catastrophic and intimidating, using images of lightning, fingerprints, criminals, pernicious bacteria, etc., as well as photographs taken in the dark. [Fig.010] He also used images demonstrating the latest experiments in microphotography, stereoscopic photography, and X-ray photography, some of them producing ghost-like images and optical distortions somewhere between the magical and the unknown. The exposure of

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Moholy-Nagy to such a visual and technical knowledge was paramount for his identification of the potential combination of photography and electrical light, becoming aware of the optical universe that the mastery of new electric powers brought about before beginning his college studies and his artistic career. [Fig.011]

In 1914, after his first year at the Royal Hungarian University to pursue the study of law, Moholy-Nagy was recruited for the Austro-Hungarian army fighting in World War I. Despite the fact that Moholy-Nagy did not receive drawing or art classes during his school years, his traumatic experience in World War I—including several psychological breakdowns—brought him to reconsider his professional choices. He fought on the Russian front where he was wounded in July 1917 in the province of Galicia, now Ukraine. After the Russian campaign, he spent several months in military hospitals with an infected left thumb before he joined the army reserve in Budapest. Moholy-Nagy resorted to words and lines, that is, to poems and drawings to overcome the sorrow he experienced during his years as a soldier. During World War I, Moholy-Nagy documented his experience with more than four hundred postcards, a common activity among soldiers. [Fig.012] Black and white drawings prevailed, depicting naturalistic and realistic themes: landscapes, portraits of figures, visits to brothels, war scenes, urban situations, etc., that evolved towards dark graphite scribbles. The crudity of the battlefront was reflected in the numerous drawings he produced as frantic skeins of thick lines in his portraits of

23 During his first year in Budapest he attended literature seminars and lectures at the Faculty of Arts, where he made several significant acquaintances like the mathematician Iván Hevesy.

landscapes. Following his return to Budapest in July 1917 and his reenrollment at the University to continue the study of law, the influence of the members of the group Ma, particularly Béla Uitz and Sándor Bortnyik, together with the drawing classes he took with Róbert Berény—trained in Paris in the classic tradition—brought Moholy-Nagy to emphasize the use of lines. [Fig.013] His paintings—Freight Yard, (ca. 1919), Telegraf in Eisenbahnlandschaft (ca. 1921)—were expressions of the modern urban industrial landscape, crisscrossed by telegraphic wires, electric towers, and lighting poles where architecture appears blank, as a silent screen, waiting for a proper representation. His use of lines was inseparable from emotional excitement and energetic intensity. It is not a coincidence that Moholy-Nagy and Kássak used images of electrical towers as a fetish of modernity in the Buch neuer Künstler published in 1922 but also as a warning about the high-voltage images the book introduced.25 [Fig.014] Years later he would describe his first formal attempts at achieving an emphatic relationship between himself and the object of representation as a sequence of “rhythmically articulated networks of lines.” [Fig.015] His lines became autonomous “diagrams of inner forces,” summarizing sentimental force and geometric reasoning:

In trying to express three-dimensionality, I used auxiliary lines in places where no lines are used. The result was a complicated network of a peculiar spatial quality applicable to new problems… I saw that this experiment with lines brought an emotional quality into the drawings which was entirely unintentional and unexpected, and of which I had not been aware before. I tried to analyze bodies, faces, landscapes, with my “lines”, but the result slipped out of my hand, went beyond the analytical intention. The drawings became rhythmically articulated network of lines, showing not so much objects as my excitement about them.26

Impressed by the way lines were expressed in Rembrandt’s paintings, “the analytical nature of his ink and their peculiar texture” made him concentrate on lines as autonomous aesthetic devices. Expressing three-dimensional objects only with lines prompted him to the use of “auxiliary lines” as a “complicated network of a peculiar special quality.” The textural and textile qualities of those lines cannot be overlooked. The main character of lines was the emotional unconscious qualities that they brought to the representation. These words are reminiscent of Henry van de Velde’s emphasis on lines as the locus of creative impulse and expression and indicate a lasting influence in Moholy-Nagy’s work of Art Nouveau’s concepts and tendencies. Turn-of-the-century lines of force would find continuity in a different medium and in a different material: lines as a universal symbol of electrical light via Moholy-Nagy’s use of the photographic medium.

To what extent electricity was present in Moholy-Nagy’s imaginary, can be better illustrated by the language he employed in the poems he wrote during World War I. Beside references to ideal love, landscape descriptions, geometry constructions, and grief after the conflict, several of his compositions used metaphors and explicit references to electricity as embodied in the human subject. These poems appeared in the literary and critical magazine jelenkor——The Present Day——where he collaborated with his friend Iván Hevesy whom he met during seminars at the Faculty of Arts in 1913. In one of the poems, Moholy-Nagy described his earlier romances in electrical terms that nonetheless continue the linearity of his drawings: “I live as a wire conveying strange secrets….I carry my pain like some miserable line, pulsing, humming…It’s

through me her charge courses. It’s through me her secret power electrifies…” In another poem written during this time, he described light ordering a chaotic material and spatial world:

“Light, total Light, creates the total man.” On it, Moholy-Nagy seemed to be entering into a ritual of embodiment of light: a hygienic and purgatory exercise meant to facilitate the metamorphosis of his persona. The use of light is depicted ultimately as a transcendental method to enhance human powers. The symbiosis between basic human instincts and new manifestations of energy underlies his further understanding of new art-forms in relation to light’s capacities.

By 1919, the year he migrated to Vienna, Moholy-Nagy owned an Ernemann 1902 or 1904 model photographic camera manufactured in Dresden. Frustrated by the low acceptance of his artistic manifestations in Hungary and politically curtailed by his middle-class background after the emergence of the Soviet Republic, Moholy-Nagy travelled westwards as other intellectuals and artists such as Lajos Kassák, Alfréd Kemény, and critics such as Ernő Kállai would do around 1918.

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29 For his second wife Sibyl Moholy-Nagy, this poem was the “credo” of his life: “Learn to know the Light-design of your life. / You will find it different from chronology. / A different measure, called Eternitas, / Proud battle for the secrecy order. / Space, time, material—are they one with Light? / Depend on the Light that gives you life? / Idea if great magnitude that grows / Within your soul, poor creature, steers your way / As by an arm to latitudes / So utterly unknown to lightless eyes. / Search desperately—what is Light as essence? / What is its substance, what its price? / I cannot kill my thirst nor even lessen it. / Space, time and system—essence or mere chaos. / Realities that seem eternal / For creatures not eternal, bound by death. / Light, ordering Light, where are you? Far away. / A luster that illuminates mere being. / Come over me, proud Light, fierce Light, burn deep, / Ferocious Light, spread through me, cleanse my eyes. / A dampish tomb, the earth will then collapse. / Dead worries rot in soon-forgotten grave, / Refuted sacraments impeding Light. / “Everything”—you hear its hollow sound. / If we maintain the nothingness of darkness. / “Nothingness”—you hear it roaring on / If “Everything” is us denied. / Precarious balance—time, material, space— / Resting on nothingness and meaning everything. / But human brain, so pitifully small, / Pierced through the darkness of the void, and tied / Material, space and time to Light contours, / To Light eternal, Light the striding life. / And nothingness, so vainly measured out / In time and space, transforms the darkened man— / Light, total Light, creates a total man.” Sibyl Moholy-Nagy, Moholy-Nagy. Experiment in Totality (Cambridge; MA: The MIT Press, 1968), 11-12. Originally published in 1950.
the same time. After a short period in Vienna, the experience of Berlin as a modern metropolis after his arrival in March 1920 introduced new elements in his intellectual evolution towards the reconsideration of materials and media. In Berlin, Moholy-Nagy was also exposed to Monist and nature-oriented ideas of groups such as Wandervogel (Wandering Birds) and the Bündische Jugend (Bunch Youth), associations then emerging out of the Jugendbewegung and Lebensreformbewegung—movements for pedagogical reform initiated in the late nineteenth century in Germany—the latter through his early contacts with the Freideutsche Jugend group and his romantic engagement with Lucia Schulz, whom he married in 1921. Among the theoretical sources of these groups were Friedrich Nietzsche’s neo-Romanticism, Ernest Haeckel’s pedagogical monism, and Raoul Francé’s biological project. The knowledge of Francé’s writings on nature was widespread in 1920s Germany, particularly the series of essays published in the magazine Kosmos and his 1921 double volume titled Bios, Die Gesetze der Welt. To him, Berlin meant a different industrial and cultural landscape but also a place to establish new social connections and influences, such as the Dada circle around the artists Hannah Höch and Raoul Hausmann who organized the “Erste Internationale Dada-Messe” only months after Moholy-Nagy’s arrival. 1920s Berlin was the locus of rapid social and intellectual transformations: the fear of ideological extremism after the severity of the Treaty of Versailles and the subsequent hyperinflation; the widely-circulating narratives of decline deriving from the climate of kulturpessimismus; the breeding of a proletarian

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30 For an account on Moholy-Nagy’s arrival to Berlin, his episode at the hospital due to flu infection, and his contacts with the lawyer Reinhold Schairer, whom he portrayed in 1921, see Oliver A. I. Botar, “Moholy-Nagy’s Encounter with the Radical German Youth Movement,” Technical Detours. The Early Moholy-Nagy Reconsidered. (New York: The Art Gallery of the Graduate Center, The City University of New York, 2006), 86-92.


culture; the rise of the white-collar worker as a new social subject — whether as social Mittlestand or as urban Engelsteller; the labor emancipation of women; and the impact of media of reproduction in the metropolis were only a few of them.  

Announcements of “new materials” to create the new syntax for artists to confront, represent, or neglect the Weimar social and cultural situation abounded, particularly around Dadaists and the magazine G.  

Hausmann’s manifesto “Material der Malerei Plastik und Architektur” was an example of the reorganization some Dadaists proposed of the material environment of the metropolis, an engagement that interacted with Moholy-Nagy’s knowledge and involvement with constructivism. To take seriously the material production of industry was also an index of critical political participation. But at the same time it was an attempt at distilling the formal elements of the modern metropolis. It was through material and morphological experimentation as well as socio-technological engagement that Moholy-Nagy’s work evolved, resulting indirectly in a formal architectural engagement. As announced in the collective “Manifesto” signed in 1923, the new constructive architecture developed within a communist society had to rely on the new materials as a form of functionalist signifier.

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33 For an overview of the topics in Weimar Germany see Anton Kaes, Martin Jay and Edward Dimemberg, eds., The Weimar Republic Sourcebook (Berkeley: University of California Press, 1994).


1921 was a year of transition for Moholy-Magy and probably also a year of synthesis between the Dada influence and his early exposure to the Russian avant-garde thanks to the knowledge of his Hungarian Activist friends whom he met during a trip to Vienna in January of the same year. The topics and modes of painting for Moholy-Nagy shifted from the initial landscapes towards the flat juxtaposition of mechanical and industrial elements, including wheels, cogs, telegraph towers, bridges, railways, electric lines and posts, etc., often using collage techniques. [Fig.016] Despite initial struggles—health and lack of professional acceptance among his early concerns—he finally exhibited his work at the Fritz Gurlitt Gallery thanks to the mediation of his friend the artist Jósefz Nemes-Lampert, achieving some recognition. In addition, Moholy-Nagy designed sets for theater plays once in Berlin, most notoriously for Erwin Piscator’s adaptation of Upton Sinclair’s *Prince Hagen* at the Proletarian Theater in Berlin. Artistic recognition skyrocketed following the first publication of his work in the journals *Ma* in March 15, 1921, and *Der Sturm* in August of the same year. [Fig.017-018] Soon after, a special issue of *Ma* published in the late summer concentrated on his mechano-dadaism allowing him to exhibit at Der Sturm gallery together with László Peri in February 1922. It was around that time that Moholy-Nagy met Kurt Schwitters, becoming a close friend. Schwitters advocated for the use of any material in any space for the production of his *Merzmalerei* in the magazine *Der Sturm* in


38 Upon the recommendation of Lajos Kassák, Moholy-Nagy tried to get in contact with Herwarth Walden to exhibit his work at the gallery *Der Sturm* without initial success.

39 Although Moholy-Nagy was part of the circle of avant-garde artists around the magazine *Ma*, he was never accepted or recognized as a talented painter. After the *Chrysanthemum Revolution* in November 1918, the group radicalized and turn to activism and political cooperation with the Communist party against bourgeois art.

1919: “The Word Merz means the appropriation of all available materials for artistic purposes... The demoulding of materials can even happen in the arrangement of the picture surface.” In a similar vein and gearing towards Soviet constructivism (or International constructivism), Moholy-Nagy worked with a mixture of metals, fabrics, porcelain, and glass mounted on wooden boards in his so-called reliefs. Those cogs, wheels, screws, bolts, etc. that appeared in his previous flat compositions acquired new life by materializing themselves in the space of the constructions: “It seemed to me that in this way I could produce real spatial articulation.... Light falling on the actual objects in the constructions made the colors appear more alive than any painted combination.” In “Abstract of an Artist”, he recalled these experiments as stemming from his desire towards objectivity as produced by electrical light. The construction of his “Nickel Sculpture with Spiral”, dated 1921, became a pivotal moment in his relation between materials. This piece was first exhibited at László Péri and Moholy-Nagy’s common show at Der Sturm in February 1922, and published in Ma the same year. Writing on the show, the architect Ludwig Hilberseimer underscored the “Materialartistik” mode of construction thanks to the “gleaming shine and mirroring” of lights.


and objects onto its surface producing refraction and variety.\textsuperscript{44} The trope of the metallic spiral though, was not new: it appeared also on the cover of the journal \textit{Dada} in 1920, illustrated by Francis Picabia.\textsuperscript{45} [\textbf{Fig.022}] The motif of the spiral had the capacity to synthesize Moholy-Nagy’s interest towards the materialization of movement as a continuous line. More significant was the \textit{Materialkonstruktion in Glass und Nickel}, or “Integration of Two Systems of Construction,” made in 1922 out of nickel, aluminum, zinc, and glass and exhibited at his second \textit{Der Sturm} exhibition held in 1923.\textsuperscript{46} The entanglement of movement, dynamisms, and architecture set up a precedent guiding future constructivist research in matter, form and structure.\textsuperscript{47} In addition to Tatlin’s monument to the Third International, the spiraling of the line also resonated with the representation of wired electrical circuits in scientific manuals that had inspired Russian avant-gardes.\textsuperscript{48} [\textbf{Fig.023}] The dynamism of the spiral speaks of the symbolism that the ongoing electrification of the environment and the latest research in magnetism had for artists of the avant-gardes.\textsuperscript{49} [\textbf{Fig.024}] It is along these lines that Raoul Hausmann’s claims for new aesthetic


\textsuperscript{45} The formal and historical similarities of Moholy-Nagy’s \textit{Nickel Sculpture with Spiral} construction with Vladimir Tatlin’s \textit{Monument to the Third International} (1919) have been established by Oliver A.I. Botar, \textit{Technical Detours. The Early Moholy-Nagy Reconsidered} (New York: The Art Gallery of the Graduate Center, The City University of New York, 2006), 132-133.


\textsuperscript{48} A drawing of Vladimir Tatlin’s model for the monument appeared in the same issue of \textit{Ma} where Moholy-Nagy’s Nickel construction was first published. N. Punin, “Tatlin Übegtornya,” \textit{Ma} 7: 5 (1922): 31.

\textsuperscript{49} For an instance of that relation see Maria Gough’s analysis of Karl Ioganson’s 1922 painting: “Electrical Circuit (Representation),” \textit{The Artist as Producer} (Los Angeles; CA: University of California Press, 2005), 114-117.
rules derived from the scientific approach to electricity and its influence on a modern sensibility towards the “haptic” can be understood.\(^5\)

1.3 Dynamic Tektology, Popular Photograms.

Moholy-Nagy’s quick success ran in parallel with his fruitful theoretical collaboration with his former friend and fellow law student at the University of Budapest, Alfréd Kemény.\(^5\) Kemény had traveled to Russia in 1921 where he made contact with the avant-garde and early theories of Soviet Constructivism. In his trip, Kémény searched for a form of social materialism that could be objective in its results as well as analytic in its methods. Through his contact with Kassimir Malevich, whom he visited at the recently established VKhUTEMAS—the state school of arts and techniques in Moscow—Kémény learned about the influence of energy theories formulated by Wilhelm Ostwald, a Latvian-born chemist, painting aficionado, and champion of internationalism whose popularity in Russia was well established by the 1920s. Ostwald, paralleling Ernst Haeckel’s defense of Monism, advocated for a description of natural processes as transformations in the status of energy. Towards the end of his career, Ostwald situated

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\(^5\) Raoul Hausmann, “Présentismus: gegen den Puffkeïsmus der Teutschen Seele,” Der Stijl 4: 9 (September 1921): 1-7; Moholy-Nagy sent the document to Lajos Kassak to be published as “Prezentismus,” Ma 3 (February 1922): 42-43. “We’re calling for an electric, scientific painting!!! Sound and light and electric waves distinguish themselves from each other only by their wavelength and oscillation…Electricity will allow us to transform all our haptic emanations into kinetic colors, into sounds, into a new form of music.” I’m using here Oliver Botar’s translation of the second printing appearing in “Projection Spaces,” Sensing the Future: Moholy-Nagy, Media and the Arts (Zürich, Lars Müller Publishers, 2014), 103. On Raoul Hausmann original support of light as a transformative medium see Raoul Hausmann and Vikling Eggeling, “Zweite präsentistische Deklaration. Gerichtet an die Internationalen Konstruktivisten,” Ma 8: 5 (March 1923): 5.

\(^5\) Alfréd Kemény attended in 1921 the Third Comintern Congress sent as the Berlin delegate of the Communist Youth International. In that meeting, the artist Béla Uitz was also present who reported to the Viennese and Berliner group of Hungarians, including Moholy-Nagy, after collecting different materials from the Russian avant-garde. Both, Alfréd Kemény and Béla Uitz met Kasimir Malevich and visited the VKhUTEMAS and INKhUK institutions where they got in contact with other constructivists such as Barbara Stepanova and Alexander Rodchenko.
energy at the metaphorical and physical center of social and cultural relations and exchanges.\(^{52}\) Organic and inorganic matter would be just one among many other presentations of universal energy, the *reiner Stoff* or purer substance originating all existence.\(^{53}\) He also predicted an evolved form of art following the assimilation of this notion.\(^{54}\) His essay *Energetischer Grundlagen der Kulturwissenschaft* was a preamble to his future development of the color theory that he formulated during the late 1910s based on his reduction of matter to energy transactions and his rejection of atomism.\(^{55}\) The permeation of Ostwald’s ideas in art circles is reflected by Petrograd artist Boris Ender’s inscription on the back of an untitled 1920s painting: “Electrical energy / is not current / but migrating energy / a wire will rise to a magnet / the property / of life / is a more complex migrating / energy / which being more complex than a plane is impossible / to reduce into a plane / but it is possible to capture its tracks / on a plane.”\(^{56}\)

Alexander Bogdanov, a very popular character in pre-revolutionary Russia and Lenin’s alter-ego, reconvened with Ostwald’s ideas in his formulation of a new meta-discipline called *Tektology*, a “general science of organization” attempting to find dynamic patterns of behavior “hidden under the visible complexity.”\(^{57}\) Modeled after thermodynamic science, the entropic

\(^{52}\) Wilhelm Ostwald, Ernst Haeckel, Ernt Mach, and Raoul Francé were among the founding members of the Monist League in 1906.


energy in society would render its unstable, transitory, ephemeral organization. Bogdanov lectured widely during the 1920s disseminating his notion of Tektology as applied to art and influencing in turn such art theorists as Nikolai Tarabukin, Nicolai Punin, Boris Arvatov as well as artists, directors, and writers such as Sergei Eisenstein, Liubov Popova, Alexander Rodchenko, Vladimir Tatlin, and Vladimir Mayakovsky. If some artists like Kassimir Malevich, who was in contact with Bogdanov’s and Ostwald theories already by 1918, geared themselves towards a theory of color supporting the Proletkult art-formation, others like Ivan Kudriashev or Ivan Kliun turned to the idea of luminescence and light as a material reality. Around the time of Kemény’s trip, Malevich defined suprematism—in evolution from its pictorial mode—as “space filled with the dynamic energy of the life of cosmos” and his use of white as the “ultimate expression of geometric energy.”

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It is perhaps not a coincidence that given his contacts with Russian avant-gardes via Kemény, Moholy-Nagy changed style, topics, and even language during the early 1920s before his Bauhaus appointment. “[T]he principle of all human and cosmic development”, stated Moholy-Nagy, using a solemn tone in an article he co-authored with Kemény, stems from “the activation of space by dynamic-constructive systems of energy.” This affirmation, in its practical application, meant the substitution of “static material-constructions” for more vital relations of materials and energy, reducing the former to simply “conveyors of energy.”

59 [Fig. 025] The

subordinated function of materials as mediums for the visualization of energy fields was channeled mainly through light reflections in, and by, the materials employed, as the wired-spiraling nickel compositions he made in 1922 show. It was around that time that he begun envisioning a “light prop” or “light modulator” as the culmination of this material engagement with electrical light. These discussions on energy and light became not exclusive but complementary to the impending experimentation of new techniques such as photograms which had the materialization of light as their main argument. Scholar Noam Elcott, has characterized this moment of photographic experimentations as a “radical break” in the history of aesthetics: the abstractness and production technicalities such as the use of darkrooms and electricity prove the link of these praxes with the cinematic preoccupations of modernity. As a result, new relations, imagined or projected between material and immaterial could be staged, or better inferred. It is along these lines that the use of photograms became paradigmatic for future projections of matter in architecture, where matter, light, energy, and form became intermingled in an image that resonated accordingly with popular culture.

The dispute about the modern use of photograms by Christian Shad, Man Ray, and Moholy-Nagy—the latter denounced publicly for misappropriation by El Lissitzky—is for the present study irrelevant and misleading. According to Lucia Moholy-Nagy, she and her partner László had the first encounters with photogram techniques during the summer of 1922 after a trip to the south of Germany. Lucia’s early association with Mazdanism brought her to visit some of the

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anthroposophy-oriented schools in the area.\textsuperscript{61} Moholy-Nagy defended himself against accusations of plagiarism in the pages of the magazine \textit{Offset} in 1926, describing a mysterious woman (\textit{Lohelandin}) who introduced them to the technique.\textsuperscript{62} The woman Moholy-Nagy probably referred to was Bertha Günter (1894-1975), a professor at the Loheland School of Physical Education, Agriculture, and Handicrafts. At that time she was experimenting with photograms of flowers after sun exposure. At the time, the technique was a popular form of photography, used as a ludic pastime with a significant bibliography available for aficionados, a form of leisure that became increasingly popular during the early years of the twentieth century.

\textsuperscript{63} These books attained wide acceptance in the circles of photo-amateurs, circulating as guidelines for experimentation. Among these books we find for instance Hermann Schnauss’s \textit{Photographischer Zeitvertreib}, a book showing how to obtain “novel and curious effects” in photographs, reached its 6th edition in 1899, only nine years after its original publication.\textsuperscript{64}

Schnauss’s manual included directions on how to produce multiple-exposure images, creating photographic ghosts, phantoms, and necromancies, animals studies, deforming caricatures,

\begin{itemize}
\item \textsuperscript{61} Lucia Moholy, \textit{Marginalien zu Moholy-Nagy: dokumentarische Ungereimtheiten-Moholy-Nagy, marginal notes.} (Krefeld, Scherpe, 1972).
\item \textsuperscript{64} Hermann Schnauss, \textit{Photographischer Zeitvertreib. Eine Zusammenstellung einfachers leicht ausführbarer Beschäftigungen und Versuche mit Hilfe der Kamera.} (Düsseldorf: [s.n.], 1890). Translated as \textit{Photographic Pastimes: A Series of Interesting Experiments for Amateurs for Obtaining Novel and Curious Effects with the Aid of a Camera} (London: Illiffe and Son, 1891).
\end{itemize}
floral portraits, and other curiosities. [Fig. 026] Photography was a medium revealing the occult and the unknown, but also a technique for trickery and manipulations. In Schanuss’s manual we find images of light rays that would later become familiar in professional magazines on photography, and more importantly, advice on how to achieve simple, homemade images with the use of electricity. The technique was two-fold: on the one hand dematerializing everyday objects into a flat mass of light and shadow; on the other, domesticating and capturing light, as images of sparks and electricity flowing through hands, coins, and other metallic objects show. In them electrical light resembles countless frozen tendrils emerging between the medium and the object. [Fig. 027] These early experiments influenced a generation of anonymous aficionado photographers, experimenting with light and chemical substances on the photographic recording sheet. In 1920, for instance, the microbiologist and occasional photographer Paul Lindner published Photographie Ohne Kamera—an entry later famously appropriated by Moholy-Nagy in his Malerei, Photographie, Film indicating Moholy’s acquaintance with research done in the field of biological sciences—with fully contrasted black and white images reducing the organic subjects of his experiments, i.e., plants, flowers, vegetation, larvae, insects, etc., to a series of lines of light. [Fig. 028] Lindner had previously collaborated with the Swiss chemist and physicist Hans Henrich Landolt whose research on the luminescence of gases and on organic solutions under polarized light were the preamble to the Landolt-Börnstein physical and chemical database, a

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65 See also Felix Naumann, In Reiche der Kamera (Leipzig, 1912); Alfred Parzer-Mühlbacher, Photographisches Unterhaltungsbuch (Berlin, 1910); Hermann Schauess, Photographischer Zeitvertreib. Eine Zusammenstellung einfachen leicht ausführbarer Beschäftigungen und Versuche mit Hilfe der Camera. (Düsseldorf: [s.n.], 1890).

quantitative map of organic and inorganic matter extending to our time.\(^\text{67}\) To the measurable aspects of nature, Lindner added an optical interest that captured the attention of artists and scientists alike.

While familiarizing himself with the technique of photograms, Moholy-Nagy also restored his interest in lines through the forms of spirals, flowers, plants, and hands. \([\text{Fig. 029-030}]\) The multiple iterations of these objects transformed them into motifs synthesizing Moholy-Nagy’s approach to nature and mechanization. If the entanglements formed by new medias of reproduction, light, and biology was common before the twenties, Moholy-Nagy found a way to encapsulate light as well as the themes and motifs under which these experiments materialized. Given the popular circulation of photographic knowledge, the self-created narrative describing Moholy-Nagy’s epiphany discovering the technique of photograms in Loheland can be interpreted as a two-dimensional continuation in different media of Art Noveau’s naturalistic motifs, captured in the black space of photographic paper and invigorated thanks to the use of light. The use of the Bauhaus infrastructure once Moholy-Nagy was in Dessau allowed for the possibility of separating objects from the photographic paper, rotating them, suspending them, and acting on the final image as a final three-dimensional representation.\(^\text{68}\) In these instances, Moholy-Nagy’s empathic interest in lines as a source of individual expression and subjective unrest merged with the abstract use of light in his preferred media for experimentation during


the early 1920s. For Moholy-Nagy, light was “a metaphor of reason” and photograms the source for material experimentation.⁶⁹ For that if for no other reason, he rarely used the term “photogram” in his articles and books.⁷⁰

1.4_ Light and the “New Wealth of Optical Expression”

Until 1928, the photograms produced by Moholy-Nagy were done in collaboration with Lucia, she having the technical and photographic expertise to reproduce the experiments.⁷¹ Originally the two of them used daylight paper since the equipment and technical skills necessary to make photograms with artificial light—with the use of the so-called gas paper—were unavailable to them. Once at the Bauhaus, the use of safelights in dark rooms allowed for experiments with the medium under different material and conceptual conditions.⁷² Moholy-Nagy stressed the epistemological change of light as medium in an article he wrote in 1923, “Light—A Medium of Plastic Expression,” appearing in English in the American magazine Broom.⁷³ [Fig. 031] The compositional use of light on chemically prepared surfaces could perfect the human eye by controlling its performance, achieving its highest expression in films where movement and light were juxtaposed. His earlier experiments included the use of materials such as water, oil, acid,

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⁷⁰ The dispute over the word with accusations of plagiarism explains in part this absence. There are exceptions to the rule however: “Fotogramm und Grenzgebiete,” i10 21-22 (1929): 190-192. Published as “Photogram and Frontier Zone,” Krisztina Passuth, Moholy-Nagy, Translated by Mátyás Esterházy (London, Thames & Hudson, 1985), 305-306.
⁷¹ Lloyd Engelbrecht, Moholy-Nagy: Mentor to Modernism (Cincinnati, Flying Trapeze Press, 2009), 263. Moholy-Nagy only used the term photogram after the publication of Painting, Fotography, and Film in 1925. Before, he referred to them with the lyrical term “light-compositions.”
crystals, metals, glass, tissues, etc. to alter and control the reflected light, but his post-1921 ones concentrated on the enigmas and potentials of photosensitive paper. “From Pigment to Light,” written between 1923 and 1926 but published in 1933 marks a shift between styles—expressionism, pointillism, futurism, cubism, Dadaism, constructivism, etc.,—and media—photography, film and light displays, only to find the “common denominator” affecting all art-forms, an example of how Alois Riegl’s overarching ideas about aesthetics and culture permeated the modern avant-garde. This common denominator was “a new optic” prompted by photography’s “almost dematerialized light” as well as by “direct light rays in camerealess photography.” For Moholy-Nagy, echoing Bogdanov, styles—or “Isms”—were attempts to grasp the elementary optical order of society indicating that only constructivism had succeeded in grasping the visual value of raw materials, including “pigment-free, pure light.” The new forms of art production superseded the quest for order that the codification of style meant for previous avant-gardes. The subjectivity of the artist could be counterbalanced by the objectivity of the medium’s manipulation to avoid the fears of “petrification” that mechanization presented. Thanks to the new representational tools available to the contemporary artist, Moholy-Nagy argued, the “personal touch” and “manual skills” of the artist could be abandoned to embrace precision in formal relationships. The use of the “hitherto neglected medium of light” aided the transcendence of the aesthetic traditional “limitations of matter.” By energy he meant nothing


else than its visual light-form: in his experiments with photograms he shifted from painting with pigment to painting with light, a “sovereignly handled” new creative “means” equally valid “as color in painting and sound in music.” But it was more than that: the use of photograms appeared then for Moholy-Nagy as “the most completely dematerialized medium that the new vision commands.” Ironically, Moholy-Nagy’s dematerialization relied heavily on the physical and chemical properties of photographic paper.

The newly acquired visual—and aesthetic—status of electrical energy entailed the acceptance of materialized light as a pictorial device mediated through the use of enamel reflectors and synthetic materials commercialized under names such as Galalith, Trolit, Bakelite, and Zellon, as well as metals such as cooper, chromium, and aluminum. Galalith was a type of plastic made out of casein and formaldehydes in combination with milk, created originally as an alternative to blackboards. Trolit was the commercial name of cellulose nitrate manufactured in Germany by the Rheinisch-Westfälischen Sprengstoff-Fabriken (RWS) located in Troisdorf near Cologne.

The most durable and chemically stable Bakelite—or its German equivalent Trolitan—was a 10 (1933): 751-753. Republished in English in Telehor 1-2 (1936): 32-34. See also Krisztina Passuth, Moholy-Nagy, Translated by Ėva Grusz, Judy Szöllősy and László Baránszky Jób (London, Thames & Hudson, 1985), 323-326.

77 László Moholy-Nagy, Painting, Photography, Film, 32


79 Trolit was a similar material of Bakelite, a phenol formaldehyde resin developed in New York at the beginning of the century. Galalith was also a synthetic plastic developed in Europe which name relied on Greek etymology, combining gala (milk) and lithos (stone). Perhaps the association between plastics and ornament is not a coincidence: Charles Goodyear, the inventor of vulcanized rubber was the father of William Henry Goodyear the author of The Grammar of the Lotus. A New History of Classical Ornament as Developed of Sun Worship, published in 1891, a work referenced in the writings of Riegl and Worringer.

type of phenol-formaldehyde resin.\footnote{Wiebe E. Bijker, “The Social Construction of Bakelite: Toward a Theory of Invention,” Wiebe E. Bijker, Thomas P. Hugues, Trevor Pinch, eds., The Social Construction of Technological Systems (Cambridge; MA: The MIT Press, 1987), 159-187.} Many of these plastics, like Bakelite, were developed to avoid electrical conductivity, and therefore, the trapping of light in Moholy-Nagy’s project could only occur in the very surface of the material, sliding continuously without fixed locations. Several of Moholy-Nagy’s experiments appeared in the form of “constructions” in Telehor, including a static plastic lantern made with tubes filled with color liquids for light displays built in 1930 that would be part of the dynamic system “Gyros” featured on the cover of the 1938 edition of The New Vision. \footnote{Wiebe E. Bijker, “The Social Construction of Bakelite: Toward a Theory of Invention,” Wiebe E. Bijker, Thomas P. Hugues, Trevor Pinch, eds., The Social Construction of Technological Systems (Cambridge; MA: The MIT Press, 1987), 159-187.} This rotational object was part of his experiments with light and apparatuses of reproduction that often included movement but also different materials. The most famous of them was the “Light-Prop,” “Lichtrequisit einer Elektrischen Buner,” or, simply, the “Light Modulator,” as it was known, that was built in 1930.\footnote{László Moholy-Nagy, “Lichtrequisit einer elektrischen Bühne,” Die Form 5: 11-12 (1930): 297-299.} \footnote{Franz Roh, L. Moholy-Nagy 60 Fotos (Berlin: Klinkhardt & Biermann, 1930), 3.} The object or “appliance” was made as a collaboration between Moholy-Nagy and the Hungarian architect István Sebök, constructed by the mechanic Otto Ball—with György Kepes assisting in the associated film Lichtspiel Schwarz Weiss Grau done in 1932—and financed through the theater department of the Allgemeine Elektrizitätsgesellschaft, AEG.\footnote{Franz Roh, L. Moholy-Nagy 60 Fotos (Berlin: Klinkhardt & Biermann, 1930), 3.} The object was meant to be demonstrative, “ein Versuchsapparat,” a model contained in a box made out of Trolit, glass, and light bulbs, where the container itself becomes the set and scenario: on it, light was projected and visualized.\footnote{László Moholy-Nagy, “Lichtrequisit einer elektrischen Bühne,” Die Form 5: 11-12 (1930): 297-299.} The Light Prop itself was just a technical device, a single character in a play were the script was an endless monologue of light. The construction was the light-image equivalent of the automatic music boxes of the nineteenth century, its pins, its mechanized
cylinders, and its cranks providing movement to an apparatus made otherwise for reproduction. As such, it was never meant to be exposed as a sculpture but was intended instead to provide the adequate environment for a peopleless animated peepshow or, on rare occasions, shows where spectators had only visual access from a calibrated front circle. Moholy-Nagy’s intentions concentrated on the reflection of light coming from the red, blue, green, white, and yellow bulbs against the walls of the box after being reflected in the dynamic central object composed of staves, plates, batons, spirals, nettings, and perforated metals. [Fig.034] Despite its enticing presence, the object as such remained secondary in Moholy-Nagy’s experimental art. In that respect, the Light Prop is the continuation of some of the images where we can witness energy as a ghostly material appearing and disappearing at will in Von Material zu Architektur: towards the end of the book, in the section on sculpture dedicated to volume (but before the beginning of the architecture chapter), an array of images sampled from different popular journals and periodicals such as the Czech journal Pesty Tyden and the Germans Weltspiegel, Berliner Illustrierte Zeitung, and Die Woche appears. [Fig.35] Nocturnal images where lights express themselves in the form of bunches and bundles of continuous lines and urban scenes of lighted advertisements compete with images of fireworks and English Carousels. In the first English edition the section got expanded to include more elucidating images of men standing in front of cannon-like machines, ready to project any light form wherever it might be needed. [Fig.036-037] These additional images suggest a revision of applied-art within the city in the form of light

85 As Sybil Moholy-Nagy stated in her Moholy-Nagy: Experiment of Totality, the object was never thought as a sculptural piece. Oliver Botar argues correctly that it was Sybil Moholy-Nagy who gave the object the title of “Light-Space Modulator” which was misleading given its subordinate role. This name also puts this work in direct competition with the plastic sculptures he developed during the late 1930s and beginning of the 1940s. Sybil Moholy-Nagy, Moholy-Nagy, Experiments in Totality, Second edition (Cambridge; MA: The MIT Press, 1969), 64-67. Originally published in 1950. See also Sensing the Future: Moholy-Nagy, Media and the Arts (Zürich: Lars Müller Publishers, 2014), 126.
or advertisements. In these images we can see the combination, or “integration” between human imagination, mechanical invention, and light to “animate” the “white emptiness” of modern spaces through a “monumental architecture of light.” The spatial possibilities were overwhelming: in a personal letter to Frantisek Kalivoda published in the magazine Telehor in 1936, Moholy-Nagy enthusiastically embraced the possibility of transferring light-painting to the urban environment:

We have now reached the stage when it should be possible to discard brush and pigment to “paint” by means of light itself. We are ready to replace the old two-dimensional color patterns by a monumental architecture of light. I have often dreamed of hand-controlled or automatic systems of powerful light generators enabling the artist to flood the air—vast halls, or reflectors, of unusual substance—such as fog, gaseous materials or clouds, with brilliant visions of multicolored light. I elaborated innumerable projects—but no patron ever commissioned me to create a monumental fresco of light, consisting of flat and curving walls covered with artificial substances, such as galalith, trolit, chromium, nickel—a structure to be transformed into a resplendent symphony of light by the simple manipulation of a series of switches.

The association between light, music, and switches brings to mind the materialization of Hausmann’s Optophonic project as formulated in the early 1920s. But this confluence also

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88 Actually this form of “transient ornament” was announced by Larionov during the 1910s, constituting an alternative model to the issue of ornament formulated by Loos. This attitude became explicit in the manifesto entitled “Why We Paint Ourselves: A Futurist Manifesto”: “The painting of our faces is neither an absurd piece of fiction, nor a relapse—it is indissolubly linked to the character of our life and of our trade. The new life requires a new community and a new way of propagation […] We have joined art to life […] We do not aspire to a single form of aesthetics. Art is not only a monarch, but also a newsmen and a decorator. We value both print and news. The synthesis of decoration and illustration is the basis of our self-painting. We decorate life and preach—that’s why we paint ourselves. […] Tattooing doesn’t interest us. People tattoo themselves once and for always. We paint ourselves for an hour, and a change of experience calls for a change of painting…[.] Tattooing is beautiful but it says little—only about one’s tribe and exploits. […] Facial expressions don’t interest us.[.] Mimicry is expressive but colorless. […] We paint ourselves because a clean face is offensive (italicization mine) because we want to herald the unknown, to rearrange life, and to bear man’s multiple soul to the upper reaches of reality.” Originally published as “Pachemu my raskrashivaemsya”, in Argus, St Petersburg, 1913, 114-118. Translated by John E. Bowlt, in Russian Avant-garde 1910-1930: The G. Costakis Collection (Athens: The National Gallery and the European Cultural Center of Delphi, 1995), 490-1.
couples with many of the ideas Moholy-Nagy insisted on in his 1925 *Malerei, Photographie, Film.*

The transformation of the urban tectonic environment into a large public canvas was also central in *Von Material zu Architektur:* Mesmerized and inspired by the “vast cones” of the “search-light” on planar surfaces, he envisaged buildings as the place where light effects could be staged. [Fig. 038] The spectacle of kinetic-dynamic projections transforming the abstract concept of space into an experiential environment was the reversal of the project of interiority in the film *Ein Lichtspiel, Schwarz, Weiss, Grau.* Animated by the success of his automatic machine, he planned filmic projections and patterns of light displayed in connection to pianos, but also “light frescos” in order to animate anything from entire buildings to single walls. 89 For exteriors, he recommended enhancing the visual qualities of billboards by achieving a “third dimension” through the use of “special materials and reflectors” and the aesthetic exploration of light-searches and cloud projections as observed from airplanes—disregarding the symbolic meaning of those lights. Through the mastery of artificial illumination, an increasing adoption of flowing light and richly graduated shadows ensued; and through these again, a greater animation of surfaces, and a more delicate optical intensification arrived. Around that time, he also experimented with color photography in London and complex geometries like the Moebius ring produced by bending colored cellophane strips. 90 [Fig.039] These multiple graduations were one of the fundamental “materials” of optical formalism, not dissimilar from the one articulated by

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90 The “Moebius Rings” color image was published in the article “Color Photography,” *More Business: The Voice of Letterpress Printing and Photo-Engraving* 3: 2 (November, 1938): 13. The image was republished in László Moholy-Nagy, *Vision in Motion* (Chicago: Paul Theobald, 1947), 172. Together with the “Moebius Rings,” we find experiments done in color photography in the School of Design, other works by György Kepes, and images of railroad worm, a South American larvae of a specific beetle that lights up once it is excited.
Clement Greenberg in the 1930s. At that point, light was no longer a form of energy, but a new material to be used in spatial configurations. Nonetheless, the publication in Telehor had an almost symmetric argument in the article Moholy-Nagy published the same year in the magazine Art and Industry. If Telehor’s account had an overtly positive and utopian tone towards the use of light in the urban environment, the piece he published in Art and Industry used a deceptive one: capitalism was rendering the dream of a light-architecture confusing, superficial, and mediocre, enslaving the “light-artist” under technical and material contrivances. Under these circumstances he ended the hiatus from painting that began in 1928 and returned, albeit momentarily, to easel painting, waiting for the development of a “constructive coloured optical work dependent on material.” Light painting was an economic, biological, and pragmatic pedagogical project in need of an “Academy of Light” to overcome the “psycho-physical limitations” that mechanicism brought about. Once in the United States, Moholy-Nagy could develop, albeit partially, the pedagogic agenda he outlined while in London, achieving a more sophisticated relationship between artistic form, modern materials, and visible energy.

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1.5_ Light Matters

“The Telegram…obviously struck like lightning,” Moholy-Nagy wrote to Walter and Ise Gropius after receiving the invitation to start the New Bauhaus in Chicago in May 1937.95 Walter Gropius had recommended Moholy-Nagy—the “fiery stimulator”—for the directorship and included among the references some of the colleagues and friends they had made during their years in London, including the biologist Julian Huxley.96 After discussing the terms, Moholy-Nagy travelled to New York, welcomed on July 8th 1937 by James Johnson Sweeney, by then, the curator of modern art at MoMA. Following a trip to Boston to visit the Gropiuses, Moholy-Nagy was announced as director of the New Bauhaus in Chicago on July 22nd, only two days after the opening of the Entartete Kunst exhibition in Munich. By September of the same year, the curriculum had been, presented by Moholy-Nagy in the Knickerbocker Hotel in Chicago, and The New Bauhaus finally opened on October 17th, 1937. The school was located in the Marshall Field House, a classicist construction built by Richard Morris Hunt that held the honor of being the first house in Chicago enjoying electric light in 1875.97

A sign of Moholy-Nagy’s intellectual reorientation was the replacement, once in the US, of the recognizable red overalls of the Bauhaus years with a white lab coat. The new installment of the Bauhaus incorporated science into Gropius’s unity of art and technology. To achieve this end,

95 “Das Telegram….schlug natürlich wie der Blitz ein”. Quoted from Lloyd Engelbrecht, Moholy-Nagy: Mentor to Modernism (Cincinnati, Flying Trapeze Press, 2009), 549. The original telegram by Norma K. Stahle, executive director of the Association of Arts and Industries in Chicago, has been lost, but it was quoted in a letter of Moholy-Nagy dated on May 28, 1937 to the Gropius family and kept at the Bauhaus-Archiv in Berlin. On the other hand, Julian Huxley, together with Sigfried Giedion, Herbert Bayer, and Walter Gropius were admitted as members of the corporation transiting to the Institute of Design in March 29, 1944. Richard J. Dadley Library, Special Collections, Institute of Design Papers, MSIDes72, Box 1. Folder 10.


Moholy-Nagy counted on the collaboration of the philosopher and semiotician Charles W. Morris—whom he had met through the German positivist philosopher Rudolph Carnap—that contributed to the importation of scholars from the University of Chicago to lecture during the first years. Both men, Morris and Carnap, were committed to the promotion of logical and scientific thinking in society, and Morris brought to the New Bauhaus other members of the Unity of Science movement to lecture on biology—Ralph Gerard—and physics—Carl Eckart. Despite these moments of scientific enlightenment and interaction, the new institution had an almost Semperian distribution of topics, identifying specific material knowledge and training with the development of fields of expertise: textiles for fashion designers; wood, plastics, and metal for product designers; color for the decorators; glass, stone and clay for sculptors; and light for photographers. The New Bauhaus curriculum shared with the former Bauhaus an emphasis on techniques and forms in which architecture was meant to be the pinnacle of a six year education. Moholy-Nagy was in charge of the Basic Design Workshop, assisted by his former pupil in London, György Kepes, as the head of the Drawing and Light Department. Henry Holmes Smith, an American photographer sympathetic with Moholy-Nagy’s use of light in cameraless images, donated all his equipment to the school to equip a proper dark room and

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98 Moholy-Nagy probably met Rudolf Carnap while in Dessau, where the latter lectured at Hannes Meyer’s invitation on October 1929. According to Carnap’s diary, the main aspect he discussed was the distance between material aesthetics and functionalism. Possible relations between Carnap’s ideas and Moholy-Nagy’s theory had already been established during the 1930s. See Peter Galison, “Aufbau/Bauhaus: Logical Positivism and Architectural Modernism,” Critical Inquiry 16: 4 (Summer 1990): 709-752. The ideal synthesis of science and art as a “single unity” in Carnap’s philosophy however cannot always be identified with a grammar of elementary forms as Peter Galison claims: “The modernist construction of form out of elemental geometric shapes and colors is a correlate of the verbal development of theories out of logic and elementary bits of perception.” Peter Galison, “Aufbau/Bauhaus: Logical Positivism and Architectural Modernism,” Critical Inquiry 16: 4 (Summer 1990): 749.

99 Rudolph Carnap lectured on the “The Task of Science” and the psychophysics and psychometrics pioneer Louis Leon Thurstone on “Measurement of Intelligence.” As an anecdote, after receiving his master’s degree in mechanical engineering Thurstone collaborated in the laboratory of Thomas A. Edison.

100 There was also training for display and stage designers, whose education was complemented with knowledge in topics of art history. The literature here is extensive. See Alain Findeli, “Moholy-Nagy’s Design Pedagogy in Chicago, 1937-1946,” Design Issues 7: 1 (Autumn 1990): 4-19.
was put in charge of the photographic department. Former Bauhaus alumnae together with industrial designer Hin Bredendieck and artist Alexander Archipenko instructed technical training and modeling. Later, Nathan R. Lerner, a former student of The New Bauhaus, joined the team of faculty in the photography department. However, anyone looking at the prospectus of the first year, would suspect that the emphasis on new techniques of reproduction and light where meant to pinpoint the focus of the design education at the school. The school prospectus, as would happen in the years to come, showed images on the front and back covers of the never-realized designs for the stage set of Alexander Korda’s film “Things to Come,” while Moholy-Nagy introduced the 1938 edition of *The New Vision* with a spread of the aesthetic and spatial capacities of light in its association with techniques of reproduction. [Fig.041]

During the early years in the United States, Moholy-Nagy developed a frantic campaign to disseminate his confidence in the aesthetic potentials of light as a form of material in the heyday of streamlining and pragmatic commercialism for an enlarging middle class. Writing such as “Light Painting” (1937), lectures such as “Painting with Light” (1938), or exhibitions such as *A Brief Survey of Photography from 1839 to 1937* at The New Bauhaus from April to May of the same

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102 Lerner created in 1937 a ‘light box’ filled with objects to be photographed under different light conditions. This device would be the basis of his future teaching at the School of Design and Indiana University.

year are just an example.\textsuperscript{104} Moholy-Nagy’s material commitment towards media involving light was contagious: soon after his arrival to Chicago, John E. Walley, a supporter of Moholy-Nagy and future faculty member at the Institute of Design, recalled a lecture of Moholy-Nagy where he had arrived with “a large movie projector, two slide projectors, films, and large scale photo blow-ups.”\textsuperscript{105} This enthusiasm towards new-art forms disappointed some of the most conservative students who expected an easel-inclined school. The dissatisfaction towards Moholy-Nagy’s leadership by some of his students was seconded by the Board of Directors of the Association of Arts and Industries in Chicago that, given the addition of the financial struggle following the economic crisis of 1937, decided to withdraw its support by the end of the first year.

Despite the political situation, the first academic months resulted in a well-publicized exhibition that received ambivalent criticism. The exercises the students followed began with their own signatures, which they enlarged and manipulated as a form of transiting towards a linear subjectivity. From there, students sought linear representations in nature, after which, several experiments with surface materials, textures, and optical distortions followed. Lines appeared as the individual path for the student to discover the different “energies” of life or “forming powers” present in nature and matter. However, the concentration was directed towards the lenses of the camera where light and matter could achieve objective unity: “light and objects


work together to become photographic subjects.  However, reception of the work was ambivalent. A few months before the opening of the comprehensive Bauhaus show at MoMA, an article in Time Magazine described the exhibition of the work of Moholy-Nagy’s first year students as a “bewildering nameless” collection of objects comparable to the “outlandish contraptions of Rube Goldberg.” The critique underscored the decorative character of the materials exhibited, celebrating tongue-in-cheek that only one student abandoned the program. The critique of the show published in Arts Magazine betrayed a similar sense of awe, underscoring that every single “gadget” and exercise made by students was “sized up by the camera’s eye.” Certainly, the use of light in relation to objects made its own impact in the curriculum, as well as on Al and DeVera Bernsohn, photographic critics and authors of books on the medium: “Probably the most striking phase of the new approach taught at the School of Design,” they stated after visiting the end of the second year show, “is the unusual, but perfectly logical, conception of light.” For the Bernsohns, Moholy-Nagy photograms held the highest aesthetic potential, acquiring almost a “metaphysical power.” Their book Developing, Printing, and Enlarging, a manual for domestic photographic aficionados, described photograms as a form of obtaining “unusual patterns” to be printed “alongside, as backgrounds for, or over other

106 Memorandum for the Exhibition Work from the Preliminary Course 1937-1938, Richard J. Dadley Library, Special Collections, Institute of Design Papers, MSIDes72, Box 1. Folder 56.
107 “Bauhaus: First Year,” Time Magazine (July 11, 1938): 25. Rube Goldberg was an American cartoonist famous for his depictions of complex machinery to facilitate worldly activities. His work had appeared in the exhibition Fantastic Art, Dada, Surrealism held at MoMA in 1936, together with works by Christian Shad, Ladislaus (sic) Moholy-Nagy, Man Ray, and Antoni Gaudí, among others, indicating a full genealogy in the forms of modernism that culminated in Surrealism. The exhibition was described as a “way of life,” indicating the “genuine analogies” of the works exhibited. Alfred H. Barr, Jr., Fantastic Art, Dada, Surrealism (New York: The Museum of Modern Art, 1936). I expand on the relation between the Fantastic Art exhibition and the reception of the work of Antoni Gaudí in chapter IV of the present dissertation.
108 “The Bauhaus Touch,” Arts Magazine 12: 19 (August, 1938): 27. The article was based on accounts of C.J. Bulliet for the Daily News. In it, we learn of a smell machine made by a student comparable to the musical scale. “I never heard of a machine that can play ‘smell sonata’ on electrical tubes.”
objects.” The inclusion of work done at the New Bauhaus in the 1938 MoMA Bauhaus show served to back up the project as it had metamorphosed in its second year in the School of Design in Chicago, beginning with the light experiments of Nathan Lerner in the photography class. The experiential approach to light and materials was remedial, dovetailing with the pedagogical concerns of members of the Sponsor Committee of the School of Design such as the philosopher John Dewey, close friend of Bertrand Russell, who had published *Experience and Education* to take a break from purely theoretical approaches in academia. This experiential approach was also a cornerstone in a strategy to secure funding from industrialists, such as Walter Paepcke, Oscar Mayer, or Edgar Kaufmann Sr., who understood the School of Design as part of a larger commercial project, meant to update American consuming habits.

Light, photography, and materials became the nucleus of future pedagogical exhibitions like the summer course that Moholy-Nagy taught at Mills College in 1940 that served as a prelude to future sessions in Somonauk, the country house where Moholy-Nagy’s family spent their holidays. It was a concise reenactment of the basic course that usually ended with an array of models next to the images extracted from them. A journalist described the mood at the School of Design by the 1940s as an “electric atmosphere” of collaboration between students, teachers, medias, and materials. “It bases its instruction on what has always been the source of

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110 Al and De Vera Bernsohn, *Developing, Printing and Enlarging* (Chicago, Ziff-Davis Publishing Company, 1939). They also attributed the popularity of the technique in the United States to Moholy-Nagy. Interestingly, the book, intended as a domestic manual, ends with a chapter entitled “Let’s be useful,” in which they recommend extending the use of photographs to elements of the house such as screens, lamps shades, etc. The book also has a markedly sexist bias: home photography is exclusively an affair of men. “The Lady of the house has to be pretty swell sort of person to put up with the nuisance of a photographer. The photographer can repay her for her tolerance and possible curry future favor by turning his hobby over the task of making some attractive pictures for her.” Ibid., 90.


112 There were notable differences between the patrons and sponsors of the school. However, Walter Paepcke, president of the American Container Corporation was of German origin and a zealot of European design.
Style: the increase in the dynamic power of material when it is used in a new way derived from its essential nature.” That design was no doubt associated with the “high caliber” photographic quality and light manipulations. Thanks to both, fine arts and applied arts were “inextricably interwoven.”

Probably Moholy-Nagy exaggerated when he complimented American critic and art historian Beaumont Newhall in the summer of 1941 with the following words: “for many years, nobody has so clearly seen my directions towards light.” Moholy-Nagy referred to the illustrated article Newhall had published in The Kenyon Review on his photographic work. Newhall assisted Herbert Bayer in the aforementioned Bauhaus exhibition at MoMA and, therefore was very familiar with the performative aspect of Moholy-Nagy’s Light Prop. Also, Moholy-Nagy participated in the section A Pageant of Photography in the second year of the Golden Gate International Exposition in San Francisco, making his work available to larger segments of the population. However, many of Newhall statements did indeed please Moholy-Nagy. Among the images there was a painting, a photogram, and two Plexiglas sculptures: one static, the other, dynamic. Newhall’s insightful argument was that actually all of these art forms produced by Moholy-Nagy were just means to achieve specific photographs and light effects. The objects, were ultimately negligible, subordinated as they were to the final visual relations established between them and the light projected and reflected in them once ‘petrified’ in the photographic

113 “School of Design on Threshold of Fourth Year,” The Chicago Sun (January 3, 1942):16.
117 Golden Gate International Exposition, San Francisco, A Pageant of Photography (San Francisco, Crocker Union, 1940). The Exhibition was curated by Ansel Adams.
paper via the lens of the camera. After reading Newhall’s article, literary critic and founder of the New Criticism movement John Crowe Ramson shifted his conservative positions on photography to acknowledge the ephemerality that the medium captured: In Moholy-Nagy’s work, “[t]he functional use disappears. [His photographs] become at once remarkable in shape, in light effect, and even in texture; they are purely particularity now, not function.”118 There were different assessments though of Moholy-Nagy’s seductive images: reporting on a lecture Moholy-Nagy delivered at the then prestigious Abraham Lincoln High School in Brooklyn in September of 1941, The New York Herald Tribune pinpointed the efforts of the School of Design in demonstrating the potentials of modern materials. The medium where these potentialities were staged was photography, although concepts such as ‘texture pictures’, ‘photograms’, ‘painting with light’, etc., had a “cultist ring” whose result was rhythmically unusual abstract changing patterns “unlike those which can be made in any other way.”119 In addition, the school published the photographic work done at the school in journals such as Minicam Photography, while Moholy-Nagy published articles on the relevance of photography for design and space in The American Annual of Photography.120 The articles appearing in the latter were particularly important for the integration of photography as a technique for spatial design and “the animation of

119 “Designs for a Future World — Moholy-Nagy Speaks on Art,” New York Herald Tribune (Sunday, September 14, 1941): 5. “Moholy-Nagy makes it clear that in the last three years the School of Design has if anything expanded its search for new techniques in art. But when he speaks of “texture pictures,” “painting with light,” “space articulation,” “hand sculpture,” “photogram or light photograph,” or “kinetic sculpture,” the terms have cultist ring. We demand to know what they mean.” In another paragraph, the article expressed the need to build up “familiarity” with new materials. The “texture or tactile picture” was a form of knowledge and demystification of the new materials industry brought about.
From the manipulation of light, to the manipulation of the image through the camera lenses, Moholy-Nagy provided a design method departing from the photographic media whose target was the final alteration of the visible aspect in the design and production of objects.

The rhetorical and eloquent forms of Moholy-Nagy’s light works were increasingly appreciated: Alfred Barr continued supporting the work of the school with an exhibition held at MoMA significantly centered around light manipulations. How to Make a Photogram opened in New York in September of 1942 organized by Moholy-Nagy, György Kepes, and Nathan R. Lerner showing works done by students at the School of Design. Also, two photograms of Man Ray were exhibited. The pedagogical character of the show was unequivocal, rendering photograms as an advanced status of photography where the intricacy of matter and light became exposed. Photograms were equated with paintings where the elements used—broken glass, egg beater, twisted strips of metal, perforated cardboards, artificial flowers, wire netting, drinking straws, rubber bands, wood shavings and spirals, toilet paper, etc.—composed a cartography of everyday modern life. All the materials became equalized as gradients of light weaving “intricate patterns”—that is, entangling light trickery in its etymological sense—to educate the eye of the visitor.

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122 “To show the relationship between photograms and photographs, the exhibition begins with photographs in which the photographer has recorded the interplay of light, shadow and reflection in intricate patterns made by objects clearly recognizable in the photography. By concentrating on the light patterns in the photograph, the visitor is led to see the next step toward photogram-making.” From, “The Making of a Photogram or Painting with Light Shown in Exhibition at Museum of Modern Art,” The Museum of Modern Art, Press Release. September 14, 1942.
1.6_ Thermoplastics Knots

Among the experiments Moholy-Nagy made to find new uses for new materials is his design for the medical container fabricating company Foley and Co from Chicago. Moholy-Nagy proposed a small container for the product Vita-Bilds, a vitamin tablets compound. Vitamins as a source of energy, health, and well being, reconvene with the light reflected in the circular engravings of the package to form a unique compounded object. To achieve this end, the design amalgamated previous topics such as the spiral, the hand, transparencies, translucencies, patterns, and reflections. [Fig.045] The circularity of the design opened up new paths for plastic exploration. It was in 1939 that Moholy-Nagy begun to experiment with thermo-plastics as a source of photographic effects. He did so by heating the plastic elements in the oven of his apartment, fashioning them three-dimensionally. From the flat sheet of plastic to the three-dimensional object, a new space for light capture emerged under these conditions of manipulation. In the mid-1930s, Moholy-Nagy had described the creation of space as an abstract act of “interweaving of parts” [verwobensein], dependent on the use of building materials, despite his experiments with different media and his visual rhetoric increasingly showed otherwise.123 During the following years at the School of Design, experiments with plastic continued thanks to the acquisition of an infra-red oven for more sophisticated experiments. [Fig.046] Some of the exercises even had medical functions praised to the point of hyperbole: a design for transparent plastic helmet by student George Marcek was advertised as the end of skin cancer for farmers.124


But certainly, the shortage of metals put a lot of stress on the aesthetic and scientific capacities of plastics to produce “practical oddities.” The final step in his painting with light was clarified in his “Abstract of an Artist” piece included in the 1947 edition of The New Vision: by shifting to thermoplastics in the 1930s, he discovered a new way to produce “light-textures” worth pursuing towards objective painting, despite the risk that doing so might “easily lure one into an effective but decorative performance.”

Suddenly, after heating and shaping transparent plastics, rejecting the flat surface, a new effect emerged, that he called “space modulators”, the culmination of his work as an artist:

The bends and curves made the plastic structurally more resistant to breakage. At the same time, the bends caught the high lights. They could be made a part of the light compositions themselves. [...] 

The distorted shapes of my ‘modulators’ produced spatial effects, not only through the curved surfaces which where protruding or receding, but also through the lines flowing in all directions of the weather cock, formed by the thickness of the sheet themselves. Their edges produced space curves which, when combined with similarly curved wire of the same gauge as the thickness of the edges, could be blended into a complete row of space cells. They were partly made of transparent plastic itself, with emphasis on the edges partly of wire and air “walls”, which were “more transparent” than transparency itself.

Space was ‘modulated’ and ‘molded.’ The particular name that some of these sculptures received—Loops, Double Loops, etc.—describe their symbolic origin as binders. If painting and photography were about interpenetration, superimposition, transparency, texture and even patterns, the mastery of plastics unveiled a different understanding of space.

Moholy-Nagy with a design problem. He had two patients, farm boys, who had developed a cancer of the skin on their heads and necks. The boys’ open-air farm labor was indispensable, and the doctor wanted helmets which would protect his patients from overexposure to the sun and still permit clear vision. The helmet also had to be ventilated for comfort. Students perfected a helmet of transparent plastic, which had a crown of sliding inch-wide strips of sun-resisting material. The strips were fastened with a staple over each ear and allowed air to reach the wearers’ head without permitting the sun to penetrate. A bill-shaped visor over the eyes completed the device, and the school had a report from the doctor that the boys are back on the farm, looking like men from Mars, perhaps, but able to plow and plant through the hottest days.”


Channeled through transparent thermo-plastics, the visual form of energy (light), intertwined with materials to form a continuous tissue. In one of the few demonstrative images of Moholy-Nagy, he appears with a light-machine focusing one of the plastic modulators suspended in the air to demonstrate the subjective capacities that light as a medium could inflict. [Fig.050] In an interview for the Saturday Evening Post, Moholy-Nagy asked himself: “Why should a painter, who has to express his feelings, be so silly to use only oil, water colors or the other equipment used in the past? Why shouldn’t he use the things that are characteristic of his own time—electricity, perhaps, or optics?” Moholy-Nagy fantasized with a transformation of paintings that would affect the modern understanding of walls, transparent and receptive, decorated with transient lights or even filled with gas of different colors. Moholy-Nagy’s recommendation to artists was: “Go wash your face.”

Moholy-Nagy’s identification between hygiene and aesthetics translated into a form of ornament either intrinsic to the materials employed, or circulating through its surfaces.

Moholy-Nagy underscored in his 1947 Vision in motion that all the experiments and aesthetic demonstrations he did were efforts towards the creation of proper symbols to represent technology and movement. Actually his postwar concept of space-time distanced itself from the one articulated by his friend Sigfried Giedion in order to acquire pragmatic overtones. For Moholy, space-time problems in aesthetics were not necessarily “based upon Einstein’s theory of relativity” since “artists and laymen seldom have the mathematical knowledge to visualize in

scientific formulae the analogies to their own work. Instead, his work entailed a visual and phenomenological approach that prioritized intuition and human experience above positive, scientific knowledge. Moholy-Nagy assumed that the work of artists of his generation relied on linguistic and symbolic associations rather than precise calculations and positivist science. [Fig. 051-052] As such, it could only restore “visual symbol values”, where the spiral, in its capacity to show movement and simultaneity inside-outside was a reference. Together with the spiral as symbol for space he included “the drawing or light tracks of motion studies” and “various ways of distortion, such as the curved edge of bent plastic sheets and wire structures” where transparency and interpenetration was achieved once “light penetrates matter.” [Fig. 053] At that time, he claimed he always treated light as another material for aesthetic purposes and matter as the medium to express that term, tantamount to Einstein’s theory where “matter and energy (were) interchangeable terms.” This fluctuation between matter and energy was not completely accurate but it reflects to what extent the theory of relativity and the description of matter as a condition of energy did permeate aesthetic discourse. Vision in Motion after all stands as a synonym referring to the same set of problems that Sigfried Giedion addressed in relation to space, time and aesthetics—a question that parallels Herman Weyl’s critique of relativity theory in Space, Time, and Matter published in 1919—although formally and materially metamorphosed in a different grammar. The book became an “intentional object,” a multifaceted tool presenting a stream of experiences, describing from “the revelation of the structure instead of

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128 László Moholy-Nagy, Vision in Motion, Op. Cit., 266
129 László Moholy-Nagy, Vision in Motion, 256
130 László Moholy-Nagy, Vision in Motion, 266
the façade” to the new approach “concerning materials, energies, tensions and their social implications. n132

“The knot”, wrote Semper, “is perhaps the oldest technical symbol.” [Fig. 054] Unlike Semper’s knot, the strength of Moholy-Nagy’s dematerialized Loop was no longer dependent on friction but on material continuity and embodiment. It illustrates the loose, smooth relation imprinted by the newly renovated contract between matter and energy. Sibyl Moholy-Nagy, László second wife, perhaps was the first one who recognized the braid-like qualities of Moholy’s work with plastics by choosing one of the latest Space-modulators for the cover of her 1951 Experiments in Totality. [Fig. 055] The “absolute elegance” of plaits and braids was a sign of unity for Semper, capable of the “richest ornamentation” in humans (hair) as well as in architecture: plaiting was “the means to prepare a surface”, fulfilling its purpose in the mat, a space for the “richest variety of geometric patterns” from the Assyrians and Egyptians to the Arabs. n133 Although Moholy-Nagy

László Moholy-Nagy, Vision in Motion, 268. For the description of “intentional objects” vs. phenomena or transcendental objects see Herman Weyl, Space, Time, Matter (New York: Dover Publications, 1952), 4. It was then not a coincidence that art sought for a different morphological relation between matter and energy given the unrest and the questions that the arrival of quantum theory brought about. Research by Marx Planck, Niels Bohr, Albert Einstein, Arnold Sommerfeld, and Louise de Broglie complicated the relationship and the boundaries between energy and matter by the beginning of twentieth century, prompting realignments in different fields of knowledge stemming from a reconsideration of quantum theory and quantum mechanics. Light, as an electromagnetic phenomenon, could be better interpreted following the model of traditional physics—that is, as a set of particles or matter—or as an energetic quantic field, depending on the scale of the experiments. Thus, light resulted in an ambiguous substance, half matter, half energy that puzzled scientist and philosophers alike. English polyhydric author Bertrand Russell proposed a philosophical analysis of the gap between physics and perception, between positivism and phenomenology by inquiring into the origins of matter by the late 1920s. In his Analysis of Matter, Russell defined ‘events’ as the relations between material quanta in time, an attempt to break the isolation of materialism. Russell’s preoccupation with matter was not unique: Rudolph Carnap’s Aufbau, Max H.A. Newman, or Ernst Mach’s Analysis of Sensations also paralleled the attempt to grasp the structure of matter.

only mentioned (and disparaged) Semper once in his writings, Moholy-Nagy’s ideas regarding materials in relation to light translate into modern jargon and through new material techniques nineteenth and twentieth century theories on ornament.134 Perhaps his knowledge of the work of Semper, Worringer, and Riegl was limited and partial, but his micro-macro cosmic humanism was unequivocal in his writings as well as in his personal life: his astrological charts reveal his faith in the invisible bond between human destiny and cosmic universal law. [Fig. 056]

Suddenly, a new symbolic knot, a dematerialized one, was available for further development, weaving together light, matter, and language.

1.7_ Spontaneous Condensations

Moholy-Nagy tried to enlist an art historian for the curriculum on stage and display design at the New Bauhaus. The leaflet of the first year of the school even announced the presence of James Johnson Sweeney among the faculty members. Last minute changes in Sweeney’s priorities kept him away from teaching but not from lecturing regularly in Chicago. As an alternative to Sweeney, Moholy-Nagy contacted Sigfried Giedion who, after completing Space, Time, and Architecture, was ruminating on new book projects. At his arrival to Chicago, Moholy-Nagy planned a reenactment of the Bauhaus book series with the publisher W.W. Norton—with Walter Gropius’s participation—which proposed as the first two titles for the collection books by Giedion on Recreation and Leisure and Chaos and Construction.135 Among other titles included in

Handbuch für Techniker, Künstler und Kunstfreunde, 2 vols., Frankfurt am Main: Verlag für Kunst und Wissenschaft, 1860.


135 Richard J. Dadley Library, Special Collections, Institute of Design Papers, MSIDes72.
the list we find the reprint of Moholy-Nagy’s *New Vision* and the first English edition of *Painting, Photo, and Film* followed by the explanatory title *Light, New Medium of Expression*. Although the School of Design in Chicago never enjoyed Giedion’s full-time participation, Moholy-Nagy managed to bring him to the school for occasional lectures. Giedion’s fascination with Chicago’s development, from the use of machine-made nails resulting in the balloon-frame to the development of skyscrapers, placed the city in a significant niche of modern architecture’s achievements. By the end of 1930s, Giedion’s intellectual interests had geared towards the origins and epistemologies of modern technical development. As he had previously done in his Norton lecture series at the GSD at Harvard, Chicago was a key location in Giedion’s narrative of modernism. This time though, Chicago called the attention of Giedion for its industrial capacity as food provider, exemplified by the harvesting machines of Cyrus H. McCormick, the management of cattle, and the serial production of canned meat.¹⁶ Assisting for his research was Robert Bruce Tague, a student at the photography department of the School of Design during the spring of 1939 and collaborator at the office of the architect and faculty member George Fred Keck. Giedion was well acquainted with the activities held at the School of Design during the early years. For instance, Giedion was present at the first projection of the film *Design Workshops* in New York in September 22nd, 1944, a film produced by students at the Institute thanks to the patronage of the Rockefeller family.¹⁷ In addition, Giedion lectured at the Summer Sessions of the School, from July to August, on issues of town planning. At that time, Giedion was revising his own precepts in relation to space-time concepts and symbolism as an implicit critique of his previous logical rationalism. With the disasters of war as a background,

he presented to the eighth meeting of CIAM in 1948 an argument for integration and interdependence between fields that anticipated Hannah Arendt’s conclusion after the Eichmann trial:

…a humanization process is occurring at the moment, parallel to the destructive tendencies. This is a revolt of human instincts against the violations caused by mechanization and its close relative: bureaucracy….A need for Ganzheit’ [integrity]…can be observed in all areas, a demand for universality and interrelationships of the various spheres of life.\textsuperscript{138}

Materials had a significant role in Giedion’s championing of the organic integration of the arts as project for a renewed humanism. In Mechanization takes Command, he acknowledged the work Moholy-Nagy achieved in this direction at the School of Design, particularly in materials experimentation, a department “methodologically knit into the program of studies.” Probably impressed by the visioning of Design Workshops, he recalled the elasticity, mobility, and strength that the student’s exercises attained through the geometric manipulation of plywood. This approach to materials provided an unstable form of existence that emphasized the organic aspects in every inorganic configuration as a return to an implicit if metaphorical abstract vitalism:

Was it only the demand for new techniques that gave fresh life to the wooden materials and set free its hidden potentialities? The causes go deeper than that; to the trend toward the organic that asserted itself in the early thirties and gained strength in following years. We want objects around us that bare the trace of life. Bark, grotesque roots, shells, fossils. Things that have passed through time and tide….Joan Miró wins freedom of expression by the use of organic

forms, sometimes rounded and fishlike, sometimes snakelike, often calligraphic symbols, but always freely floating in space without naturalistic moorings.\textsuperscript{139}

Giedion’s postwar notion of the organic was based in an increasing preoccupation towards the power of abstract symbols in the construction of the arts and, by extension, in the interpretation of architecture. With his characteristic use of dialectical images, he paired one of Joan Miró’s compositions from 1935 with an image produced by Frank B. Gilbreth’s famous chronocyclographs and “penetrating screens”, the lionized apparatus devised by Gilbreth to photographically document movement in time through the use of electrical light.\textsuperscript{140} [Fig. 057]

Both elements, movement and light, were for Giedion universal signifiers whose representation was nonetheless contingent to the temporality of photographic vision. He called these static representations “spontaneous condensations.”\textsuperscript{141} An example of the seemingly offhand moments of synthesis between image, movement, and symbolic form, was the spiral as represented by Paul Klee in his \textit{Pedagogical Sketchbook}, a publication that was only then translated into English. [Fig. 058] Carola Giedion-Welcker, Giedion’s wife, was working on a lengthier book on Klee in which she referred to the work of the Swiss artist in very similar terms: movement in Klee was transmitted in the “emancipated line” as well as the sign of the black arrow, both recurrent \textit{motifs} in Klee’s paintings.\textsuperscript{142} [Fig. 059] Klee’s symbols synthesized Jung’s archetypes and Bergson’s


\textsuperscript{141} Note the automatic and ritualistic character of Giedion’s expression: “These symbols of movement are spontaneous condensations, like the sound-poems of the Dadaists and, later, the Surrealists’ quest for an ‘automatic writing’ (1924). A poet such as Paul Eluard confirms this (1939), as he comments on the ‘integral truth’ (\textit{vérité totale}) sought by Picasso and every real artist of that time. ‘Picasso has created fetishes, but fetishes possessing a life of their own. Not mere intermediary signs but signs in motion. Their motion makes them concrete things.’” Sigfried Giedion, \textit{Mechanization Takes Command. A Contribution to Anonymous History} (New York: Oxford University Press, 1948), 108.

\textsuperscript{142} Paul Klee, \textit{Pädagogisches Skizzenbuch} (Weimar: Bauhausbucher, 1925); \textit{Pedagogic Sketch Book} (New York: The Nierendorf Gallery, 1944); \textit{Pedagogical Sketchbook} (New York: Frederick A. Praeger, 1953). See also Carola
dynamic vitalism to enlarge the artistic expression through a new visual language. For Carola Giedion-Welcker, the work of the “weaving-master” Klee at the Bauhaus translated into an architectural concern towards “the horizontal flow of embroidered façades, in which the continuity of motifs is maintained, as in musical variations, by change and repetition. These often seem like tapisstred reminiscences, with European and exotic elements woven together in arabesques.”143 Actually some of the works by Klee in the 1920s—Structural II (1924), Pastorale (1927)—recall the work of the textile section at the Bauhaus under the direction of Gunta Stölzl. 144 [Fig. 060] However, the presentation of the textile works in the magazine of the school in 1931 relied heavily on the constructed materiality of these textiles rather than on colorful designs. Close ups of the different fabrics show a highly contrasted topography of lights and shadows made out of synthetic threads, weaving fibers, embroiled cocoons and geometric filaments, always photographed obliquely.145 These textiles materialized the image thanks to the intervention of the selective photographic eye. [Fig. 061] Given Moholy-Nagy’s latest photograms, with which Giedion was acquainted, the reference to easel painting seems a
conservative and perhaps misleading reference. Years earlier, Giedion had praised Moholy-Nagy’s engagement with photography as a “medium of form.” For Giedion, the agency in new art-forms unveiled the “province of creative work in light-sensitive media, from ordinary to camera-less photography,” as a dissolution of the very materiality of the objects into a larger continuum: by using these techniques, objects and materials could be “disintegrated into graduations of light and shade,” the cementing elements of a larger construct.  

The “embroidery” of symbolic and architectural elements was taking a different material form, a relationship happening in the provinces of the mechanization and optimization of labor. The publication of Mechanization Takes Command coincided with the publication of Cheaper by the Dozen, the novel by Frank B. Gilbreth Jr. narrating the years the family spent in New Jersey while his father was working on motion studies. Frank B. Gilbreth Sr. began his career as a building contractor fascinated by scientific management to minimize the time spent in bricklaying. His interest in movement studies was decisively and unequivocally commercial. However Giedion included an image from Frank B. Gilbreth Sr.’s studies illustrating the postwar fascination of the organic possibilities of light and mediums of reproduction by recurring to the knot as a symbol. [Fig. 062] The image of the illuminated line helped Gideon graphically identify the time and space sequence. Gilbreth career was about the visualization of movement for practical reasons and departed from architectural efficiency: in 1909, he published the book Bricklaying System, a thorough systematic study of the craft, tools,

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movements, and activities employed by construction workers. Illustrating movement frame by frame, the book took into consideration anatomy, mechanics, and available utensils to improve time efficiency and reduce construction costs. It was also a compendium of the imported material knowledge provided by several generations of immigrants arriving in the United States as well as a manual for the proper laying of brick in future generations. Extended length was given to the last chapter on “bond charts” or bricklaying patterns combining forms, colors and textures. [Fig. 063] The book compiled seventy-two different patterns presented in full isometric views and elevations. More pristine was his 1911 Motion Study: A Method for Increasing the Efficiency of the Workman. [Fig. 064] The publication described full choreographies for the craft, a total control of labor and “the human motor” that included health habits, temperament, and nutrition; a “creed” for bricklayers to create the “bond of sympathy” in the working place. The intensification of Taylor’s Scientific Management tied intimately human labor to the final performance and appearance of building matter. But in Giedion’s work, as well as in Moholy-Nagy’s, the interest in Gilbreth’s representations was always related to the visualization of movement as generators of space-time morphologies. As Giedion acknowledged in Mechanization Takes Command, “Every age has known the impact upon feeling of lines, curves, and signs. All good ornament stands witness to this.” Giedion seemed here to pay tribute to his former mentor Heinrich Wölfflin—particularly in the opposition he proposed

149 Frank B. Gilbreth Sr., Motion Study. A Method for Increasing the Efficiency of the Workman (New York: D. Van Nostrand Company, 1911)
151 In Moholy-Nagy’s Vision in Motion it appears always associated with the work of Frederick Winslow Taylor.
between the linear and painterly early stages of art development—and his assimilation of empathy theories as incorporated into the field of architecture. But Giedion’s attention to Klee’s spiral or Gilbreth’s illuminated knot also approximates Aby Warburg’s “bewegtes Beiwerk” or animated accessory and its sequence of mimesis: once assimilated as a sign and symbol, light-movement became one of the motifs available for postwar modern grammar. Moholy-Nagy expressed himself in similar terms when he disparaged the nineteenth century’s realistic representation of speed, electricity, and wireless without the twentieth century introduction of “subconscious automatism.” For Giedion, movement, was the “key” to contemporary thought, an emotional source incorporating a multiple array of fields and disciplines able to transform the very epistemology of matter: “the essence of the phenomenal world has been increasingly regarded as motion-process: sound, light, heat, hydrodynamics, aerodynamics: until, this century, matter too dissolves into motion,” after physicists documented the rotational movement of electrons around the nucleus. Giedion’s words echoed Moholy-Nagy’s concept of architecture as the result of the knotting together of spatial elements. Neither a question of


building materials, nor of space per se, architecture had to find the set of (visual) relationships keeping the whole construct together as part of a larger spatial tissue:

Spatial Design [Raumgestaltung] is not primarily a question of the building material. Spatial design today does not consist of joining together heavy building masses nor in creating hollow bodies, nor in the alignment of complex volumes. Nor does it consist of making rows of single cells with the same, or different volumes. Spatial design today means rather a weaving-together [verwobensein] of spatial elements [Raumteilen], which are mostly anchored in invisible but clearly-discernible relationships of multidimensional movement, and in fluctuating energy relationships [Kräfteverhältnissen].

Moholy-Nagy illustrated his concept of “weaving-together spatial elements” mainly with photographs and film stills, among which stands out the sequence of light illuminating the sewers that the French director André Sauvage filmed in his 1928 documentary Études sur Paris. In these images, we see light punctuating the waters as spotlights in a theater stage. [Fig. 065] He also restored the spiral, particularly represented in the multiple exercises for the “Kinetic-Constructive System,” the image of an elevator shaft by O. Firle taken in 1928, and the double layers of spirals made by Charles Niedringhaus in The New Bauhaus creating “spatial effects.” [Fig. 066] In the new 1938 version of The New Vision, Moholy-Nagy acknowledged architecture as a media for continuous reflections, interpenetrations, and endless morphological repetitions: shadows are, by definition, three-dimensional.

A white house with great glass windows surrounded by trees becomes almost transparent when the sun shines. The white walls act as projector screens on which the shadows multiply the trees, and the glass plates become mirrors in which the trees are repeated. A perfect mimicry is the result. At

night, strong light destroys details, devours unnecessary trimmings and shows—if used with this end in view—not the façade but space relationships.\footnote{László Moholy-Nagy, \emph{The New Vision, Fundamentals of Design, Painting, Sculpture, Architecture} (New York: W.W. Norton & Company, Inc., 1938). 198.}

After this last statement, Moholy-Nagy included a sequence of images of infrastructures—electrical transformers, cooling towers, tanks, etc.—, and aerial urban scenes culminating with his famous negative superposition of the Bauhaus building and a urban image by Jan Kaman. In them, buildings have been reduced to a set of lines—fluorescent light—knitted together in a continuous tissue. We don’t know what Moholy-Nagy would have built or represented from 1946 on, but we do know his concept of architecture on the few occasions when he had the opportunity to experiment with human-scale space. [Fig. 067] In his stage-sets for Jacques Offenbach’s \emph{The Tales of Hoffmann, Madama Butterfly} (1928)—“light without shadow is lifeless”—Walter Mehring’s \emph{Der Kaufmann von Berlin} (1929)—using semitransparent screens, planes, nets, trellis-work, and projected light—and particularly in the unsuccessful “especial effects” and set design for the film adaptation of H.G.Wells’ novel \emph{Things to Come} (1936) where he experimented with oil drops squeezed between glass plates among other devices to exacerbate dynamic illumination. Illustrated in large format in \emph{Vision in Motion} after the “baroque richness” of Aalto’s Finland pavilion, Moholy-Nagy complained that the “rich visual result” in the use of cones was too far-sighted for director William C. Menzieres who rejected the project.\footnote{László Moholy-Nagy, \emph{The New Vision, Fundamentals of Design, Painting, Sculpture, Architecture} (New York: W.W. Norton & Company, Inc., 1938). 262–267.} “With light, architecture itself can be changed. With light one may pull together walls and windows or break them into small units. In the future, light…will play an essential part in architecture.”\footnote{László Moholy-Nagy, \emph{The New Vision, Fundamentals of Design, Painting, Sculpture, Architecture} (New York: W.W. Norton & Company, Inc., 1938). 264.}

Volumes compete in lightness and indeterminacy with the rotational reflected lights in the
“drunken” screens of Miesian towers, an example of evanescent lattices floating in space.161 [Fig. 068]

1.8 Retinal Illusions

[...] buildings or implements are only temporarily configurations in the perpetual flux of becoming and disappearing.162

Rudolf Arnheim shared an old joke with György Kepes in 1963: “A Hungarian is a man that gets into a revolving door behind you and comes out ahead of you.”163 It is unclear who got ahead of whom after Kepes’s exit from the School of Design given that both men were Hungarians.164

Personal struggles, aesthetic omissions, professional antagonisms, and management disagreements between Moholy-Nagy and Kepes arrived at an end during the fall of 1942 with the resignation of the former as the Head of the Lighting and Advertisement Department of the School of Design.165 The professional dispute seemed minor. For Kepes there was a question of


164 For Kepes’s version of their personal relation see Oral History Interview with György Kepes, August 18, 1968, Smithsonian Archives of American Art. Interview conducted by Dorothy Sekler.

165 The class Kepes taught on camouflage for civilians during the summer of 1942 triggered a personal dispute that became insurmountable between him and Moholy-Nagy for the inclusion of such a course in the curriculum. Later, Kepes tried to get commissions or appointments at the Art Department of the Army Air Forces which was denied
“emphasis” between his approach and Moholy-Nagy’s: if the former Bauhaus master explored new materials, techniques, and “sensory fields” such as the tactile, Kepes was interested in the ordering of visual communication or, to be precise, “the structural laws of plastic experience” considered from the point of view of meaning. The ordering of the visual experience nonetheless, opened an intellectual gap between both men in the entanglement between science and the arts as well as the symbols emanating therefrom. Adding to the distance was the fact that Moholy-Nagy had always had a positive evaluation of light in any of its forms, whereas Kepes found in light a phenomenon that needed to be domesticated and adapted to the human scale. For instance, in some of the different syllabi Kepes wrote for the School of design, he identified “governable day light”, and “mastered artificial light” as two complementary light sources for design. If, originally, light appeared almost as an unconscious divertimento for Kepes, the transformation of the episteme as an ordering device providing aesthetic pleasure derived from its information content, and generated in turn a renovated postwar symbolism.

The first attempt to organize the theoretical content of Kepes’s work took place in his first published book Language of Vision, written during the year he spent at the Art Department of North Texas State Teachers College in Denton. Influenced by Gestalt psychology, he defined

due to his nationality. At that time, Moholy-Nagy was trying to bring Lucia Moholy-Nagy to head the Photography department at the school, although visa issues hampered her immigration to the point of making it impossible. Reel 5303, György Kepes Papers, Smithsonian Archives of American Art. For more information on Kepes’s departure from the School of Design see Lloyd Engelbrecht, Moholy-Nagy: Mentor to Modernism (Cincinnati: Flying Trapeze Press, 2009), 597-601.


“plastic organization” as the process of experiencing, shaping, and unifying the visual impressions of subjects.\textsuperscript{168} Assembling the work of some of the professors at the School of Design in Chicago such as Paul Rand, Nathan Lerner, Arthur Siegel, and James Hamilton Brown—many of them coming from the field of advertising—Kepes introduced a narrative targeted at the new optical conditions around the modern experience as a pragmatic form of commercialism. In this context, the experience of electrical lights, the dynamics of public and private transportation, and the multiple media employed in recording the “simultaneity” of this new visual reality had challenged the optical apparatus of modern man and the psychology associated with it:

The environment of the man living today has a complexity which cannot be compared with any environment of any previous age. The skyscrapers, the street with its kaleidoscopic vibration of colors, the window-displays with their multiple mirroring images, the street cars and motor cars, produce a dynamic simultaneity of visual impression which cannot be perceived in the terms of inherited visual habits. In this optical turmoil the fixed objects appear utterly insufficient as the measuring tape of the events. The artificial light, the flashing of electric bulbs, and the mobile game of the many new types of light-sources bombard man with kinetic color sensations having a keyboard never before experienced.\textsuperscript{169}

The result of the flood of light in buildings was the flattening of space, breaking up the solid form as “the measuring unit of space” through the “fusion of luminosity and chiaroscuro.”\textsuperscript{170} For Kepes, artificial lighting brought a “new spatial representation”, reeducating the way man should sense and see the urban environment, away from traditional optics. Light and shadow were just “illusory forms” that obscured spatial interpretation. “Brightness differences, the sharp or the blurred definitions, the texture of light span space by their intrinsic advancing—or receding—


\textsuperscript{169} György Kepes, \textit{Language of Vision} (Chicago: Paul Theobald, 1944), 1944, 176.

\textsuperscript{170} György Kepes, \textit{Language of Vision} (Chicago: Paul Theobald, 1944), 154.
values. Among the followers of these ideas was the instructor and abstract artist Robert J. Wolff, whose statements quoted in the book were illustrated by photograms of Moholy-Nagy (Photogram, 1923), Kepes (Experiment With Light, 1940), and Wolff himself (Construction in Light, 1938) as part of a continuous lineage or saga of matter-light manipulators:

The chief motivation behind this work lies in the new indoor environment which has been created by contemporary architecture. The so-called free arts can no longer ignore the physiological factors that have made the framed picture and the pedestaled object as architecturally disturbing as the paneled wall and the chandelier. The Construction in Light is an attempt to create images out of actual light and space. Form achieves identity without materiality. The techniques of painting, sculpture and light are combined to serve architectonic ends, as well as a medium of free expression.

Among the most intense optical experiences in urban life was the experience of artificial light. But contrary to Moholy-Nagy spatial experiments with plastics, the work of Kepes flattened the images captured by the photographic camera as a necessary step towards their use in commercial advertisement and print media. The reorganization of the visual landscape happened first and foremost in two dimensions. This aspect was conspicuous in the impact artificial electric light had on our perception of the urban environment, where “light-sources lose their three-dimensional quality” breaking up “the solid form as the measuring unity of space.” Urban flickering lights were too complex to be arranged in a single organizational pattern without acknowledging the use of textures, brightness, movement, etc., that is, without an artificial regular order ruling all of them. The night views of New York popularized by American

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photographer Bernice Abbott during the 1930s materialized Paul Citroen’s chaotic collages of city fragments as a “sea of stone” done ten years earlier at the Bauhaus.\footnote{Described as ‘Steinemeeres.’ See László Moholy-Nagy, *Malerei, Fotografie, Film* (Passau: Bauhaushbücher, 1925), 105.}

To ground his arguments, Kepes referenced in the text the work of British poly-scientist and noble laureate William H. Bragg. Bragg had published *The Universe of Light* more than twenty years earlier than Kepes’s book. In his work Bragg dealt with a substance that had escaped his early accounts of matter by addressing the multiplicity of “properties and appearances” of the combination of matter on an atomic level.\footnote{William H. Bragg, *Concerning the Nature of Things* (London: G. Bell and Sons, Ltd., 1925), 4; *The Universe of Light* (New York: The Macmillan Company, 1934), Originally published in 1933.} In *Concerning the Nature of Things* (1925), Bragg presents architecture as the metaphorical model of nature: in the same way few materials such as bricks, iron, and mortar could combine in countless different building solutions, an atomist-based nature—at that time counting with around ninety different types of atoms—could also provide an infinite number of solutions and groupings. For Bragg, all visual knowledge was possible thanks to X-rays techniques—like Röntgen Rays—unfolding the regular organization of gases and crystals, a patterned geometry equated with wallpaper decorations thanks to electric sparks discharges in spaces with low air pressure.\footnote{Bragg’s *Concerning the Nature of Things* was a compendium of six lectures he delivered at the Royal Institution in London during the winter of 1923-1924. The lectures presented the “beautiful order in the fundamental arrangement of Nature.” On them he addressed atoms, gases, liquids, and crystals, the latter exemplified in diamonds, ice and snow, and metals. The book eventually encouraged the reader to construct models of atomic structures.} [Fig. 070] Atomic geometry was presented as the structural element of the appearance of materials. In *The Universe of Light*—a work building upon by scientific wave-particle principles—, Bragg distinguished between eye and vision, the latter being something that could be misleading, inverted, magnified, etc., that is, simply designed. The manipulation of light waves bringing information from the object source could...
then be altered but also corrected to avoid interpretation mistakes. External phenomena such as waves, liquids, shadows, etc., would be key in the interpretation of light, and thus, in our perception of reality. Interestingly enough, Bragg used a set of photographs such as X-ray diffraction spectrums, electrons hitting a copper screen, and representations of the spectra of luminous gases producing patterns very similar to the ones Kepes would magnify later in *The New Landscape in Art and Science*. [Fig. 071]

Despite Bragg’s light studies and their future influence, however, the second citation in the book of Kepes was the work of Matthew Luckiesh, physicist and director of the Light Research Department at General Electric during the second decade of the twentieth century. The writings of Luckiesh were not unknown in Bauhaus circles during the 1920s, being a significant reference for Siegfried Ebeling’s 1926 treatise, *Der Raum als Membran*. Luckiesh published extensively in the 1910s on issues of color, light, shade and their practical applications. If the manuals on the use of color had a conservative aesthetic, the ones concentrating exclusively on light issues were of a different character: the perception of the object was contingent on its own illumination, and therefore, there was an intrinsic unity established by the circulation of light on the very surface of matter. The object, the sculpture, or architecture could present several different faces according to the type of illumination used. [Fig. 072-073] Analysis of light in sculptures preceded analysis of light in architecture, with images taken under different statuses of illumination to show that actual differences occurred transforming the object and its

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perception. In the 1920s though, Luckiesh explored the most deceptive aspects of light and color for camouflage purposes that resonated years later with the light, texture, and material studies that the School of Design did for the United States Army Camouflage Department during the Second World War. ¹⁷⁹ [Fig. 074] It was probably Luckiesh’s research in this field that inspired Moholy-Nagy and Kepes’s interest in visual trickery for military purposes. By the 1930s, Luckiesh reframed his position towards light as a science of seeing with numerous volumes on the topic that acquired rapid dissemination and multiple reprints. ¹⁸⁰ Certainly Luckiesh use of Gestalt psychology, conspicuous in his maxima “seeing is deceiving,” influenced the distance that Kepes posited between the perceived and the actual world, but also Kepes’s reformulation of the objective image. ¹⁸¹ Ironically, the objects Luckiesh used to state the difference between bewilderment and information were objects that Moholy-Nagy—or Kepes for that matter—might have manipulated in any of their photograms: industrial cogs, spiky wheels, metallic spirals, and bolts. [Fig. 075] The use of multiple shadows in an object’s perception, as in the case of Moholy-Nagy’s photograms, was for Luckiesh as confusing as was diffused light’s erasure of depth. Single shadows instead, were functional and useful to appreciate objects in space. Kepes described the exercises he did in the 1940s where objects


were treated under diverse light conditions, then photographed and presented in a frieze of differences between similarities as “optical textures” and “tactilight modulators.” [Fig. 076]

The difference of episteme in the handling of materials, lights, and images between Moholy-Nagy and Kepes can be illustrated with the impact the photographs of Carlotta Corpron made on both men. Kepes met Corpron in Denton in 1943, a teacher at the neighboring Texas State College for Women and a modernist photographer. Corpron had invited Moholy-Nagy to lecture the year before, embracing wholeheartedly his photographic methodology, topics, and materials. Kepes did not include her work in his Language of Vision but Moholy-Nagy did in Vision in Motion. [Fig. 077] “Pattern of Light in a Glass Brick,” records the combination of architectural elements, artificial light, and photography as a synthesis so valuable for Moholy-Nagy. Kepes instead was interested in three-dimensional space only as an “illusion” imprinted on the retinal field. An early article on Kepes’s work in the magazine Illustrations shows the process of “applied optics” as a problem of two-dimensional impressions.¹⁸² Privileging the flat surface of the biological image, he considered human spatial perception as the result of a technological process where the human eye is equated with the cinematographic apparatus as a sensory organ:

Looking at a landscape, at people on the street, or at any single object as the visual field has not definite boundaries, one can only make a spatial interpretation of the things he sees—their location, extension—based upon his own spatial position…he measures and organizes up, down, left, right, advance, and recession in a single physical system of which his body is the center and identified with the main directions in space. The ego-centered horizontal and vertical axis is the latent background, and optical differences are interpreted against this background.… [Instead] The visual field of a picture image is less diffused. It is limited to the boundaries of a picture-plane, and the two dimensions of this surface…The two dimensional picture plane assumes the center of the spatial field and every optical unity appears to advance or recede from

it. A point, a line, or a shape on the picture-surface is seen as possessing spatial qualities...The optical units create an interpretation of the surface as a spatial world.

If Moholy-Nagy had moments of doubt in relation to the creative adequacy of easel-painting in modernity, Kepes still considered himself as a painter rather than a photographer: an artist whose photographs were demonstrations of his interests rather than "photographs per excellence." As such, Kepes’s spatial commitment, informed by his organizational drive, was confined to the limits of the image and its formal relations. The dynamic qualities that the constructivist influence introduced in Moholy-Nagy’s work were reduced in Kepes to a sense of rhythm formed by the distance between elements within the picture in what he termed “space intervals.” In so doing, the interweaving qualities of light in space that Moholy-Nagy studied in his last years blur as soon as they were transformed by Kepes’s techno-scientific atlas of images. Space intervals had also a translation in contemporary architecture in the assimilation of the object in its own visual context:

For a time the idea of the integration of spatial structures, organic form, in which figure and background are considered in a unity of mutual interdependence, was lost in the wild haste of technological progress...But we are witnessing now a reorientation toward a more integrated life achieved through progressive recognition of the interconnection of figure and background. Contemporary architects are moving away from one-sided emphasis on the façade of the building and the best examples of contemporary architecture show a perfect integration of the actual building, the active "envelope," the divisions created by materials, and the living space between these materials. Light screens, curtains, glass walls, are employed to amplify this integration optically and to create a living, articulated within and without: a single living unity.

The flattening integration of architectural elements was achieved as a two-dimensional synthesis of building elements and materials in the façades. Quoting physicist Erwin Schrödinger’s

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remarks in *Physical Science and the Temper of Age*, Kepes equated scientific findings with the new postwar architectural trend: “We are no longer afraid of broad empty spaces in our furniture or on our walls. We haven’t what the German call ‘platz angst’… We want no ornamental accessories. Just as we are no longer afraid of bare surfaces in our furniture and dwelling rooms, so in our scientific picture of the external world we do not try to fill out the empty spaces.”

The demonstration that the scientific space was already filled out to its very limits was Kepes’s next project, a book and an exhibition compiled finally in his 1956 publication *The New Landscape in Art and Science*. 1951 seems a turning point in the relations between forms, symbols, science, and nature: Kepes held the exhibition *The New Landscape* at M.I.T. at the same time that the symposium titled “Aspects of Form,” organized at the Institute of Contemporary Art in London, took place. In the preface of the associated publication, Herbert Read spoke about the “rhythmical” structure of the work of art as a correlation of the forms and patterns found in nature by the different branches of science, particularly in the study of the very essence of matter. As Rudolf Arnheim argued in the same publication, the external phenomena had an

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186 Erwin Schrödinger, “Physical Science and the Temper of Age,” *Science, Theory, and Man* (Dover Publications, Inc., New York: 1957), 106-132. Formerly published as *Science and the Human Temperament* in 1935. Interestingly, Schrödinger associates the aesthetic *Sachlichkeit* with developments in science and the indeterminacy or contingency of Einstein’s theory of relativity as a form of rhetoric. Thus, his rejection of ornament was not based on “philistinism or vulgar utilitarianism” but on the conviction that the idea of usefulness, if carried on scientifically, will provide its own idea of beauty. Ornament was equated with un-scientific thinking. György Kepes, *The Language of Vision* (Chicago: Paul Teobald, 1944), 32. The first observer who noticed the decorative potential of the work of Moholy-Nagy and Kepes was Sigfried Giedion who in 1952 warned that “the richness and precisions” of the images in the books had not to be taken as a source “for new decorations for tea cups.” Sigfried Giedion, “Universalism and the Enlargement of the New Outlook,” Amden, April 15, 1952, György Kepes Papers, Smithsonian Archives of American Art, Reel 5314


188 Read underscored the monistic origin of nature: “…that unitary principle [correlation of beauty and science] which is emerging as the explanation of all phenomena within the range of human perception and understanding.” Herbert Read, “Preface to the 1951 edition,” *Aspects of Form, A Symposium on Form in Nature and Art* (New York: American Elsevier Publishing Company, Inc., 1951), xxii. Also included in the book are Ernst H. Gombrich’s reflections on the essence of the work of art: “All art is ‘image-making’ and all image making is rooted in the
impact on the human eye as a quasi-mechanical apparatus, whose “formative powers” lead to pleasing compositions of “balanced form, for decorative ornament.”

Kepes’s theoretical work always followed a pedagogical rather than an explanatory teleology. No doubt the symposium in London influenced Kepes’s trajectory. If *The Language of Vision* had consolidated the rhetorical use-value of images for the advertisement industry in its own rules, *The New Landscape* gained resolution and eloquence in the deployment of its scientific images. In it, the symbolic and the scientific collaborated as a continuous visual fiber transforming the physical world into an indexical pattern. Spirals were now symbols of evolutionary history via high resolution photographs of spiral nebulae, whirlpools, snakes, smoke patterns, and chives, emphasizing the continuity of morphological formation in nature as a transcendental natural *Kunstwollen*. [Fig. 078] Astronomer C.C.L. Gregory in his article included in *Aspects of Form* had already introduced the set of cosmic-formal relationships between nebulae and spirals. However, the reiteration of Lichtenberg Figures created from electric sparks in Kepes’ book—all of them provided by the German material scientist and colleague at M.I.T, Arthur R. von Hippel—were literally equated to the human nervous system, but also visually associated to the vitalism of Pier Luigi Nervi’s structures, as well as cracks in landscapes and materials.

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191 György Kepes, *The New Landscape in Art and Science* (Chicago, Paul Teobald and Co., 1956), 162, 274, 303. Lichtenberg figures are tendrils-like electrical patterns created by small discharges on non-conductive plates popularized by the German scientist Georg C. Lichtenberg in the eighteenth century. Lightning is a natural example of this phenomenon.
to Charles and Ray Eames’s film “Power of Ten”, Kepes’s imagery sliced the micro-macro cosmic continuum of natural relations by freezing it in intermediate two-dimensional optical stages. Order meant the seamless continuity between sensory, emotional, and symbolic aspects of modern life to which a patterned vision could contribute with harmony, balance, and rhythm. Science was a prosthetic help in the aesthetic search for symbolic, structural unity.

1.9_Image-Building: The Constructive Image

Besides the images of scientific findings as portrayed by technical means of representation, Kepes also avidly collected images of textile patterns and carpets as well as other optical constructions such as examples of Moiré patterns. During the 1950s he collaborated with manufacturing companies to produce specific products meant to test the possibilities of materials. A foretaste of that collaboration was the world-map mural he created for the Wheeler Room of the Harkness Commons and Graduate Center at Harvard University designed by Walter Gropius and The Architects Collaborative and further decorated with other murals by Herbert Bayer, Josef Albers, and Joan Miró. He also designed the enamel panels fabricated by the Armco Steel Corporation of Ohio that clad the Wellesley Free Library and the Tufts Library designed by Carl Koch in the late 1950s. The latter was an industry-artist collaboration rather than architect-artist one. Following his initial success, Kepes continued producing murals, a technique he unequivocally identified with Gothic stained glass windows.

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Moiré patterns are the geometric dynamic result of the superposition of two or more patterns, providing there is certain transparency between them.

Within a few years, the world map was so deteriorated that Kepes, in agreement with the Law School at Harvard, decided not to have it restored to its original condition.

“Life cycle” was a mural done with Venetian glass mosaic tiles for the Travelers Insurance Companies building in Los Angeles. This preoccupation with the expansion of art forms to architecture enlarged his pedagogical and intellectual project during the 1950s. In August 1956, a summer course under the title “The Artist, Material, and Technology” held at MIT, promised students the incorporation of the form of contemporary media as an integral part of the maturing of postwar architecture and materials. In the class, sculptures, light murals, and reliefs were explored in juxtaposition to metals, glass, plastics, and laminates as if a material’s treatment was an artistic field in itself: the material as the locus for design. In addition, Kepes wrote a series of articles about the creative use of light and its possibilities and lectured on the integration of the arts and architecture. In these articles, he referred frequently to the “inner eye,” “created visual image,” and “inner vision,” and the unconscious set of images available for the artist using the same tone that Arnheim, following Giedion, following Wölfflin, had championed.

An example of the flattening of visual experience as a symbol of electrical light integration into modern art was Kepes’s 1959 mural for the opening of the KLM offices in New York. The techno-artistic object was designed and coordinated by Antonin Raymond and Ladislav L. Rado together with KLM architect Walter Hart. [Fig. 080] The Sylvania Electric Company provided

195 Among the professors involved in this summer course were Lawrence B. Anderson, Eduardo Catalano, Joseph Hudnut, and Constantino Nivola. György Kepes Papers, Smithsonian Archives of American Art. Reel 5318.
196 The lecture was the “Integration of Architecture and the Applied Arts,” and took place at The Cooper Union in November 24, 1958. In May of the same year, a meeting held by the Harvard Alumni association to celebrate Walter Gropius’s 75th anniversary had as a topic “Art in Architecture.” György Kepes was among the speakers of the conference together with Paul Rudolph, Josep Lluís Sert, Constantino Nivola, Eero Saarinen, Serge Chermayeff, etc. György Kepes Papers, Smithsonian Archives of American Art. Reel 5318 and Reel 5313.
technical knowledge for Kepes in the formalization of a mural manufactured by the Lawrence
Chemical Company in Massachusetts. According to the company, the opening of the
headquarters was a great success, particularly the popular reception of the mural that led the
company to assign employees to respond to questions from the audience. The mural consisted of
a grey aluminum panel measuring fifty-one feet wide by eighteen feet tall with over sixty
thousand perforations and random cutouts. Behind, an array of spotlight bulbs, incandescent
lights, and fluorescent lights were automatically controlled. Professional magazines—*Arts and
Architecture, Architectural Record, Interiors Magazine, Industrial Design Magazine*, etc.—were also
interested in the new work by Kepes: the combination of flashers, dimmers, and blinkers
demonstrated the experience of night flight, transforming cities into “points, lines, plane
figures, and volumes of light” moving and winking in a form only comparable with “the
concentrated, ordered beauty of the great windows of 13th century cathedrals.”

The modern
cult for rapid transportation found its symbolic expression in the electric interpretation of the
mural. Kepes concentrated on displaying the “double exposure of the cosmic and man-created
powers” by synthesizing vernacular media and new techniques. For the company by contrast,
the object was a “living mural”, representing the flat appreciation of city lights as experienced
from the airplane as a “giant Christmas tree decorating the earth.” In the center of the mural,
the main referential form, the source of all the symbols: the sun. Ironically, the heat emanating

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198 W. Hart to György Kepes, Addendum to TLS, September 14, 1959. Reel 5303 György Kepes Papers,
Smithsonian Archives of American Art. See also Gyorgy Kepes, “The Visual Arts and the Sciences: A Proposal for
Collaboration,” *Architectural Record*, 5 (May, 1965): 145-156. The same article appeared without illustrations in the
issue dedicated to Science and Culture of the magazine *Daedalus* in the winter of 1965. Kepes also related the mural
to “Peruvian fabrics: maintaining a rhythmic interplay between constant pattern and changing patterns.” See “*A
Mobile Light Mural*,” 1960, György Kepes Papers, Smithsonian Archives of American Art, Reel 5313.

199 W. Hart to György Kepes, Addendum to TLS, September 14, 1959. Reel 5303 György Kepes Papers,
Smithsonian Archives of American Art.

from the complex illumination was so intense that an individual air-conditioning system had to be incorporated, showing that matter, light and energy where inevitably intermingled.

The KLM mural gave Kepes a notable reputation that enabled him to continue contributing to architecture, including an invitation by Max Abramovitz to collaborate on an art work for Philharmonic Hall at Lincoln Center. On April 12, 1960, the John Simon Guggenheim Memorial Foundation awarded Kepes a fellowship to study the creative uses of light in architecture. It coincided with the publication of the aforementioned issue of Daedalus guest-edited by Kepes under the title “The Visual Arts Today.” A parade of artist, critics, historians, anthropologists, architects, filmmakers, scientists, mathematicians, etc., such as Giedion, Le Corbusier, Margaret Mead, Andreas Speiser, Paul Weiss, Eduard Sekler, and Maya Deren contributed to the question that Kepes formulated: the eye as the ordering organ achieving structural symbolic form between thought and feeling. Words such as harmony, balance, rhythm, integration, and symmetry colonized the discourse amidst scientific and media references softening previous mechanistic and industrial rigor. As an addendum to the publication, Kepes introduced a selection of highly contrasted images describing “The New Landscape”, some of them included in his previous publication, some of them not, beginning with a higher resolution Lichtenberg figure of electric sparks. He also claimed for further integration between orderly images and symbols.


The pairing of images as symbols had in the aesthetic use of light one of its battlefronts. Kepes started a scientific research program on the creative use of light as soon as he departed from The School of Design in Chicago. Originally, the research was intended to acquire the form of a book. Articles appearing in magazines such as *Arts and Architecture* gave a foretaste of his publication ambitions.  

[Fig. 081] The Vision + Value book series, published between 1965 and 1966, took over a larger array of topics, including modulation, proportion, structure, and the arts of the environment in a man-made visually constructed world. Kepes historical analysis brought him to describe late nineteenth century painters as creators of “images and patterns,” as the basic units to reconstruct the natural world. By contrast, in the postwar library we find “clear, unmodulated surfaces, abstract shapes, and simple basic color devoid of emotional overtones” as the “building blocks” available for architects and visual and graphic artists. This notion of the “building block” echoes Naum Gabo’s differentiation between image and symbol in his contribution to the issue of *Daedalus* that Kepes edited. Images were the “building blocks of our consciousness” in our depiction of “reality,” stated Gabo, whereas symbols appear in instances where we know that reality so well we can create shortcuts, or where we know too little so we do not have a better way to translate it. Gabo rejected the idea of abstract art as creation of modern symbols but of images to facilitate ideas of reality. In fact, light oscillated within these two definitions in Kepes’s studies. His interest in light translated to an exhibition in 1965 organized by Harvard University and The MIT and cosponsored by Harvard’s Carpenter

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Center for the Visual Arts entitled “Light as a Creative Medium.” The exhibition at Harvard’s Carpenter Center involved the academic community in Boston at a larger scale, with students assisting in the final organization, production, and collection of materials for the venue. The exhibition had three sections: the first one was a historical assessment of the use of light in the arts beginning with Egyptian bas reliefs and gothic cathedrals, concluding with Moholy-Nagy’s transparencies; the second area was a compilation of the work of his students since his days as director of the Light and Color department at The New Bauhaus; finally, the last section intended to show the latest achievements in the use of light in Europe and United States as a total environmental project. [Fig. 082] The use of artificial light found in the “greenish television screen” was a “deadening stream of images” to which Kepes responded with a return to the natural rhythms in nature.  

The creative use of artificial light had to be “woven” into the urban fabric by exploiting the dynamism and reflecting capacities of modern materials: “the mirroring of the environment in great sheets of plate-glass window and the interpenetration in mobile vistas…are the fluid background of a potential world of forms shaped by the moving contours of man-made light figures.” Light was not always assessed in a positive sense: articles like “Light: Blessing or Curse?” and “The Light Brigade” depicted light as a “predator salesman,” introducing some shadows to the nature of the use of this new medium. Light also fitted the modernist trope of hygiene: “In these days of clean art, what could be cleaner, have less physical residue, less gross materiality as a medium, than electric light.”

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206 See also similar images in George Rickey, Constructivism. Origins and Evolution (New York: George Braziller, 1967).
without environmental impact: it was magic and seductive, able to raise emotional responses transcending its own materiality. Light as glamorous and vulgar, as ephemeral and flashy, as orderly and rhythmic, was the perfect material attachment with which commercial Pop could deploy its aesthetic eloquence. It is not a coincidence that the exhibition “Art Turned On,” at the Institute of Contemporary Art in Boston followed the one by Kepes, showing a set of video and electronic devices creating light effects in a very similar fashion to the use of light by the advertisement industry in Las Vegas.

Kepes spoke about conceptual levels of light in terms reminiscent of the configuration of atomic matter: for him light had cognitive, aesthetic and symbolic values: “In its cognitive aspect, light reveals and delineates the world. In its esthetic aspect, it gives emotional and sensuous and awareness of the world. In its symbolic aspect, the cognitive and esthetic are conjoined in spinning basic connections between man and the cosmos and in providing embodiments of high values.”

If the cognitive and scientific aspect of light was the source of scientific patterns of radiation helping to understand the atomic level of matter, its formal aspect helped man to ‘delineate’ the world, to separate between light and no-light, between light and shadow, reflected among them, in the new wealth of architectural surfaces as an environmental project.

Following a close reading of Conrad Fiedler’s signification of art in the human awareness of external phenomena and Ernst Cassirer’s philosophy of symbolic form, Herbert Read developed

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his postwar notion of art as a form of knowledge. He introduced a historical division between image—as encapsulated in any artistic form or icon—and idea—or conscious development—the former being the first one appearing. This reconceptualization of his aesthetic studies took form in a series of seven public installments related to the Charles Eliot Norton Lectures at Harvard University in 1954. Read championed art as a form of intuition departing from the interiorization of images, or—“thinking in pictures”—as a form of “crystallization” of conscious understanding. In that respect, in the mid-1960s, he found in Sigfried Giedion an “ally” of his own intellectual interests, expressed in the publications on *The Eternal Present.* There was a rhetorical component in the formation of the image as expressed by the inclusion of language as the first step towards the identification of the external world in human consciousness. Taking issue against notions of the organic as an expression of personality, character, and self-assertion, he defended the idea of a “constructive image” grounded in social,

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universal, and humanistic laws as represented often in geometric, inorganic forms. Having the Gothic as a model, the integration of the “individual and universal” was announced by Mondrian who understood that the era of “painted canvases and mantelpiece ornaments” was incompatible with the environmental requirements that nuclear fission brought about. The modern artist, an integration of painter, architect, and sculptor, understood that new images had to be prompted by a “world of electric energy and relativity, of glass and steel, of speed and democratic uniformity.” The images this new artist creates are “a factual force and their impact on our sense is as real as the impact of light or of an electric shock.” Regular abstract laws and the “constructive image” found in architecture the perfect illustration of the environmental human integration between man and cosmos:

We must not be impatient, for human consciousness extends its range very slowly, very cautiously, but we can already discern, in certain tendencies of modern architecture and planning, the presence of images that arise not so much from utilitarian or functional necessity, as from a sense of vitality which is conveyed by this new plastic vision. The façade of the Ministry of Education in Rio de Janeiro, for example, is functional; it owes its superficial pattern to the devices adopted by the architect to exclude the too-strong sunlight of that region. But the sunlight has always been too strong in Rio and other devices have been employed in the past—sun-blinds, shaded balconies, internal patios. The particular device used in the Ministry of Education is an application of the principle of the Venetian blind—slats of metal adjusted to the direction of the sun’s rays. But the total effect of the structure conforms to an image—a sense of how to arrange all these elements in a significant pattern. That pattern is a constructive image.

Herbert Read’s reading of Brazilian patterns dovetailed with and was further complicated in Sigfried Giedion’s thanks to his valuation of the undulating, curving line. Among the few


216 Read was quoting in this last paragraph the Constructivist artist Naum Gabo, “On Constructive Realism,” Katherine S. Dreier, James Johnson Sweeney, and Naum Gabo, Three Lectures in Modern Art (New York: Philosophical Library, 1949).

sculptural works included in his compilation of the CIAM discussions titled *A Decade of Contemporary Architecture*, we encounter Moholy-Nagy’s Plexiglas sculpture, an object expressing “interpenetration” of movement and light. But the eloquent model appearing on the cover of the book was perhaps a better illustration of the combination of modern motifs of light and movement, but also of the merging mechanical and organic traditions. [Fig. 083] The project is by an English architect of the younger generation, Paffard Keating-Clay, who collaborated with Le Corbusier, Frank Lloyd Wright, and Skidmore, Owings, and Merrill before setting up his own office in San Francisco. The project was a light dome for the Carl Cherry Foundation in California, a building for experimentation in dance and light effects, described by Giedion as a synthesis between the geometric and the biological, between the rational and the emotional. Light, movement, biology, and abstraction coincided in a spiraling façade culminating in a cupola made out of shrinking hexagons.\textsuperscript{218}

\textsuperscript{218} Paffard Keating-Clay became the husband of Verena Giedion, Sigfried and Carola Giedion’s daughter.
Chapter II
Dispositio: Texts, Textures, and Photographic Faktura

If one cannot get the feeling for the new sense of space, the treatment of textures and plane surfaces, the studies of the Bauhaus fall to pieces.
Sigfried Giedion, Focus, 1939

Wherever I looked, I saw myself surrounded by folding screens, cushions, and pedestals which craved my image much as the shades of Hades craved the blood of the sacrificial animal.
Walter Benjamin, “Mummerehlem,” 1932-34

Texture¹
2.a. The produce of the weaver’s art; a woven fabric; a web; cloth. arch.
2.b. transf. Any natural structure having an appearance or consistence as if woven; a tissue; a web, e.g. of a spider
2.c. A “woven” or composed narrative or story.

2.1_Texture: Legitimate Surrogate

The prevalence of visual values in modernity arrived at the expense of subordinating the other senses to the affective and effective dialectic between the human eye and image. In this transition, the sense of tact found a smooth, more desirable integration into vision than did the others thanks in part to a new understanding of the material and aesthetic qualities that the photographic process entailed; tones and contrasts of light provided a measure of space and scale.

¹ Second entry on “texture” in the Oxford English Dictionary.
in images in cases where these were difficult to apprehend. In the tactile aspects of objects we can still find traces of an abandoned subjectivity that vanished during modernity, a fading individual character displaced towards more social territories. [Fig. 001] Beside its anthropological connotations, the emphasis on tactile values in the first decades of the twentieth century became a signifier of a transitional moment in the relation between hand labor and machine production. This chapter continues with the complex evolution and embodiment of technologies of reproduction in building matter, which transformed materials into media and receptacles of a common subjectivity. In this process, texture acted as a catalyst and signifier of the synthesis of hand and mechanical labor throughout the multiple stages of the avant-gardes, reclaiming a space between the sense of sight and the sense of touch, in other words, between individual desires and social availability. Benjamin’s bourgeois internal ennui soon became externalized and materialized in the traces that modern industry offered to mass visual consumption.

By 1921 Italian Futurism had already provided a foretaste of the future integration of hand and eye in Marinetti’s Manifesto of Tactilism, which had advocated the use of tactile boards in the education of the entire post-First World War generation. For the Italian artist, theorist, and provocateur, the emphasis on tact—which, in contrast to sight and speech, he deemed a “mediocre conductor of thought”—did not mean a return to primitivism in a mechanical era, but an erotic form of communication that offered an alternative to the abused traditional plastic arts. [Fig. 002] Nonetheless, the objects that Marinetti recommended for maximizing artistic training varied manufactured products such as sand paper, silver-coated paper, or wire brushes,

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2 I am using the term “tact” because it possesses social connotations that touch lacks. As I shall demonstrate in the present chapter, the tactility of modern industrial production incorporates a collective social and aesthetic contract.
to human and animal hair and feathers. Marinetti’s material cartography strategically targeted the promotion of harmony and spiritual communication, which were to be achieved through a mechanical symphony of rhythms that combined electrical light and music. Interestingly, the word *texture* does not appear a single time in Marinetti’s “invention” of Tactilism.¹

To understand the status of textures in materials and consumer goods we need to leap forward and examine the literature reacting to the Second World War. For instance, in László Moholy-Nagy’s *Vision in Motion*, published posthumously in 1947, the author granted texture a very delicate and compromised role in the development of mid-century architecture and design. To him it was “the legitimate successor of ornament,” and its legitimization as a form of decoration originated in the instrumental use of technology and materials by artists and designers.⁴ [Fig.003]

With an unacknowledged Semperian turn, Moholy-Nagy ascribed representational values to texture that went beyond mere aesthetic materialism. His aesthetic baton was determined not by taste but through consensus, agreement, tact, relationships, i.e., by a new social contract procured by and channeled through technologies of production. Moholy-Nagy’s idea of the transition from ornament to texture was still gaining momentum in art and architectural circles in the 1940s. Three years before the publication of *Vision in Motion*, his argument identifying texture as the modern form of ornament was presented in a symposium organized by the German architect and art historian Paul Zucker at The Cooper Union, and appeared in print in *New Architecture and City Planning*. [Fig.004] Addressing many of the future protagonists of

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postwar modern architecture, Moholy-Nagy made Impressionists and Cubists responsible of the ornamental metamorphosis affecting modernity:

The Impressionists and Cubists discovered the genuinely sensual and emotional quality of textures originating through the ingenuous combination of tools and materials. This new generation was largely responsible for today’s texture taking the place of ornaments and for the stabilization of the idea that machines can be understood as legitimate “tools” of the artist and designer. 5

Although the rhetorical synthesis between optics and tact was already significant in the 1930s, the use of textures, either industrially manufactured or makeshift, was welcomed by postwar architects as a valid means of enhancing the external appearance of buildings in the two decades following the armed conflict. The recalibration of language among former Bauhauslers who had spent a few years in the United States was no coincidence. Walter Gropius, for instance, described texture as the prelude to the proper development of individuals’ “form language,” while Marcel Breuer viewed it as fulfilling “the instinct for décor” and a way of avoiding a “sterile architecture.” 6 In the postwar years, after being abandoned, banished, and resented for decades, ornament—mainly applied academic ornament but also any expression that could be stigmatized as a superficial or banal form of subjectivity—was to serve as the proper surrogate for overcoming a moment of stagnation in architecture and design through the mechanical reinvigoration of its external appearance. As Moholy-Nagy predicted, against the “empty decoration” of former times, depleted of “symbolic meaning,” the ingenious and skillful use of


machines was again producing adequate ornamental forms. A ghost was haunting postwar modern narrative—the ghost of ornament as an integrated form of material production.

This integration however, had particularities that made it differ significantly from Frank Lloyd Wright's consistent rejection of Morris’ reductive and wary reading of machine production and subsequent embrace of machine patterns in his “textile” blocks. Following the previous chapter’s strand of thought, this one traces the indebtedness of the new tactile form of ornament to the media of reproduction and production within the context of the displacement of subjectivity towards different geographies brought about by the post-heroic period of modernism. To be sure, the reliance on fashion remained the cornerstone of modern architecture’s representation, but accusations of a feminine lack of vigor in the use of ornament diminished, substituted by a renewed although decimated humanism that counteracted the hard-to-digest excesses of mechanical abstraction. An examination of the way in which texture ceased to cause friction and became accepted as a legitimate surrogate for ornament will allow us to form a critique of some of the cultural assumptions concealed beneath the evolving “modern architecture” of the postwar era.

The history of the frictionless incorporation of texture into the common lexicon of architects, theorists, and historians in the prewar period is a very good example of what Edward Said termed “travelling theory,” that is, the transnational and transhistorical nourishment of ideas and

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their subsequent grounding in alien cultures under different circumstances. And language appears as a significant battleground. After all, and as Banham noted in the late 1950s, the rejection of ornament was an artificial construct triggered by and channeled through Adolf Loos’ rhetoric of the interwar period. The “anathema” against ornament—as the editors of the British magazine *Architectural Review* termed it in 1957—was among the most conspicuous motifs that architectural modernism relied on when drawing the line between progressive partisans and conservative historicists. Language was the first frontier, the first façade representing modern architecture. This linguistic factor is illustrated by Walter Gropius’ use of the expression *antidekorativen decoration* in a letter to Ernest Neufert in 1930—a phrase that also reveals the way in which these rhetorical constructions operated in private circles.\[Fig. 005\] To be modern meant, above all, to speak in a modern fashion and thus to substitute euphemistically old, discredited concepts, such as ornament, for new ones that fit the complex relational environment around which a more comprehensive modernity was being formulated. We find a good example of this emerging context in 1944, when the linguist and psychologist Samuel Ichiye Hayakawa found it “no accident” that Moholy-Nagy or György Kepes spoke of a “new

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vision” that was consonant with a new “language of vision,” since “revisions of language” were pressing the development of the arts and sciences.\(^\text{11}\) The revision of language to which Hayakawa was referring took place in response to the renewal of the visual landscape and its influence on determining the “structure of consciousness.”\(^\text{14}\) In modernity, that structure was meant to be relational rather than “object-minded.” Thus a new “syntax” and “grammar” were highly desirable for the continued development of the anonymous tradition that authors such as Giedion had advocated.

To trace all the cross-influences, minute details, and random conversations that may have been significant to the development of a comprehensive aesthetic theory of tactility would be a nearly impossible task. However, the mechanisms of legitimization that some of the major protagonists put into play through their publications, pedagogical projects, and works may shed some light on the ideological transformations that the use of the term “texture” entailed. The same mechanisms will also reveal a semantic mutation full of historical and conceptual nuances. As we shall see, after the Second World War the appropriation of texture as an abstract quality of material achieved two important ends. On the one hand, it liberated architects from full agency in the design of ornament, by granting part of that responsibility to a specialized industry in an ever growing postwar market flooded with new techniques and materials;\(^\text{15}\) on the other hand, it underscored the original ideological impetus of the word when it first emerged as a central


\(^{15}\) Postwar affluence was boosted by the enormous efforts put into place during war production. The false redemption in the use of materials partakes in the logic of “design by choice” that Reyner Banham popularized as a response and alternative to the German Gesamtkunstwerk in the 1950s. This false redemption distorted the allegiance of architects and designers to the long tradition of truth to materials initiated by Carlo Lodoli—later adopted by John Ruskin and Eugène Viollet-le-Duc—and so deeply engrained in modern architecture’s validation of praxis.
concern for the European avant-garde. In a phenomenological turn, Moholy-Nagy taught his students to fine-tune their eyes in order to detect, select, and produce visual and tactile qualities in industrial products—a tradition that he had begun in his Weimar years. Thus for him the word texture emerged as a fundamental category in the constitution of a design grammar that was equally valid for designers, engineers, practitioners, and industrialists, and entailed an implicit agreement among the various agents involved in the production and reproduction of design. It also lay at the core of the process of objectification of human activities, or to use Lukács’ terminology, of human reification within a capitalist order.\(^{16}\)

But to return to the use of texture: how was it possible for a single word to become so significant to the development of modern architecture once its allegiance to ornament was underscored? How could such an apparently seamless substitution occur? The use and genealogy of the word is perhaps more problematic than it might seem at the beginning. Concealed behind the term’s phenomenological patina lie specific meanings acquired and transmitted by direct osmosis among various members of the European artistic avant-garde in the 1920s. All the same, the mechanism by which ornament came to be replaced by texture in Moholy-Nagy’s postwar narrative was indebted to Freud’s findings on the relationship between etiology and material manifestation. According to Moholy-Nagy, a transference of the creative artisanal power that had once helped the production of ornament into new industrial means of production had occurred.\(^{17}\) If so, then how had this transference extended beyond the reorganization and identification of formal replacements for formerly underlying concerns? I would argue that the

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transference actually occurred on three levels: social, semantic, and material. As we shall see, in Moholy-Nagy’s work the incorporation of texture as a valid mechanism for invigorating architecture through materials followed a highly convoluted path, full of meandering, misunderstandings, mistranslations, and conflicting personal agendas. Its success as a pervasive rhetorical device in architectural grammar during the crisis of Modernism in the second half of the twentieth century signals a detachment from codified visions of modern architecture—a process of cosmetic renewal in the making.

### 2.2. Bespoke Language, Social Biology

In the aftermath of the conflict, Moholy-Nagy’s *Vision in Motion*—defined as a “biological ‘bill of rights’” in the organic articulation of society and man—was published as a summary of the pedagogical strategies and material achievements accomplished during his nine years as director of the economically and politically unstable Institute of Design in Chicago.18 [Fig. 006] Dedicated to Elizabeth and Walter Paepcke, benefactors of the school and impresarios of the Container Corporation of America, the book was also an opinionated review of earlier avant-garde art written by one of its marshals. Welcomed upon his arrival in the United States in 1937 by James Johnson Sweeney, curator at the time of the Museum of Modern Art in New York, Moholy-Nagy encountered an urban landscape similar to the surface-oriented one of the Weimar

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Republic. And yet, as the recently appointed director of the pragmatic New Bauhaus, Moholy-Nagy had to do accomplish two things. On the one hand, he had to reposition the designer within the organizational industrial sphere and teach his students to emphasize and activate the properties of materials through their understanding of matter’s organic and/or inorganic properties as well as by mastering manufacturing techniques. On the other, he had to translate and enrich the already “creative alphabet” of modern design. For some American critics, the problems of architectural modernism lay in the “flaccid shibboleths” evident in many academic curricula due to a narrow interpretation of modern architecture as a style. This was not merely a matter of form and style. Certainly, Moholy-Nagy’s utterances had to accommodate a different rhetoric for pragmatic reasons, that is, to expand and synthesize modern concepts for new audiences. After all, he had arrived to Chicago to “train what you might call the art engineer,” and claiming that,

We shall work on your problems. In our workshops we shall provide research possibilities for synthetic fibers, fashion, dyeing, printing on textiles, wallpaper design, mural painting, the use of varnishes, lacquers, sprays, and color combination in decorating; we shall explore for you typography, layout, commercial and portrait photography, microphotography, motion pictures in color and black-and-white, commercial art in posters and packages.

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20 E.M. Benson, “Wanted: An American Bauhaus,” The Magazine of American Art (June, 1934), 308. The article discusses Frederick Kiesler’s proposal for the new Institute of Art and Industrial Design in Chicago, comparing it to the Bauhaus in Dessau directed by Walter Gropius. However, there is little discussion about space; instead it focuses on features of modern architecture, such as diffused natural light, air conditioning, and the programmatic amenities represented by a continuous, windowless, white façade.

Despite the massively attended “Century of Progress” exhibition held in Chicago between 1933 and 1934—as well as the travelling show “Modern Architecture” organized by MoMA, which belatedly trumpeted the arrival of a new style, and which I will address in the next chapter—the modern gospel was still unpalatable to some American architects. Commenting on Moholy-Nagy’s lectures after his arrival, a Chicago-based architect complained that the European’s aesthetic concepts were “unfamiliar to the general public and even to the majority of technical man,” and that his “terminology and figures of speech carry perhaps, an element of mysticism.”

To solve grammatical and semantic problems—both formal and linguistic—Moholy-Nagy offered an extensive combination of technology, craftsmanship, and media disseminated through multiple editions and re-editions of his pedagogical work. The relevance of technology to aesthetic evolution was already explicit in his earlier artist statements. In addition, the removal of ornament had to be properly advocated; ornament was removed, first and foremost, from common linguistic usage only to be substituted by a more sophisticated form of ornament, placed at the intersection between experience (Erlebnis) and technology. Attempting to historicize the transformation that took place in aesthetics in the first decades of the twentieth century, Moholy-Nagy wrote an elucidating paragraph on the status of industrial surfaces in the years after the war:

> Around 1920 the new artists discovered the esthetics inherent in the work of the engineer. They looked with naïve enthusiasm at bridges, oil and radio towers, tunnels, spirals stairways and all types of machinery. It was the first time that they were able to see the form-creative, emotional

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23 Writing in 1922 in the Hungarian avant-garde magazine *MA*, Moholy identified the human mastery of technology as the quintessential twentieth-century Zeitgeist: “Reality is the measure of human thinking. It is the means by which we orient ourselves in the Universe. The actuality of time—the reality of this century—determines what we can grasp and what we cannot understand. And this reality of our century is technology: the invention, construction, and maintenance of machines. To be a user of machines is to be of the spirit of this century.” Translated in Sibyl Moholy-Nagy, *Moholy-Nagy. Experiment in Totality* (New York: Harper & Brothers Publishers, 1950), 19.
qualities of technical structures, considered previously as only the carriers of engineering and production requirements. These new explorations of the artist introduced a period of simplification first into the works of art, then into all types of designed goods. This was the time of purification; stripping of decoration, deornamentation of appliances, furniture and architecture. Then followed the stripping of ornament from traditional thought categories.

The impressionists and cubists discovered the genuine sensuous and emotional quality of textures, brought about by an ingenious combination of tools, machines and materials, which took the place of the ornament. The painters began their studies with a kind of premonition of badly needed textures. Today, mass-produced goods from plastics, as well as other materials, are in need of genuine, functional textures, mainly as a protection against corrosion and abrasion. But before such functionally employed textures can acquire deep esthetic meanings, an habituation, a familiarity, in their application must be established. There are many elements to be investigated, such as the difference between organic and mechanical textures, chemical reactions and their relationships and possible combinations.

In the perception of these new types of ornament, the “habituation” —recalling Pierre Bourdieu’s *habitus* as the intersection between social objectiveness and individual subjectivity—and its consequences in the mode of production were still gaining momentum in the twilight of the Second World War. Images of serial production and organization were percolating in the visual unconscious of an entire generation of media consumers. However, Moholy-Nagy’s preoccupation with the machine as the paramount mediator in artistic developments, which was imprinted on his reconceptualization of art, followed a different path from that of mere mechanical iteration. Through a human use of machines that promoted interpenetration, overlap, and visual effects—texture among them—he introduced a model that debunked the pervasive mechanistic notion of technology among modern architects and artists. For instance, the pattern caused by the never-ending combination of light, metal, and glass was a constitutive feature of the rhetoric put into play in his *Light Props* (1922-1930), and conspicuous in the set of


photograms he extracted from his 1930s movie, Light Display: Black, White and Grey.\footnote{On events related to the development of the object, see Lucia Moholy-Nagy, Marginalien zu Moholy-Nagy: Dokumentarische Ungereimtheiten…Documentary Absurdities… (Krefeld: Scherpe Verlag, 1972). On the controversy related to Telephone Pictures, see pages 74-79. According to Lucia Moholy-Nagy, these telephone pictures were requested by Moholy-Nagy in person. When he received them, he was so pleased and surprised that he exclaimed: “Das hätte ich sogar telephonisch machen können!”—“I could have ordered them over the phone!” See also Brigid Doherty, “László Moholy-Nagy. Construction in Enamel. 1923,” eds., Barry Bergdoll, Leah Dickerman, Bauhaus 1919-1933. Workshops of Modernity (New York: Museum of Modern Art, 2009), 130-137.} \textbf{[Fig. 007]}

In this sense, texture became for him one of the \emph{loci} in which social, organic, and productive relations became apparent. However, before a proper visual and tactile result could be achieved, the \emph{transference} between ornament and texture had to follow a highly precise semantic process of eradication and substitution, in which biology played a great part.

Although never explicitly or precisely defined in \textit{Vision in Motion}, the word “texture” is central to an understanding of Moholy-Nagy’s intersection of technology and experience. In the book, \emph{index} is the fifth most indexed word (26)—after \emph{relationship} (32), \emph{emotional} (31), \emph{expression} (31) and \emph{structure} (28)—appearing far more frequently than do classic Modernist catchwords such as \emph{space} (16) or \emph{time} (6). Moholy-Nagy had already tried to represent the new social and cultural contract generated by the irruption of industry in his earlier work. As he realized during his years teaching at the Bauhaus, modern industry with all its technological resources and capacities was already producing the necessary surface qualities, from “chromium-plated polished finishes to rough seersucker surfaces,” that advised against pouring “‘design’ over the goods”—an ever present avant-garde fear reactivated in Moholy by his encounter with streamlining in the United States.\footnote{László Moholy-Nagy, \textit{Vision in Motion} (Chicago: Paul Theobald, 1947), 44.} The capacity of industry to act on both sides of the equation—the biological and the mechanical—was defined by Moholy as \emph{biotechnics}, a term coined by the Austro-Hungarian biologist and scientist Raoul Francé. The exploitation of organic life for practical ends was the subject of a reference book by Francé used by Moholy-Nagy, \textit{Die Pflanze als Erfinder}—\textit{The Plants}
as Inventors—in which the author presented his pragmatic, utilitarian, constructive, and mechanistically formal vision of nature. Actually, Francé’s equation of complex natural configurations with everyday objects—such as a ripe poppy head with a new type of shaker for household and medicinal purposes, or natural with mechanical turbines, for example—did not go beyond a comparison of morphological properties. [Fig. 008] The value of Francé’s literary production resided in the fact that, despite his background as a scientist, he targeted his books at a larger audience through his use of plain language as well as a series of generalizations and visual identifications. This, together with his ability to juxtapose organic and mechanic devices, convinced architects such as Mies van der Rohe as well as theorists and educators like Moholy-Nagy of the aesthetic advantage of linking the two spheres. Thus, Francé’s modern interest lay in his mechanical understanding of nature—or “normative biocentrism”—rather than in biological mimesis or growth. According to Moholy-Nagy’s epistemology of the 1940s, organismism was less indebted to early nineteenth-century vitalist theories than it was an amalgamation of his earlier political affiliations and a technologically filtered aesthetization of nature. He also used it metaphorically, as an instrumental vehicle for disseminating his theories in a context in which European theories did not necessarily resonate. Moholy-Nagy’s postwar organismic, after all, was not vertically transcendental—micro vs. macro, cosmic forces leaving

29 On the relation between Moholy-Nagy and the Lebensreform movement in Germany in the early twentieth century, see the monumental dissertation by Olivér Botár, “Prolegomena for the Study of Biomorphic Modernism: Biocentrism, László Moholy-Nagy’s ‘New Vision’ and Erno Kallai’s Bioromatik” (PhD diss., University of Toronto, 1998). I have addressed some of these questions in Chapter I. Moholy’s concept of the organic combined his close contacts with the Communist Party in the late 1910s with his interest in biology. However, his exposure to monist theories and biocentrism as the source of inspiration behind his aesthetization of scientific photography seems disputable given the wide availability of scientific images in magazines such as Deutscher Lichtbildung by the late 1920s. Certainly, traces of Ernst Haeckel’s aesthetic appraisal of monism via technology remain in Moholy-Nagy’s work. (See Chapter 1).
traces in human actions, details vs. the whole, etc.—but rather horizontally immanent in that it pinpointed human agency within the sequence of labor that amounted to a collective effort. Moholy-Nagy naively believed that the reorganization of the mode of production could debunk bourgeois ideology.

2.3 _Ornament of Labor._

There were indeed ideological overtones in _Vision in Motion_. By revealing the organic continuity of art, science, and society, Moholy-Nagy expected to combat bourgeois cultural interests and economic aspirations. As Theodor Adorno and Max Horkheimer had stated three years earlier, Moholy-Nagy pointed to the dangers of propaganda and inappropriate use of technology in the bourgeois agenda that was impregnating postwar society. _Vision in Motion’s_ silence with relation to advertising design—it included only a short section on typography—can be read as an implicit critique of its centrality in Kepes’ _Language of Vision_, in which graphic design appears completely subordinated to the advertising industry. Moholy-Nagy also denounced the “decorative patterns” in which typography degenerated into cacophonic “thoughtless newspapers.”

_Vision in Motion_ instead was an attempt to ideologically situate material production in the postwar context. It was Moholy-Nagy’s response to “humanizing” technology so that it would favor emotional responses—a _motif_ in pre- and postwar discussions—and followed Sigfried Giedion’s reiterative dialectic of thinking and feeling. In Moholy-Nagy’s narrative, that sort of humanization was brought about through the sublimation of emotional forces through the

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31 László Moholy-Nagy, _Vision in Motion_ (Chicago: Paul Theobald, 1947), 308.
technical training of students. Oscillating constantly between technological determinism and biological and phenomenological pleas, he assigned the emerging new designer the task of articulating feelings through familiarization with different mediums of expression. To facilitate the integration of artistic values in the chain of production, Moholy-Nagy presented a methodology and grammar for designers in many disciplines, including architecture, through an experimental format that combined text and images, as he had in the multiple publications that he had edited earlier at the Bauhaus. The goal was to integrate the arts through the institution of a technological order that would bring “emotional 'literacy’”—that is, “the ability to articulate material stimulated by emotional impulses”—to postwar culture. In this sense, the marriage between science, art, and technology relied on its capacity to create “correlations” and “relationships” between human senses and material reality. Aesthetics as filtered by the new means of production had a highly seductive and persuasive power; for Moholy-Nagy, art was the ball-and-socket that enabled the proper coupling of technology and human perception through its organic properties, namely, “freedom, order, and harmony.” His concerns found an echo in future international dialogues, such as the 1949 CIAM meeting in Bergamo, where for the first time—after the discussion on architecture and aesthetics that had taken place two years prior in Bridgewater—the relationship between architecture and the arts was directly tackled. However, unlike the School of Design in Chicago, where many faculty members where photographers, this international alliance relied on traditional art forms such as painting and sculpture, while obliterating new art forms and their social impact on psychologies of mass-reception.

The sublimation of ornament into texture was therefore a furtive step towards its social and productive integration as an aesthetic project. Texture represented a socially legitimate and technologically opportune alternative to the applied ornament that modern architects and designers repudiated, a type of ornament that perfectly suited capitalism’s need for the division of labor and distribution. Although Moholy’s attempts eventually became ideologically disputable or ineffective, he proposed to overcome the radical division within the mode of production organically through material, technological, and artistic training. It was this social context for ornament—which texture ultimately provided—that underlay his narrative with respect to material culture. This sort of socio-organic ornament had to wait for the postwar period, after modern rhetoric had become fine-tuned to the possibilities of industry and the requirements of public taste.

This was facilitated mainly, but not exclusively, by the re-organization of the means of production, which allowed fairly new emerging figures to transform the material environment in ways hitherto unknown. For Moholy-Nagy, the industrial designer and, by extension, the modern artist represented the necessary supersession of the ancient regime of the “individualistic nature of the crafts” by the “social character of machine production.” It is this social character of production in relation to the final appearance of its output that we must consider in order to understand the delicate presence that the term “texture” achieved in the postwar lexicon. Let us look again at Moholy-Nagy’s historical consideration of ornament and its contextual aspects:

Abstract surface divisions are often called “design” in this country [United States]. But such a decorative treatment is only the variation of ornament. About fifteen years ago the problem of ornament was an important issue. Today it is not even the subject of argument. The creative

power that went into the production of ornament is transferred now into materials, tool-formed textures, and surface treatments. The genealogy of the ornament shows that originally, in pre-literary times, it stood for symbols, as we have them today in the red cross, five pointed star, stop signs, skull and cross bones for poison, wings for flyers. The difference is that the old sign had cultic connotations. When the original symbolic value of the ornament was lost, it became embellishment, making the ornamented object merely appear more precious. There was a time when such ornamentation became extremely rich and inventive, using mathematical and geometrical wit. Every historical period has had its own visual interpretation of these classical patterns though all their symbol-values have been forgotten, leaving only a hollow shell. The ornament was dead. But because of the hypnotic power of tradition, many could not break away from it. They started out with new ornament inventions, using indigenous floral motives; in the United States, Louis Sullivan; in Europe, the Jugend-Stil (style nouveau), and especially architects in small agricultural countries like Hungary. Frank Lloyd Wright found that the only appropriate thing to do in the “age of the machine” was to produce machine-made ornaments. Later, under the influence of modern paintings, geometric ornament “inventions” were made. They were second-hand imitations, weak, without symbolic validity or visual wit. Then with the new ideas of an asymmetric balance and order, there came a new type of surface division under the guise of “design.” This was an abortive attempt to save ornament, symbolizing pseudo-elegance and Victorian nostalgia. This type of “design,” “abstract” or “naturalistic,” became a disease in “modernistic” art education as well as in industrial production. It is sad that after reaching a certain standard for plain mass-produced objects, designers and manufacturers pour “design” over the goods to make them appear more costly. Such “design” is the basic cause of the bad taste seen in household objects, dresses, textiles, despite the lesson that our functional needs in combination with materials and tools can produce superb quality of shape and beautiful textures reaching from chromium-plated polished finishes to rough seersucker surfaces. Texture is, at least for our time, the legitimate successor of ornament.36

Moholy-Nagy advocated for the transformation and embodiment of earlier ornamental practices through the shared aesthetic agency that industrial production entailed. Highly pressured by the salesman, the industrial designer had instead a tendency to succumb to a superficial “styling.” In the American context, seduction and surreptitious persuasion had since the 1930s relied on streamlining, a formal approach to objects originally based on aerodynamics but one that had soon become instrumental to the commercialization of everyday objects such as toasters, ashtrays, cabinets, radios, or fridges. Such an approach to design was identified by Moholy-Nagy as the ornamental approach to form that had been followed by previous generations.37 In a letter

36 László Moholy-Nagy, Vision in Motion (Chicago: Paul Theobald, 1947), 42-44.
37 László Moholy-Nagy, Vision in Motion (Chicago: Paul Theobald, 1947), 34.
to Nicholas Pevsner in the winter of 1943, he complained about the salesman’s kidnapping of modern culture and of his “ridiculous requirements of an appeal to the sentiments of the public.”

Nonetheless, there is some ambivalent feeling towards streamlining in Moholy-Nagy’s *Vision in Motion*. Streamliners too mirrored improvements in industrial production “from bolting, riveting and screwing to welding, molding, shaping and stamping,” that added new characteristics to the manufactured “skin” of the object. Using references from the biological sciences and the work of D’Arcy Thompson, Moholy-Nagy defended streamlining as an innovation in production: “In streamlining, sharp edges have to be smoothed down, consequently casts, molds, stampings as well as *finishes* such as nickel and chromeplating, polishing, enameling and lacquering could be more easily produced.” The tradition of European engineers and of builders of bridges, hangars, cranes, and large infrastructures left space for a different type of engineer-designer, one who was deeply involved in the final appearance of objects. To avoid colliding with the pitfalls of mass-consumerist society, Moholy-Nagy advocated for a “psycho-physical perfection” in the “looks” of products that was to be obtained through expert training in industrial and technological means of production. The modern designer was first of all an organizer, an economic agent knotting together psyche and society:

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40 László Moholy-Nagy, *Vision in Motion* (Chicago: Paul Theobald, 1947), 34.
It is not a matter of façade, of mere external appearance. […] It is the integration of technological, social, and economic requirements, biological necessities, and the psychophysical effects of material, shape, color, volume, and space: thinking in relationships. 41

The reorganization of labor walked hand in hand with the reorganization of architectural discourse. Moholy-Nagy diagnosed the problems of design in the Americas as a “guise” for ornament, “an abortive attempt to save ornament, symbolizing pseudoelegance” through the use of abstract or naturalistic motifs. For him, on the other hand, materials and tools already produced a “superb quality of shape and beautiful textures,” such as those provided by polished surfaces or rough treatments. 42 Although industry was already presenting its aesthetic credentials, Moholy-Nagy’s arguments came too close to the logic of the salesman that he denounced. The eloquence of material treatment stemmed directly from his own literary theoretical construction and partook of the same rhetoric that had been denounced in 1957 by Vance Packard, a “hidden persuader” of the expressive potential that lay in the combination of industry and artist and was meant to propel postwar affluent society. 43

2.4_Travelling Concepts: Structure, Texture, Surface Aspect, Massing.

Despite the initial economic struggles and multiple transformations that the school suffered during his directorship, Moholy-Nagy remained attached to it and the city of Chicago until his untimely death from leukemia in 1946. 44 Vision in Motion closed a period of more than twenty

41 László Moholy-Nagy, Vision in Motion (Chicago: Paul Theobald, 1947), 42.
42 László Moholy-Nagy, Vision in Motion (Chicago: Paul Theobald, 1947), 43.
years of his continuous work in the United States. In 1923, the American multidisciplinary avant-garde magazine *Broom* published an article and a few works by Moholy—mostly photograms of hands, spirals, and geometric compositions—among texts by Kenneth Burke, E.E. Cummings, John Dos Passos, Max Weber, and Robert Musil, paintings by El Lissitzky, and caricatures by George Grosz. 45 [Fig. 009] In that same year Moholy-Nagy also designed the cover—as El Lissitzky, Juan Gris and Ferdinand Leger had done previously—for issue No. 8. 46 Three years later, in 1926, his work was exhibited at the “International Exhibition” held by the Société Anonyme at the Brooklyn Museum. Along with El Lissitzky and the Italian architect and painter Pannaggi—whose inclusion in the show is puzzling—he was included in the array of Constructivist artists who had departed from Cubism’s “geometrization of form and texture-contrasts” to exemplify the new order of industry and scientific progress through material precision. 47 In 1929, at the onset of the Great Depression, Moholy-Nagy responded to a generic questionnaire sent out by the magazine *Little Review*, which was edited by Margaret Anderson and Jane Heap. The project was meant to summarize to American readers the ideas of the avant-gardes of the 1920s along with those of prominent contemporary literary figures such as Jean Cocteau, Ernst Hemingway, James Joyce, and Aldous Huxley. All the same, Moholy-Nagy’s greatest impact on American art and culture began in the 1930s, anticipating the future landing of Gropius’ circle of Bauhauslers. [Fig. 010]


46 Although printed in Rome, the magazine was founded by the American writers Harold Loeb and Alfred Kreymborg with the idea of taking advantage of the lower cost of production in Europe. The journal was edited in New York and distributed within U.S. territory. On El Lissitzky’s cover, see *Broom: An International Magazine for the Arts* 4:3 (February, 1923).

The New Vision introduced Moholy-Nagy’s foundation course from the former Bauhaus to the English-speaking audience. Its impact on postwar culture was due to the normalization and canonization of a pedagogical method that would be soon associated with part pro toto. The book was literally viewed as a “treatise.” In Gropius’s collaborative spirit, it was less “a personal credo” than “a standard grammar of modern design,” indicating the prescriptive character that it acquired in the 1930s. The book itself was a technological apparatus—a dispositif in Foucault’s terminology—that described, organized, and fundamentally altered matter through technologies of mechanization and media. It was also a compendium that summarized many of the cultural and artistic influences at work in Weimar Germany. As such, it achieved a referential status that helped its readers conceptually understand and catalogue some of the major fountaineers of the avant-gardes. However, the point of departure for that understanding lay neither in easel painting nor traditional art forms, but in material—it use, transformation, manipulation, and tactile assimilation. Ironically, that was the architectural kernel and origin of a school of architecture that did not yet offer any architectural training to speak of before Gropius’ departure in 1928—as was later the case in Chicago. Perhaps, it is in the importance that material production gained in Moholy-Nagy’s narrative that we can find its semantic potential for postwar events. Here as we shall see, the word texture unfolded as two different concepts and became the locus in which biological requirements and technological media finally met.


49 The generic and universal character of material education in the School of Design in Chicago is illustrated in the personal correspondence between László Moholy-Nagy and Nicholas Pevsner: “This education […] is valid for any profession whether he be a lawyer, doctor, designer or architect.” Letter from László Moholy-Nagy to Nicholas Pevsner, March 18th, 1943. Bauhaus-Archiv, Berlin.
The New Vision systematized the visual classification of manufactured and raw materials according to four different categories: Structure, Texture, Surface Aspect, and Massing. [Fig. 011-014] These conceptually synthesized the material operations and findings that former students at the Bauhaus had to perform in the first year of their studies. Structure represented the visible inner physical and chemical properties of materials, often appreciated through technology (microscopic photography, metallography, aerial photography, etc.). Massing— to which we shall return later—responded to the modern fascination with the visual impact of serial organization, a material interpretation recalling the social critique that Sigfried Kracauer so wittingly put forward in his contributions to the Frankfurter Zeitung.50 For Moholy-Nagy, however, it was photography not cinema that served as the source of visual relations. [Fig. 015-019] Yet the difference between texture and surface aspect—the latter often and symptomatically interchangeable with surface treatment or surface appearance—was a more difficult one in etymological and historical terms; texture, defined by Moholy-Nagy as “the organically resulting outward surface,” was the visual result of biological processes, as illustrated by cats’ fur, rotten apples, or the well-known image of a hundred-year-old wrinkled man.51 In the original definition of texture, we cannot find a single trace of industrial agency. Surface aspect, on the other hand, was the result of the working process, hand or machine made. Meriting the longest explanation of all, the term was used to signify the aesthetic appraisal of the mode of production as visual traces in materials. It was also constantly associated with the visual appreciation of serial organization that unfolded within the concept of Massing.


The 1932 American edition of Von Material zu Architektur, became more accurate in its description of these key concepts thanks to a larger selection of images and captions. [Fig. 020] The four concepts belonged to the lexicon that emerged from the famous Vorkurs that Moholy-Nagy and Josef Albers had taught at the Bauhaus in the mid-1920s. Among the most significant features of this first English version was the mistranslation of some of the original terms of Moholy’s conceptual armature. In it, these had been presented to German readers as Struktur, Textur, Faktur, and Häufung (Haufwerk).  

[Fig. 021] All—particularly the term Faktur—came with their own problems to Daphne M. Hoffmann, the English translator of the work. Their ideological and cultural nuances were lost in translation. Although the mode of an object’s production is present in the root of the word manufacture, this meaning of the term had long been abandoned in the English language. A similar etymological phenomenon had occurred in the German language, where though existing as a false cognate, the term emerged as a neologism in Western art circles in the 1920s. The fact that the word Faktur was translated as Surface Aspect or Surface Treatment suggested, on the one hand, a certain acquiescence with the superficial qualities that Moholy-Nagy wanted to underscore. On the other, it also anticipated the kind of ornament that he envisaged by transferring the agency driving its production to human-driven machinery. But the lack of precision in Faktur’s translation as Surface Appearance

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52 They all, particularly Faktur, presented their own difficulties to Daphne M. Hoffmann, the English translator of the work. The ideological and cultural nuances of the original term became lost in translation; the word’s root lies in manufacture, which in English had long ceased to refer to an object’s mode of production. The same holds true for German, in which despite the existence of a false cognate, the term emerged as a neologism in Western art circles in the 1920s. The fact that the word Faktur came to be translated as Surface Aspect, Surface Appearance, or Surface Treatment suggests, on the one hand, a certain acquiescence with the superficial qualities that Moholy-Nagy wanted to underscore, and, on the other, a premonition of the kind of ornamental surrogate that Moholy-Nagy envisaged as transferring the agency of its production to human-operated machinery. Yet the lack of precision in the translation of Faktur as Surface Appearance reveals another ornamental form—the projection of transient images onto existing surfaces—that was equally valid to him. The ghost-like character of ornamental shades, contrasts, and projections in some of Moholy-Nagy’s photographic work announced the changing character of material textures in architecture and design.
reveals yet another means of creating ornament that he deemed equally valid: the projection of fleeting images on existing surfaces. The dynamic surface of Moholy-Nagy’s art works would find continuity in the play of light and shadow on material texture in architecture and design.

The use of the word Faktur in Weimar Germany was not unproblematic: the term’s capacity to express the working process dates back to the avant-gardes of the 1920s, and more precisely, to Russian literary Futurism and Constructivism, in which the concept faktura \(\text{φακτύρα}\) became an ideological Trojan horse used to debunk easel painting in favor of an art-form that could stage the socio-economic changes prompted by industrial production. Eventually, faktura also became a political concept that referred to the social organization of labor within a communist state. Ironically, early discussions in the 1910s placed faktura and ornament side by side; the indebtedness of the term to previous discussions on ornament is conspicuous in the writings of David Burliuk or Voldemars Matvejs. Here Faktura appeared not as a surrogate of ornament as Moholy-Nagy had announced but as the form that ornament could take, organically or not, within a society in which the means of production had been radically altered by industry. Under the banner of the artist as producer, the issue of ornament in modernity seemed to vanish once the industrial object became materially and conceptually more sophisticated.

### 2.5 Russian faktura \(\text{φακτύρα}\): Genealogies of a common subjectivity

The term Faktura is a problem for contemporary history since its translation in Western languages overlooks the ideological nuances that it had during its development in the Russian avant-garde. Although thorough, the writings in English on the manifestos and artistic statements by leading figures of the Russian avant-garde tended to translate the term as Texture, a quality that, as I shall show, does not fully capture the meaning of the concept in the postwar
Moholy-Nagy seems to have been aware of the epistemological discrepancies when he decided to draw a distinction between the two categories in Von Material zu Architektur. Although ultimately accepting the word Texture as the English equivalent, the concept in which he was interested in the late 1920s was, in fact, Faktur. Late twentieth-century scholarship brought to the fore the centrality of the term in the intellectual, theoretical and cultural development of the artistic avant-gardes. For Russian Constructivism, as well as for Moholy-Nagy, Faktura entailed a practice but also a place, a locus in which material ideology, social and political aspirations, and artistic expression finally met. However, the significance that the concept acquired in Russian Constructivism was not mirrored in other geographies, or in Moholy-Nagy’s writings. Although traces of the word’s ideological background are still present in Moholy-Nagy’s theoretical construction, he no longer uses Faktura as it had been used in the 1920s to suggest a political articulation of the state. Moholy-Nagy’s organicism was not political but social and more attentive to the output stemming from the management of labor than to the political form it took within state boundaries.

The term was not new among art connoisseurs in early twentieth-century Russia; signifying the manual capacity of the artist to control the final aspect of the canvas’ surface, Faktura belonged to the tradition of Orthodox iconography and easel painting. From the outset, it was an intrinsic

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quality of the painting, a fundamental aspect of its expressiveness. It was linked to the artwork’s mode of production and as such remained co-substantial to its being. Hence, once the artistic Kunstwollen changed in accordance with a new mode of production, the meaning of the term was necessarily affected; through its highly dynamic and unstable usage during the early decades of the twentieth century, the term became instrumental in the battle against easel painting and academicism. The modern use of the term Faktura emerged in Russian literary circles of the 1910s, specifically around Futurist liaisons, highlighting a shift towards abstraction in prose and poetry, whose material qualities—i.e. a graphic representation of sounds and words—served as point of departure for a renewal of meaning. The term soon became crucial within the avant-garde for the assimilation of alien technologies, as it stood in direct opposition to traditional easel painting as well as their corresponding themes and contents. After Russian artists such as Kazimir Malevich became interested in non-representation, Faktura also helped enhance the palette for abstract painting as it incorporated new industrial materials. The existence of new industrial techniques came to be increasingly identified with the precision, smoothness, or roughness of commercially manufactured surfaces. The emphasis on materials as representative of society soon permeated other arts and forms of expression, reflecting an initial preoccupation with the mode of production as a formal source.

Among the groups associated with Russian Futurism at the time was the Rayonist section, which revolved, on the one hand, around the figure of Mikhail Larionov—who in his multiple writings and manifestos (The Rayonist Manifesto (1912), Rayonist Painting (1913), Rayonist and Futurists: A Manifesto (1913), or Pictorial Rayonism (1914) used the term in a rather traditional manner—and, on the other, around its argumentative nemesis, Hylaea—a literary circle constituted of writers and artists such as David Burliuk, (a regular collaborator to the Munich-based art magazine Der
Bläue Reiter), Alexander Kruchenykh, Victor (or Velimir) Khlebnikov, and Vladimir Mayakovsky. 55 Entrenched in debates on Primitivism and Cubism, the term Faktura represented for Larionov simply another formal quality of painting. 56 It was David Burliuk who, in an addendum to the collective manifesto “A Slap in the Public Face” signed by the above-mentioned authors, began to grant the term a central place in the Russian avant-garde. 57 For Burliuk, Faktura was an overall determining category for “the nature of the picture’s surface,” which, together with its structure, defined the artistic object as a whole. 58 Burliuk attempted a taxonomy of surface properties that initially distinguished between smooth and rough but then went further into the capacity of materials to retain or reflect light: strongly shining, shining, weakly shining, glowing, and dull. Although this classification system seems to oscillate between natural and industrially produced surfaces or textures—metallic, glassy, oily, nacreous, silky, splinterly or blobby—Burliuk, advocating the aesthetic superiority of painting over photography


56 However, the statements that Larionov made with the writer and artist Ilia Zdanevich in 1913 were remarkable as they represent a notion of modernity opposed to the one advocated by Adolf Loos few years earlier. This attitude was also explicit in their joint manifesto entitled “Why We Paint Ourselves: A Futurist Manifesto”: “The painting of our faces is neither an absurd piece of fiction, nor a relapse—it is indissolubly linked to the character of our life and of our trade. The new life requires a new community and a new way of propagation […] We have joined art to life […] We do not aspire to a single form of aesthetics. Art is not only a monarch, but also a newsmen and a decorator. We value both print and news. The synthesis of decoration and illustration is the basis of our self-painting. We decorate life and preach—that’s why we paint ourselves. […] Tattooing doesn’t interest us. People tattoo themselves once and for always. We paint ourselves for an hour, and a change of experience calls for a change of painting […] Tattooing is beautiful but it says little—only about one’s tribe and exploits. […] Facial expressions don’t interest us […] Mimicry is expressive but colorless. […] We paint ourselves because a clean face is offensive, because we want to herald the unknown, to rearrange life, and to bear man’s multiple soul to the upper reaches of reality.” (Italicization mine). Originally published as “Pachemu my raskrashivaemysya,” Argus, St Petersburg, 1913, 114-118. Translated by John E. Bowlt, in Anna Kafetsi, ed., Russian Avant-garde 1910-1930. The G. Costakis Collection (Athens: The National Gallery and the European Cultural Center of Delphi, 1995), 490-1.


on the basis of textural surface, was still far from recognizing industrial authorship in the formation of specific surfaces.

Voldemars Matvejs (writing under the pseudonym Vladimir Markov) went further in developing this concept for the pre-revolutionary Russian avant-garde in his short book eponymously entitled *Faktura*, published in 1914 for the Saint Petersburg’s Union of Youth. [Fig. 022] In this text, Matvejs situated *Faktura* as an interdisciplinary concern, equally valid and apt for assessing painting, sculpture, and architecture. He did so by resorting to the psychological effects of materials on any work of art, highlighting the “‘noise’ perceived by our consciousness in one way or another.” By “noise,” Matvejs meant the pleasant surplus information derived from the use of materials, equally valid in all art forms. His definition resorted to anthropological accounts of the use of ornament in past tribes and societies, but also in contemporary society: from hair to tattoos, from bones to feathers, from perfumes to clothing, any material was valid for surface decoration. Matvejs’ definition of surface decorations included the physical and transient qualities of materials such as textures and the shininess of polished surfaces. In tune with mid-nineteenth-century theories of aesthetics, *Faktura* entailed for Matvejs “the method of processing and blending” those materials, a method that tried to grasp the effects generated by traditional ornaments, among other connotations. His material determinism offered an alternative to what was commonly known as *maniera*, that is, style, by removing agency from the artist and immediately granting it to society as a productive collective.

59 “Note I: To understand at least partially the importance of texture, let me remind the admirers of etching that there is a difference between genuine impression produced by a good plate and the imprint’s photograph. Let me remind the devotees of painting of the powerfully written (heaps of paints) Portrait of an Old Man by Rembrandt. Even an ideally color copy will be worthless for the simple reason that its surface has no texture.” David Burliuk, “Faktura” (1912), in Anna Kafetsi, ed., *Russian Avant-garde 1910-1930: The G. Costakis Collection* (Athens: The National Gallery and the European Cultural Center of Delphi, 1995), 478.

Although Matvejs’ influential piece opened the term up to new associations, his universal, all-encompassing description through multiple categories eventually rendered the term nearly useless from a practical point of view; *Faktura* came to mean every surface—be it natural or artificial, hand-made or machine-made—that was capable of producing an effect, and with greater stress placed on the subjective aspect set into play by the reception of art than on the objective and precise industrial mode of production.

Individual subjectivity was challenged by the collective effort required by revolution and supported by Constructivism. Through the years of the First World War, an emerging group of artists including Vladimir Tatlin and Gustav Klutsis, who were influenced by the writings of Matvejs and the works of Picasso, began paying attention to the surfaces of industrially produced materials, incorporating them in their “constructions” as indexical of their origins. In Constructivist circles, *Faktura*—together with *Tektonika* and *Konstruktsiya*—became central to the “communistic expression of material structures.”\(^6\) Alexander Rodchenko, Varvara Stepanova, and Lyubov Popova, among others, considered the term useful for addressing the new aesthetic’s relation to the industrial qualities of materials. They also used it when organizing their classes at the Vkhutemas school of art and architecture in the mid-1920s. But if there is anyone who ought to be credited for incorporating the word *Faktura* into the vocabulary of architecture and linking it to transnational debates such as those taking place at *L’Esprit Nouveau*, or *De Stijl*, it was the artist Aleksei Gan. His writings were echoed in the “rhythmic” understanding of architecture in Moisei Ginzburg’s work.\(^7\) [Fig. 023] In his book *Constructivism*


(1922), Gan identified “tectonics, faktura, and construction” as concepts that were instrumental to the departure from traditional art and the achievement of a proper material expression for Soviet Marxism. To serve this end, faktura had to acquire a representational and epistemological role and thus to illustrate the full production process that was taking place in this newly organized society. Yet while Tectonics and Construction were imprecise concepts that bore a direct relation to the formation of a communist society, the word Faktura assumed a very sharp industrial meaning that organically linked “base” and “superstructure” in the Marxist sense. For Gan, Faktura was not only the final appearance of an object but also the final image of a complex socio-technological mode of production in a communist state:

Let us take, for example, cast iron—an industrial material. To make an article of it, a complicated production process is conducted. Cast iron is melted, i.e., transformed into a burning liquid mass, then it is cast into a shaped mould, goes through the emery department or is simply cut around, and then goes to the mechanical department to lathes, after which one can say that the cast iron has become an article. This entire process is facture, i.e., the processing of metal in general, not of its surface only. Here the material is perceived in status as a raw material. The purposeful use of material means selection and processing, and the nature of purpose-oriented processing is facture. More precisely, facture is an organic condition of the material processed or a new condition of its organism. [...] Facture is a reminder of the fact itself.

This definition coincides almost verbatim with Moholy-Nagy’s final description of the term in the first German edition of his book, and thus became the locus to which I have referred previously and which became significant to his narrative. In this process, the artist had to step down from his pedestal to become anonymous, simply another link in the organic chain of production. Faktur thus became a reminder, a signifier of the entire political and social organization of the mode of production as Tatlin had anticipated in the painterly reliefs and

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64 Ibid.
counter-reliefs he did between 1914 and 1915. However, Moholy-Nagy detached the pragmatic patina of the definition—the construction of a communist state—from the organic, ideological, and socially purposeful level that Aleksei Gan—in tune with the other Constructivist architects—had ascribed to it. Moholy-Nagy did after all define himself as a Constructivist in the 1920s, and it was this affiliation that guaranteed his appointment at the Bauhaus and through it the shift towards the unity of art and industry trumpeted by Walter Gropius. But Moholy-Nagy was deeply critical of the final ideological goal of communist revolutions. Right after the Hungarian Revolution, during his exile in Vienna in spring of 1920, he formulated a sharp critique of communism on economic, biological, and cultural grounds that anticipated his future political position:

Under their poorly dyed red cover, the revolutionaries forgot the real meaning of revolution. They forgot to promote the inner revolution of life. They forgot about culture. Their revolution is not a “revolutionary change.” Their form of Communist economy does not mean a new system of production and distribution. It merely changes the powers of those who decide about production and distribution. This economic communism is another form of capitalism based on trusts, syndicates, state credit, patronage, and a hierarchy of unassailable state leaders. A truly revolutionary new system would differ in all aspects from the familiar old pattern. It would eliminate […] the constrictions upon creative opportunity in schools which reward only caste spirit. The present Communist Party is still part of this bourgeois world and its able propagator. It blows a red tin trumpet while imitating the cult of the dead and base past under the deceptive name of “prolet cult.” The present communist system of economy might offer new opportunities to a number of men who can cleverly mix enterprise and politics, but it will never solve the deeper and most vital needs of survival. Even though madness and reaction have followed this revolution, we hope for new human raw material, prepared in the right kind of school-kettles to build and maintain a society dedicated to a totally new culture.  

Despite Moholy-Nagy’s critique of the bureaucratic and cosmetic character of the revolution, the political aspect of the term remained attached to it during the early 1920s in the Russian avant-garde. However, a displacement towards formal content did occur and became

conspicuous in some of the student exercises at Vkhutemas in the late 1920s, paralleling the shift simultaneously taking place at the Bauhaus.

In the struggle between easel painting and industry, the latter took the lead in the Russian avant-garde. In his 1923 text, *From The Easel to The Machine*, the highly articulate writer and art critic Nikolai Tarabukin defined the crisis of modern art in the early twentieth century as one of form and representation in abstraction. The absence of apprehensible content debunked the social basis of art itself, demonstrating “the futility of art detached from everyday existence.”

Influenced by Oswald Spengler’s *The Decline of the West*, Tarabukin claimed that past forms of aesthetic production, namely easel painting, were romantic and improper for technical societies. Neither Constructivists, nor Futurists, despite their leftist ideology, were able to live up to their claims to destroy art, after securing the appropriate place for their works “in the graveyard of passéism” that museums represented. This was due to art’s inner incapacity to break established rules pertaining to society at large: “The democratization of the social structure and social reforms in Russia,” he wrote, “has had a fatal effect both on the forms of art and the people who perceive it.” At stake in the crisis of art in the 1920s, according to Tarabukin, was the deep change in the “psychology of aesthetic perception” promoted by the collapse of social classes in post civil-war Russia, which, in turn, preluded a Benjaminian understanding of art in modern society; if easel painting was the natural art form in class divided

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societies, allowing “endless splits and individualization” to satisfy “various needs of the
differentiated social structure,” then the democratization of society favored the replacement of
“the class consumer of aesthetic values and the arts patron” by the metropolitan “mass
spectator.” This new subject “ expects from art the form, which expresses the idea of the masses,
of society, of the nation as a whole.” 69 For Tarabukin easel painting responded to the logic of a
decaying bourgeoisie society, a system outdated by its incapacity to respond to the logic of mass
industrial societies. From a cultural point of view, easel painting had “outlived itself both
socially and artistically.” 70 Tarabukin’s prescription for “socially justified” works of art “both in
their form and their function” entailed a redefinition not only of the medium but also of the
figure of the artist as someone capable of communicating and generating aesthetic values beyond
the ossifying museum. Tarabukin hoped that by “christening” art’s new form and content in
what he labeled as “productionship,” or “the utilitarianism and expediency of the object, and its
tectonism,” a redefinition of artistic practices as “socially justified forms” would result. 71 What
he meant by productionship was an art created by machines and commanded by artist-engineers
and artist-workers. What he meant by tectonism was the set of formal relations embodied in the
artistic object that could reflect a full socio-political construct. Moreover, supported by the
Constructivist embrace of reification, Tarabukin defended experimentation in material
organization, that is, “in its textural ( faktural ) and constructive design of its elements.” 72 Both
notions were to resonate in Moholy-Nagy’s work and literature from the 1920s. The Russian
birth of the designer as organizer was meant to launch a subject whose capacities were made

69 Ibid.
70 Ibid.
71 Ibid.
72 Ibid., 700.
visible in the final aspect of materials. Working against the callous tendencies of “applied arts,” the artist in democracy had to reconnect “art with labor, labor with production, and production with life” in order to organize the entire production process. This was a highly ambitious historical development that questioned the work of traditional art history and deviated from mid-nineteenth century English formal spiritualism:

Ruskin’s idea about changing life through art was purely aesthetic. Similarly, Dostoyevsky’s notion that “beauty saves the world” is mystical. Dreaming about the fusion of art and life, William Morris saw his ideal in the Middle Ages rather than the future.

All art historians exercise the same aesthetic approach to forms of art which exist in life itself; to the forms which have yet to be put in museum shackles; and to the forms which exist in prehistoric culture and in “folk art,” e.g., in Russian huts, embroidery, utensils, clothing, etc. […]

The idea of productionship in this interpretation is much wider than the narrow framework of the “aesthetes.” It assumes a profoundly social sense. And unseen horizons open up to art which the gravedigger-aesthetes had previously interned in the golden cages of museums. The horizons are provided by life’s inexhaustible potential to create new forms, opportunities and roles.

Regrettably, for Tarabukin society and artists were not yet prepared for an ambitious program that would transform the logic of production. Only the “left” artists were prepared for this commitment: “After removing all the ‘literary’ superstructure from their work they have begun to view it as a method of the constructive organization of materials. That is why their skilled activity possesses a different meaning from that of technical virtuosity and trickery.” Hence, Constructivist/Productivist leftist artists could only hope to remain meaningful temporarily, as social-pedagogical “agitators;” they had to spread the future role of art in all sorts of institutions and events — schools, museums, public talks, etc. — in order to prepare and educate society.

This role of the artist as ideological and public orator or advocate is crucial for our

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71 Ibid.
74 Ibid., 701.
75 Ibid., 703.
understanding of later developments and certainly corresponded to the category in which Moholy-Nagy belonged. His books were a conspicuous attempt to convince his audience of the benefits of treating matter in an objective way. By the mid-thirties, all this techno-cultural “virtuosity and trickery” was providing a new garb for the dicta of earlier Modern artists.  

Interestingly, Tarabukin, like Walter Benjamin, saw in the process of industrialization a steady “Americanization” of life and society that was occurring simultaneously under socialism and capitalism. For him, this entailed the transformation of the production process from “below,” that is, from the reorganization of the base as opposed to a superstructure imposed by the state. Such fascination with American culture was quite common in pre-soviet Russia at the time. 

Like the state’s obsession with Taylorist organization and Fordist production, Mayakovsky’s poems to New York City after his trip to the United States are a good example of the cultural aspects of that fascination. [Fig. 024] Moholy-Nagy too shared the Russian avant-garde’s taste in iconography, interests, and more importantly, references; the cover of Lef magazine, on which appeared the physiognomy of the old man that was so central to our understanding of the issue of texture in Moholy’s narrative, helps us understand how the cultural melting pot fed interests on both sides of the future Iron Curtain. [Fig. 025] Moholy-Nagy’s literary production thus resonates with Tarabukin’s writings. According to the former, architectural expression had to

76 As Christina Lodder states in her comprehensive book, “Constructivism had strongly stated its opposition to the concept of ‘applied art’ and ‘decoration’ on the one hand, and any fixity or canonization of form on the other. The trends that emerged were antithetical to the very essence of Constructivism itself, in that they reduced the Constructivist ‘method’ to a set of rules which could be applied mechanically to decorative tasks and surface solutions rather than a system for the organization of material according to the principles of tectonics, faktura, and construction.” Christina Lodder, Russian Constructivism (London & New Haven: Yale University Press, 1983), 180


rely on industry, technology, and mechanization: “The ‘crisis of architecture’ […] will be solved not with the arrival of a new Palladio but with the development of construction technology. Architecture as the art of the external window-dressing of a building will never be revived. Its future ‘style’ will not be found in the archives of ‘art history.’ It will be prompted by technology.” 79 The mastery of technology for expressive purposes lay beneath Moholy-Nagy’s biotechnical project. Technologies were not simply mechanisms of production but visual tools that impacted the unconscious. Anticipating Benjamin’s arguments, the crisis of form and representation along with the collapse of social classes in post-revolutionary Russia naturally replaced bourgeois art with that of the mass spectator while demanding new art forms, including film and photography, to express the new paradigm. Following these lines and in less than a decade, Faktura underwent a process of political migration and internalization that mediated between the inner social mysticism of materials and their external appearance and allure. This slowly occurring embodiment was theorized by Moholy-Nagy’s close friend Ernest Kallai, who, in articles published between 1932 and 1935—“Zurück zum Ornament” and “Ornament und Bild,”—welcomed an aesthetic ornamental form that arose from these new media. 80

2.6_Bauhaus tactilism: Textural media.

It remains unclear how the term faktura landed at the Bauhaus but, as we have seen in the first chapter, tactile values certainly came to the fore in relation to light and new media. Wassily Kandinsky’s presence at the school does not prove his responsibility for the adoption of the term


despite his directorship of the Institute for Artistic Culture in Moscow (*Inkhuk*) in the early 1920s. It is unlikely that *Faktur*—especially with all the political nuances that it assumed after his departure—was among Kandinsky’s catchwords; he was, after all, a totally different kind of artist from the type promoted by Russian Constructivism and the Soviets during the early 1920s. As a Constructivist himself, Moholy-Nagy was acquainted with the debates emerging in Russia, particularly through the works and writings of Aleksei Gan, Aleksandr Rodchenko, Lyubov Popova, and Vladimir Tatlin. There were many sources from which he may have appropriated the Constructivist term: through his former colleagues at the journal *MA*, where the word *faktura* was associated with Malevich’s work in 1923; through his own Russian students who had migrated to Weimar Germany to study; and through osmosis from his association with his friend El Lissitzky during the 1922 Constructivist-Dadaist congress in Berlin. [Fig. 026-027] Although Aleksei Gan excoriated El Lissitzky for his inability to detach himself from aesthetics, the latter definitely participated in Constructivist circles and methodologies; his *Raum für konstruktive Kunst* at the International Art Exhibition in Dresden in 1926 and his *Schwebender Körper* (1919) installed in Hannover in 1928 show a conspicuous sensibility for the aesthetic appropriation of the supporting wall, a sensibility echoed in some of Marcel Breuer’s early works.

Within the Bauhaus milieu, the provenance of the term *faktura* was, in fact, disputed; in a 1967 interview, Josef Albers, who had been co-responsible for the Bauhaus *Vorkurs*, complained bitterly of the historical developments that had led to the publication of *Von Material zu*

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81 Moholy-Nagy contacted Aleksandr Rodchenko about a publishing opportunity in the Bauhausbücher series.
The reason for his dismay was the book’s embrace of the aforementioned division of Struktur, Faktur, and Textur. In the fall of 1928, Albers was invited to lecture on his pedagogical methods at the Berliner Kunstgewerbe Museum, coincidently the building that Martin Gropius, Walter Gropius’ great uncle, had built between 1877 and 1881. After the lecture, Moholy-Nagy’s first wife, Lucia, who served as his German editor, approached Albers to ask him for definitions for the concepts that he had just presented, and apparently he complied with her request. According to Albers, the definitions were afterwards “stolen” by Lucia Moholy-Nagy for her husband’s book. At the time, Moholy-Nagy’s second Bauhaus book, whose anticipated title at the time was Von Kunst zu Leben, had not yet been published. On the other hand, Malevich’s Die Gegenstandlose Welt, in which the word faktur appears at the very beginning of the German translation (edited by Moholy-Nagy and translated by Hans von Riesen), was already in print. [Fig. 028] The images that Malevich used may have influenced Moholy’s visual

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82 Josef Albers interviewed by Irving Louis Finkelstein, New Haven, April 16, 1967. Original tape recording in the Historical Sound Recordings Collection, Yale University Library, YT7-4287. Tape 1, Side A, Track 2. I would like to thank Brenda Danilowitz, Chief Curator at the Josef & Anni Albers Foundation in New Haven for providing the sound recording of the interview.

83 Albers lecture was preceded by another one delivered in Prague in 1928, in which he first formulated his agenda.

84 Moholy-Nagy and his wife moved to Berlin from Dessau a year after Gropius’ departure, and the definitions procured from Albers were lost in the interim. However, upon their request Albers provided the couple with the materials a second time.

85 The events leading to the publication of Malevich’s book are worth recalling: Malevich received permission to travel outside the Soviet Union in 1927. After a trip to Poland, he stayed in Berlin from March to June of the same year. On April 6th he travel to Dessau accompanied by the Polish poet Tadeusz Peiper to meet Walter and Ise Gropius, László Moholy-Nagy, Hannes Meyer, and Nina and Wassily Kandinsky. During the meeting, reported by Peiper to a Polish magazine in Cracow, they spoke about the relation between “purely aesthetic forms” and both architecture and utilitarian objects. In a letter dated to the following day, Ise Gropius stated that plans to publish a book were made during that meeting. Soon later, Moholy-Nagy visited Malevich in Berlin, where they agreed on publishing two manuscripts: “Introduction to the theory of the Additional Element in Painting” and “Suprematism” under the title Die Gegenstandlose Welt. Malevich, who during this trip also met Ludwig Mies van der Rohe and befriended Hugo Häring, was accused three years later of espionage. The original manuscripts were condensed by Moholy-Nagy. Although Walter Gropius also appears as an editor of the book, his contribution was more institutional than personal. For a full account of the events, see Lloyd C. Engelbrecht, Moholy-Nagy: Mentor of Modernism, 2 vols (Cincinnati: Flying Trapeze Press, 2009), 291-299; Andrei Kanov, Kazimir Malewicz, Catalogue Raisonné (Paris: A Bíró, 2002); Kazimir Malevich, Die Gegenstandlose Welt, Bauhausarchiv 11 (München: Albert Langen, 1927); Kazimir Malevich “I/45. An Introduction to the Theory of the Additional Element in Painting,” The World as a Non-Objectivity: Unpublished Writings, 1922-1925, Vol. III, Troels Andersen ed., trans. Xenia Glowacki.
rhetoric, but the word Faktur, though it appeared several times in the text in reference to photography, was not central to Malevich’s theory of Suprematism, which was discussed towards the end of the book. A year later, in the final, 1929 issue of the Bauhaus journal, dedicated almost entirely to Oskar Schlemmer’s experiments in the theater, Moholy-Nagy’s final title, Von Material zu Architektur, was announced. The author decided to change it at the last minute, right before it was published and almost two years after he had left the school and moved to Berlin. This detachment from the final events held at the school after his presumably unethical appropriation of Bauhaus methodology infuriated Albers. “How does this man dare to publish your work?” Albers claims that Paul Klee asked him. According to Albers, Klee and Kandinsky had initially hidden Moholy-Nagy’s publication from Albers since they both agreed that his adoption of Albers’ methods and pedagogical theory had been dishonest. Klee’s animosity towards Moholy-Nagy went beyond the latter’s rejection of his mechanic-dynamic project; he actually described Moholy-Nagy as “the prefabricated spirit of our time.”

The triad and authorship of the pedagogical framework at the Vorkurs lay at the basis of a life-long dispute between the two figures. However, though Albers might be granted responsibility for classifying the manipulation and visualization of matter—as he states in his postwar complaint—no exhaustive and progressive explanation of the various terms was evident in the literature available by 1928. Nonetheless, this episode of personal rivalry reveals not only the predictable

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87 We classify the appearances of the material epidermis (outer layer) as essentially different in structure, facture, and texture. Their utilization is done through painting as construction, so that spatiality, overlaps and penetration occur more as an illusion. Special interest in questions of appearance is a manifestation of particular constructive-mindset epochs. This aspect has been very well kept by the gothic, as it was neglected subsequently, when façade
jealousy among artists but also, and more importantly, an awareness of the relevance that these concepts acquired in the decades following Moholy-Nagy’s publication.

Josef Albers and László Moholy-Nagy were appointed professors at the Staatliches Bauhaus on the same day, February 13, 1923, in order to take over the preliminary course that Johannes Itten had been teaching since the beginning of the school’s activities in 1919.⁸⁸ [Fig. 029] Both landed at the Bauhaus following a rupture with their respective pasts. Albers came to study at Weimar after taking classes at the Royal Art School in Berlin and lessons with the conservative salon painter Franz von Stuck in Munich in 1920. Moholy-Nagy, on the other hand, arrived in Berlin that same year via Vienna after his Hungarian communist compatriots accused him of engaging in counter-revolutionary activities while working as a contributor to the avant-garde journal MA.⁸⁹ Here in 1922, Moholy-Nagy met Walter Gropius—an encounter that coincided with the former’s first solo exhibition at the Gallery Der Sturm—who granted him a position as teacher at the Bauhaus school.⁹⁰ Albers, who had an informal appointment, initially taught outside the school, while Moholy-Nagy, after teaching in the metal workshop, took over the Vorkurs. It was he who organized the theoretical content while Albers supervised the workshops, while Klee and Kandinsky delivered regular lectures on color and form. [Fig. 030]

—and space, equipment and clothes were made in just one material, when walls, furniture and floors were coated with color.” Josef Albers, “Werkliches Formunterricht,” Bauhaus (Dessau), n° 2-3 (1928), 6.

⁸⁸ Josef Albers begun to teach after his years as a student, initially without a formal appointment or Gesell (fellow). From the Fall of 1923 on, the Vorkurs was extended to two semesters.


To be accurate, the use of texture in the preliminary course, defined by Gropius as the “backbone” of Bauhaus education, was already significant before Albers and Moholy-Nagy’s leadership.91 The work of Johannes Itten previous to his unexpected departure in 1923 seems to have been responsible for the frenzied taste for texture among Bauhaus students, as Marcel Breuer’s famous 1922 caricature of Josef Albers illustrates. [Fig. 031] In addition to analyzing structural painting, Itten fostered the production of “ornamental abstraction” through textural exercises as a way of exploring intuitive perception—a pedagogical method that he retained at his later appointments in Berlin and Krefeld in the 1930s.92 [Fig. 032] By using hand tools, utensils, objects, and even human organs and non-human organisms, students printed traces on matter in different positions, proposing an array of textural compositions. These exercises were meant to liberate students from previous influences and prepare them for future workshops. Their benefit lay in their capacity to unleash curiosity about the outside environment, expand aesthetic vocabulary and grammar, and foster lateral thinking in relation to matter. Looking back at his pedagogical career and particularly his Bauhaus years in 1963, Itten noted that in working on these exercises on texture, students caught a “real design fever.”

They began to rummage through the drawers of thrifty grandmothers, their kitchen and cellars; they ransacked the workshops of craftsmen and the rubbish heaps of factories and building sites. A whole new world was discovered: lumber and wood shavings, steel wool, wires, strings, polished wood, and sheep’s wool, feathers, glass, and tin foil, grids and weaves of all kinds, leather, furs, and shiny cans. Manual abilities were discovered and new textures invented. They started a mad tinkering, and their awakened instincts discovered the inexhaustible wealth of textures and their combinations. The student observed that wood could be fibrous, dry, rough, smooth, or furrowed; that iron could be hard, heavy, shiny, or dull. Finally they investigated

how these textural qualities could be represented. These studies were of great value to the future architects, craftsmen, photographers, graphic artists, and industrial designers.91

Indeed, this environmental expansion of design tools along with research on the “wealth of textures” continued under Albers and Moholy-Nagy’s directorship. However, though minor, significant differences arose when the two faced the challenge of replacing Itten’s curriculum before and after the school moved to Dessau.94 Leaving behind Itten’s pedagogical version of Mazdanism and its worship of self-expression, students concentrated on more mundane, immanent matters. From the very outset, Albers, who ended up having the longest affiliation with the Bauhaus school, showed a deep concern for as-found industrial materials and their expressive possibilities when manipulated into formal constructions and compositions. His students’ work suggests that he regarded Faktur as a formal quality; the techniques used in exercises by Alfredo Bortoluzzi (1927), or Walter Tralau (circa 1926), for example, demonstrate a close sensibility to those of painting, as brushes were used to reproduce the proposed mundane surfaces. [Fig. 033-042] Moholy-Nagy, in turn, was attracted to the capacity of art—through its alliance to new technology—to transmit social organization.95 If for Albers, the agency of the artist was paramount—we can simply recall, among other things, his series of glass compositions for Gropius’s Summerset House—then for Moholy-Nagy, technology enabled a mediated subjectivity in production that was nonetheless incorporated into the final

95 Moholy-Nagy along with Raoul Hausmann, Hans Arp, and Ivan Puni had previously advocated for elementary art, “Aufruz zur elementaren Kunst,” De Stijl, IV: 10, 136.
object. His tactile rhetoric with respect to surfaces and materials followed Constructivist experiments and emphasized the production of devices and taxonomies in order to enhance and master human perception, that is, to produce new tactile experiences. [Fig. 043-051] Walter Kaminsky (1927) and Gerda Marx’s (1928) famous Tasttafeln and Rudolf Marvitz (1928) or Willy Zierath’s (circa 1927) exercises illustrate this point. Throughout his life, Moholy-Nagy tried to fit the artist and the emerging figure of the industrial designer into the new conditions of production. Art and industrial techniques—and science, as we have seen, during his final years teaching in the U.S.—constituted the pivotal axis around which society and subjects could be improved. In Rainer Wick’s words, Moholy-Nagy’s functionalism was based on “pictorializing the new social content of material production,” that is, producing the proper image for the new set of economic relations. From that point of view, both pedagogical curricula—Albers’ formal appreciation of as-found objects and craftsmanship vs. Moholy-Nagy’s biotechnical experimentalism—can be seen as complementary rather than contradictory. Albers’ method was rooted in the skillful manipulation, but also imitation of matter; Moholy-Nagy’s focused on how to extract images from matter through technologically biased visual exercises. It was in this sense—that of observation mediated by technological constructions—that Moholy Nagy’s published work became instrumental to the development of a deep and influential understanding of the potential of material categories to illustrate and challenge a


97 Rainer K. Wick, Bauhaus Pädagogik (Köln: DuMont, 1982), 125. See also Norbert M. Schmitz, “The Preliminary Course under László Moholy-Nagy – Sensory Competence,” Bauhaus, eds., Jeannine Fiedler and Peter Feierabend (Cologne, Könemann, 1999), 368-373. Schmitz traces the pedagogical commitment of Moholy-Nagy back to the Enlightenment and particularly to Friedrich Schiller’s “model of an aesthetic education as the reconciliation of necessity and freedom” (p. 372). However, as I argue in this dissertation, his description of the “elimination of the subjective view” in the duplication that occurs in photograms is disputable. See also Michael W. Jennings, “László Moholy-Nagy. Photograms,” eds., Barry Bergdoll, Leah Dickerman, Bauhaus 1919-1933. Workshops of Modernity (New York: Museum of Modern Art, 2009), 130-137.
mercantile society that was taking over every strata of production. Although in Von Material zu Architektur Moholy-Nagy had exemplified the concept of faktur through exercises done by students before 1927—Ulrich Klawun, 1924—the absence of the term in archival sources makes me think that the triple classification—struktur, faktur, textur—was conceived after his departure in the spring of 1928. The concept of Faktur was certainly alien to Moholy’s teaching methodology in relation to matter and, to some extent, to the Bauhaus itself as it appeared on the fringes of the activities practiced by the Bauhaus masters in the various fields in which they were involved.

Regarding pedagogical methods at the Bauhaus, only Paul Klee—Pädagogisches Skizzenbuch (1926)—and Wassily Kandinsky—Punkt und Linie zu Fläche (1926)—published their teaching agendas by the end of the decade. Both artists wrote in a synthetic and concise style on the poetic formal basis of artistic expression. In fact, after Itten’s departure, they were the professors who led the transition to materialize Gropius’ new motto for the school—Art and Technology: A New Unity. Likewise in 1927 but in distant Russia, the pedagogical achievements of Vkhutemas were published as a schoolbook illustrated with a cover by Moholy-Nagy’s friend El Lissitzky. By the mid 1920s, the concept Factura was being used at Vkhutemas in a formalistic yet pedagogical manner meant to train future architects in how to master the expressive capacities of materials, as the publication of student exercises in 1927 demonstrates. This publication, in fact, reveals an understanding of the word that is very similar to the one that Albers used in the preliminary phase of the Vorkurs that he had taught in Dessau.

98 Arkhitektura raboty Arkhitekturnogo fakul’teta Vkhutemasa (Moscow, Vkhutemas, 1927).
Actually, Albers was the next person to be interested in presenting his pedagogical methods at the Bauhaus. In 1928, he published an article in the second issue of the school’s magazine entitled “Werklicher Formunterricht” — “Formal Exercises in Craftworks” — in which he illustrated his teaching methodology with work by his students. In it, Albers seems to have used the term inconsistently and rather conservatively, associating the surface appearance of materials with formal painting techniques in which “intersections, mixings and interpenetration occur by illusion.” Albers exemplified the compositional and quasi-textile aspect of materials by including in the article works by Bauhaus Meister Gunta Stölzl or students Ilse Voigt and Anni Fleischmann — his own wife — from the knitting division of the school. Albers’ article is significant since it marks the first time that the triad — Struktur, Faktur, and Textur — appeared within the context of the Bauhaus in written form. However, it appeared here in a highly specific manner, its raison d’être being to change the surface appearance of materials once their surfaces were treated as paintings:

We classify the appearances of the material epidermis (outer layer) as essentially different in structure, facture, and texture. Their utilization is done through painting as construction, so that spatiality, overlaps and penetration occur more as an illusion. Special interest in questions of appearance is a manifestation of particular constructive-mindset epochs. This aspect has been very well kept by the gothic, as it was neglected subsequently, when façade and space, equipment and clothes were made in just one material, when walls, furniture and floors were coated with color.

101 Wir klassifizieren die erscheinungen der werkstoff epidermis (aussenschicht) als wesentlich unterschieden in struktur, faktur, und texture. Ihre verwertung geschieht mehr malend als bauend, so dass räumlichkeit, überschneidung und durchdringung als illusion auftreten. besonderes interesse an der materie ist eine erscheinung der besonders konstruktiv eingestellten epochen. so ist dieses kapitel sehr von der gotik gepflegt wurden, wie es nachher vernachlässigt wurde, als fassade und raum, gerät und kleider nur in einem stoff gemacht wurden, als wände und möbel und dielen ganz mit farbe zugestrichen wurden.” Josef Albers, “Werkliches Formunterricht,” Bauhaus (Dessau), n°2-3 (1928), p. 6. [Official translation in 1938]: “We classify the appearance of the surface of a material as to structure, facture, and texture, which we differentiate carefully. These qualities of surface can be combined and graduated somewhat as colors in painting. The systematic arrangement of surface qualities in scales and series makes one sensitive to the minutest differences and the subtlest transitions in the tactile qualities of...
Despite Albers’ complaints in 1967, he never fully described in the article the systematization of the *Vorkurs* and the role that these concepts—*Struktur, Faktur, Textur*—played in the episteme of the class. The alliance between façades and fashion in modern circles is certainly not a surprise. But Moholy-Nagy’s genealogy and interest in the term arose from the sharp dialectic over the aesthetic legitimization of a different medium: photography. In the late 1920s, the term *faktur* was not unknown to Moholy-Nagy; it appeared for the first time under his name in his book *Malerei, Photographie, Film*, published in 1925. [Fig.056] Here it was associated with film photography and illustrated with stills showing dresses, textile patterns, and make-up worn by actresses Fern Andra and Gloria Swanson. [Fig.057] Moholy-Nagy had also used the concept two years later, before the appearance of Albers’ teaching statement in the Bauhaus magazine, in an article he wrote in 1927 for the German photography journal *Deutscher Lichtbild*, in which he unraveled topics of his epoch-making “Production-Reproduction” published in 1922.  

It was only after the re-publication of the former article—“Die beispiellos Fotografie”—in the Amsterdam-based art magazine *i10* that the word *faktur* became the epicenter of a dispute between Ernő Kallai on the one hand, and Adolf Behne, Willi Baumesteier and Moholy-Nagy, on the other.  

[Fig.058] Kallai criticized photography for its inability to produce *faktur*, an aesthetic constituent limited to easel painting. Moholy-Nagy, in turn, echoing Constructivism, surfaces, such as hard to soft, smooth to rough, warm to cold, straight-edged to shapeless, polished to mat; also in the visual qualities of surfaces such as wide-meshed and narrow-meshed; transparent and opaque; clear and clouded.” Probably translated by Ise Gropius. Josef Albers, “Concerning Fundamental Design,” *Bauhaus 1919-1928*, [1938], eds., Herbert Bayer, Walter Gropius, Ise Gropius (Boston: Charles T. Branford Company, 1959), 116-118.


denied that *factura* was only about tactile qualities. For him, photographs portrayed the entire process of photographic production in addition to the surface aspects of the image’s content.

[Fig.059] We can understand the term’s growing relevance to Moholy-Nagy by looking closely at the 1927 edition of *Malerei, Fotography, Film*, in which the title is not the only difference from the first edition of the book. In this new edition, Moholy offered the first definition (to my knowledge) of *faktur* within the context of the Bauhaus: “The manner and appearance of the manufacturing process.” In 1929 he expanded on this in *Von Material zu Architektur:*

> Faktur ist die Art und Erscheinung, ser sinnlich wahrnehmbare Niederschlag (die Einwirkung) des Werkprozesses, der sich bei jeder Bearbeitung am Material zeigt. Also die Oberfläche des von außer her veränderten Materials (Epidermis, künstlich). Diese äußere Einwirkung kann sowohl elementar (durch natureinfluß), als auch mechanisch, z.b. durch Maschine usw. erfolgen. Fakturen können an einem Object verschiedenerweise vorkommen, z.b. bei einer Metallschale als: Musterungen (Hammerschläge), vollkommene glätte (gedrückt und poliert), Lichterscheinung (Spiegelung, Reflexion, Farbbrechung) und als je nach Material kraft variierte niederschläge.  

*Faktur* was thus “the manner and appearance, the sensitive perceptible manifestation, (the exposure) of the working process that shows itself in any material treatment.”  

[Fig.060] The word “exposure”—*Einwirkung*, later translated as *effect* in the English editions—relates to its photographic origins. Here we find the material transference to which we referred at the very beginning of this chapter; from exposure to light (as in the case of the silver-gelatin emulsion in photography), to the exposure of the working process, the material had to perform as the recording device of its own manufacture. Matter for the architect and designer was what plastic film was for the photographer: the very medium onto which life itself—and by extension, the social contract—could be imprinted. However, the aesthetic component permeated Moholy’s narrative; in 1926 he published an article in the Austrian magazine *Vivos Voco* in which he

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defended photography as a new form of representation, which in its mastery over the fakturlose, became the source of “luminous effects.”

Ironically, the phenomenological effect that appeared in The New Vision lost its photographic genealogy yet preceded the aesthetic, experiential character that the term would acquire in the 1930s. If in the previous decade the epidermic character of faktur had revealed the fashioning of materials to Moholy-Nagy, then for Albers its social and ideological connotations remained irrelevant. Although Albers may have formulated a precise definition earlier, the various editions of Moholy-Nagy’s book did influence him in his transition to Black Mountain College in the mid-1930s. It was not until 1938, with the publication of the catalogue that accompanied the first exhibition of the Bauhaus at the Museum of Modern Art in New York, that we encounter, albeit in a footnote, Albers’ precise definition of the three different terms.

“Structure” refers to those qualities of surface which reveal how the raw material grows or is formed [...] “Facture” refers to those qualities of surface which reveal how the raw material has been treated technically [...] “Texture” is a general term which refers to both “structure” and “facture,” but only if both are present. For instance, the “texture” of polished wood reveals both the “structure” (grain) and the “facture” (polishing).

Remarkably, for Albers in 1938, Texture was a possible synthesis of facture and structure, a combination of mechanical treatments and the natural properties of materials regardless of the socio-economic context of the mode of production. In Moholy-Nagy’s narrative, however, texture, an offspring of photography, became not just another formal quality of materials but also a reminder. If divested of its ideological burdens, even Walter Gropius could defend this new kind of ornament for modern architecture along these lines after arriving in the United States.

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States. [Fig.063] As he stated in 1938, “A true modern architect,” introduces “refined industrial processes of surface treatment into his compositions” and “emphasizes the contrast of their component parts with different materials and textures,” indicating in turn, “the probable direction of further development towards ornamentation.”\(^\text{108}\) Stemming from the grammar of modern design, a new ornament based on “contrasts” generated by “industrial processes” had finally been prescribed. *Vision in Motion* merely concluded the intellectual journey from the ideologically threatening *faktura* to the phenomenological, harmless texture.

Influenced by the Soviet avant-garde, Moholy-Nagy, shared the taste, interests, and—more importantly—cultural references of his Russian compères, as the cover design for *Lef* magazine shows. But he did not share their ultimate political aspirations; he was willing to detach the political component of the term *faktura*—the construction of a communist state—from the ideological value ascribed to it by Russian Constructivism. However, he viewed politics not as the functional expression of an ideological system but rather as a form of “realizing ideas for the benefit of the community.”\(^\text{109}\) During his post-Bauhaus period, Moholy-Nagy developed a systematic phenomenological grammar for materials that was rooted in the logic of Soviet Constructivism. But in the views of the Constructivists, and to a lesser extent in that of Moholy-Nagy—apart from their political discrepancies and formal similarities—the term *faktura* entailed a practice but also a place, a *locus*, in which ideology and artistic expression finally met. For Moholy-Nagy, this ideology was seemingly channeled through the struggle and incorporation of photography as a technology of production in the working process. Although


traces of this significant baggage can be found in Moholy-Nagy’s theoretical construction, his proposals did not suggest the political articulation of the state as did Constructivist theories in the Soviet Union of the 1920s. Moholy-Nagy’s organicism was not ideological but social, more attentive to the aesthetic experience that arose more from the management of labor power than from the political form it took within the state. As such, it was geared towards what Anson Rabinbach labeled as transcendent materialism: the biological, technical, and cosmic unity that industry had promised in the modern era. As the bio-technical synthesis embracing production and perception, Texture was not the surrogate for ornament that Moholy-Nagy had announced, but rather the form that ornament could take in modern industrial societies where the means of production had been radically altered. Once it had metamorphosed, the concept of faktura could join the social contract that modern architecture had claimed during the multiple episodes in which its teleological and mechanical understanding of history had been disclosed.

2.7 Abstract Ornament: Factitious and Fortuitous.

Our capacity to go beyond the machine rests upon our power to assimilate the machine. Until we have absorbed the lessons of objectivity, impersonality, neutrality, the lessons of the mechanical realm, we cannot go further in our development toward the more richly organic, the more profoundly human.111

Sir Herbert Read, founder of the ICA in London and friend of Moholy-Nagy, wrote a review of the first American edition of The New Vision in 1935. Read presented the book as one of the “few statements which are essential for an understanding of the modern movement in architecture.” Among the dignitaries welcoming the migration of former Bauhauslers into England in the mid 1930s, Read described all of them as the “prophets of a new humanism,” as idealists who had

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111 Lewis Mumford, Technics and Civilization [1934], (Chicago: The University of Chicago Press, 2010), 363.
tried to change man’s relationship to industry. Read’s mechanical, abstract humanism relied on words such as “integration” to provide a different “attitude” towards contemporary problems in aesthetics. The target of all such efforts lay in an understanding of architecture as the construction of space in an abstract sense, in which “building material” had to appear as “auxiliary” to program and structure, and was thus the carrier of biological relationships.

Moholy-Nagy collaborated by providing photographic material and references for Read’s pedagogical Art and Industry, published in 1934 and republished in 1944 with the help of P. Morton Shand, Wells Coates, and Leslie Martin. They all met while Moholy-Nagy was living in exile in London and contributed to discussions around the magazine Circle. Devoting his book to industrial design, the English art critic attempted to formulate a critique of functionalism based on abstract, universal aesthetic values. Nearly an abridged, English-oriented version of Semper’s Der Stil with psychological overtones, Read’s book proposed that a new subject—the abstract artist—command the full chain of production. Industrial materials, techniques and technologies, as well as the development of communication favored a new garb for that immutable aesthetic. In tune with Moholy-Nagy’s efforts to integrate art and industry, and drawing heavily on the writings of Gropius, Art and Industry described a common field in which the artist and the industrialists could meet. [Fig.064] Rejecting the English tradition of “grossest illusions and prejudices” represented by Joshua Reynolds, John Ruskin, and William Morris, Read advocated for a tradition of human concerns, which, rather than being “humanistic,” were

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based on “appreciation” and found continuity in the enjoyment of the object through the human body, i.e., tact. On the one hand, there was humanistic art, a tradition dating back to the Greco-Roman and Renaissance periods that aimed at emotional appeal through the intellectual expression that emerged from formal composition. This notion of art had led to the notion of “taste,” a social and educational concept that Read found inadequate for the appreciation of machine production. On the other hand, there was abstract art, a non-pictorial, non-representational form of art that responded to the “intuitive” or “irrational.” This irrational factor was transmitted through the nature of the materials employed to manufacture utilitarian objects, as well as their textures and colors. Oscillating between materialism and psychology, Read was enticed by the irrational effects that a geometrical, orderly, mathematic abstract art produced on man, as well and its subtle, occasional transgressions. These formal categories, Read argued, resonated in a deeply buried unconscious activity within the human psyche—the Id—which was inhabited by pre-natal experiences, traumas, and sexual as well as racial experiences.

Ornament played a substantial role in the psychological relationship between man and machine and the production of functional objects; “my contention” stated Read, is that “the utilitarian arts—that is to say, objects designed primarily for use—appeal to the aesthetic sensibility as abstract art.” The appeal Read referred to was “intuitional as well as rational.” This pairing had important consequences on architecture’s functional compromise; on the one hand, Read championed the appraisal of architecture as a combination of “irrational” and “rational”

factors”—much as figures like Giedion were to claim this irrational factor in architectural composition in the late 1950s. On the other hand, he identified the unconscious appreciation of architectural elements as an aesthetic logic imposed by machine production. In what he termed “rational abstraction,” Read advocated the measurable, mathematical precision, as well as adherence to the laws of symmetry and proportion. In so doing, Read bypassed the limited and elitist aesthetic appraisal—as it was to be portrayed by the younger generation of the Independent group in the 1950s—in order to become socially inclusive. Paradoxically, machines were able to produce not only art, but even a superior art, combining conscious effects with unconscious affects as had been the case in ancient civilizations. The “abstract artist” and the “constructive engineer” were for Read the harbingers of a utilitarian modernity that had arisen from the early twentieth-century avant-gardes. Their task had been to produce standardized forms at the expense of “uniqueness.” Homogenization—the greatest fear of many modernists as well as critics—had been superseded thanks to technological evolution.

Thus, if the problem of homogenization had to be tackled through pedagogy, then Gropius’ Bauhaus became the model for Read’s. Soon after leaving the Third Reich for England, Walter Gropius delivered a lecture at the Design and Industries Association, which was published in the Journal of the Royal Institute of Architects on May, 1934. Gropius and Read’s analysis of contemporary production coincided almost verbatim; for Gropius the question was to liberate the artist as well as to “humanize the rigid, almost exclusively material mind” of the


industrialist. Fully subscribing to the words of the German educator, and positioning himself as the speaker of the sensibilities of the Bauhaus school, Read advocated for an abstract artist capable of grasping the mathematical aspect of nature. But what appeared as self-committed ventriloquism on Read’s part soon evolved into an act of psychological revelation in its relationship to ornament. For Read, modern plain surfaces were not white, but “empty”—a condition for which the human mind was ill equipped. In this new appraisal of ornament Read turned to late nineteenth- and early twentieth-century theories of perception in which two figures appeared as fundamental for his intellectual construct: the American psychologist and philosopher William James and the German art historian Wilhelm Woringer.

In The Principles of Psychology, William James provided a physical explanation for *horror vacui* (cenophobia) in a subject’s perception. He also inspired Read’s title for the section—“Catching the Eye”—a metaphor that speaks of the aforementioned intimate relationship between image and hand in what can be interpreted as an attack on earlier forms of modern, purely visual representations:

> On the retina the fovea and the yellow spot about it form a focus of exquisite sensibility, towards which every impression falling on an outlying portion of the field is moved by an instinctive action of the muscles of the eyeball. Few persons, until their attention is called into fact, are aware how almost impossible it is to keep a conspicuous visible object in the margin of the field of view. The moment volition is relaxed we find that, without knowing it, our eyes have turned so as to bring it to the center. This is why most persons are unable to keep the eyes steadily converged upon a point in space with nothing on it. The objects against the walls of the room invincibly attract the fovea to themselves. If we contemplate a blank wall or sheet of

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paper, we always observe in a moment that we are directly looking at some speck upon it which, unnoticed at first, ended by “catching our eye.”

Drawing on Ruskin’s “innocent eye,” William James analyzed the superimposition of senses in space perception and came to the conclusion that when touch and sight conflict, the former prevails. [Fig.066] If skin were the last frontier in a harm-benefit relationship between the body and its environment, sight could be described as “anticipated touch.” Sight was thus subordinate to the human’s body quest for information, the “sign” waiting for validation through close contact with the human epidermis. This was because sight was a cutaneous retinal impression; the organ of the retina was analogous to photographic film as it reacted physiologically to the excitement of the external image. To see meant first and foremost to touch; thus spatial understanding, though first apprehended by the eye, was subordinate to “tactile forms of consciousness.” The touch of the skin, either internal or external, was the measure by which space could be validated since the sense of touch prevailed, following principles of interest—practical, i.e. danger, or aesthetic—and discrimination. The argument on tact and fear was advanced by Worringer in his introduction to the concept of abstraction in what he called spiritual agoraphobia—geistige Raumscheu—a moment of human uncertainty and anxiety at becoming a biped and consequently visually oriented. Tact remained in its absolute, abstract form as the trace of a primitive instinct that was suppressed by the process of rationalizing external phenomena. The more incomprehensible the external world, the greater the pulse towards abstraction.

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Drawing on James’s psychological theory, Read saw ornament as contributing to the psychological perception of space—not as an addition but as an agent maximizing human understanding. “Specks on the surface” provided by texture responded to the “psychological necessity of ornament” through contrasts in the materials employed. These contrasts had been historically provided by material treatments: “We are able to conclude without any doubt, that whatever the purpose and appeal of the ornament, its forms arose in, and were determined by, the material and the process of manufacture. We may still assume a previous psychological necessity; but the fulfillment of this necessity was inevitable.” Reads’ material determinism displaced applied ornament to concentrate on “structural ornament,” that is, ornament emerging from the existing conditions of production and its relation to nature. Structural ornament was “fortuitous” if the material itself had ornamental qualities. It was “factitious” when developed through the process of working the material, as in the case of ridges made in clay, check effects in textiles, etc. The championing of factitious ornament, however, had different intellectual ambitions:

When ornament begins to play a larger part in human economy, that is to say, in the neolithic period, most, if not all types, are either fortuitous or factitious in origin; that is to say, they are imitations or developments of natural qualities in the material or of accidental effects due to working the material. Then in the course of time the origin of ornament is forgotten, and it develops into geometric and abstract patterns of the utmost freedom. Even when we reach the stage of applied naturalistic ornament, there is a tendency for patterns to lose their original naturalistic or illustrative intention, and through a gradual process of slurring, to develop into geometric and abstract patterns.

124 Herbert Read, *Art and Industry* (London: Faber and Faber Limited, 1934), 145. According to James’s theory, the explanation of the phenomena of contrasts had two sources: psychological—due to the *deception of judgment*, a phenomenon by which the human mind gears towards a false discrimination thanks to the extraordinary amount of information provided by the environment; and physiological—the excitement in the retina, which depends not only on the object perceived, but also on the illumination of the rest of the retina. The former is defensive, the latter materially contextual. See William James, *The Principles of Psychology, Vol. II* (Cambridge; MA: Harvard University Press, 1981), 666-68.


Following this line of reasoning in the prewar period, Herbert Read formulated two precepts for the production and appraisal of ornament:

“…(T)here is good historical precedent for two “laws” of ornament which we shall find fulfilled by the products of the machine age no less than of the stone age:

I. APPROPRIATE ORNAMENT ARISES NATURALLY AND INEVITABLY FROM THE PHYSICAL NATURE OF A MATERIAL AND THE PROCESS OF WORKING THAT MATERIAL.

II. ORNAMENT BETRAYS AN INHERENT TENDENCY TOWARDS ABSTRACTION.

Then, in footnote 2 he expanded his second point:

Or, as it might be formulated: “Ornament, if left to itself, tends to become abstract, because the psychological necessities are most appropriately and most economically supplied by abstract ornament.\(^{127}\)

Read’s techno-industrial determinism was biased towards abstraction in human psychology. Consequently, he wholeheartedly embraced the new aesthetic favored by a new reorganization of labor. Yet, Read’s economy was not material, but rather biological and psychological. The abstract artist was the intrinsic decorator of industry, a man who, in the chain of production, could be equated with the scientist, the engineer, and the technician. For Read, the question was whether objects produced by machines could possess the quintessential qualities of art. By concentrating on ornamental art, Read could defend an artistic expression in accordance with machines. Even the fate of applied ornament—subdivided into geometric, stylized, organic or naturalistic, pattern, and plastic—became subordinate to his quest for abstraction once it was filtered by the rhythms of production that modernity imposed.\(^{128}\) Assuming that machine-made ornament would eliminate the individual subjectivity present in the craftsman’s “human touch,” he advocated for the high manufacturing resolution that new means of “reproduction now available in all materials” granted to modern design, as evident in commercials and textiles.


[Fig.067] Rejecting organic and applied plastic ornaments as ill suited to the logic of the machine, Read emphatically promoted geometric and abstract ornaments as being the “most appropriate” stylistic simplifications for mid-century design and architecture. These geometric ornaments had the mysterious capacity to transfer subjectivity through the “impression or incision of lines, hachures, and punches” generated by the soulless machine. Ornament had to “fit form and function”—not the forms and functions of objects, but rather the economic necessities of the machine.129

2.8_Sharred vision, shared surfaces

Moholy-Nagy eventually added a fourth category to the triad of Struktur, Faktur, and Textur: Häufung or Haufwerk—accumulation—which was translated as massing and mass arrangement in the first English edition. [Fig.068] This final category became significant since it equated the serial organization of mass commodities with ornamental arrangements in a manner similar to Sigfried Kracauer’s witty description of dynamic girl clusters. “Community and personality,” claimed Kracauer, “perished” in the quest for “calculability” imposed by the artificiality of the capitalist production process.130 The correspondence between organized accumulation and ornament was contingent to selection and framing by the photographer or cinematographer. However, Kracauer’s pessimism towards the “murky” reason of his own time was illustrated by his ambivalence towards “abstractness” as the shield beneath which human presence was fading. Human subjectivity was dissolving, relinquishing its individuality, and evolving towards a

129 Herbert Read, Art and Industry (London: Faber and Faber Limited, 1934), 159-60.
“manifestation of inferior nature.” Hence “mass ornament reveals itself as a mythological cult that is masquerading in the garb of abstraction.”

However, the eye of the spectator and the critic does not necessarily coincide with the eye of the producer. For Moholy-Nagy, these images, once framed and properly selected, indicated a displacement of focus from biology to the aesthetic appraisal of human production—organized through repetition and serial accumulation—as perceived by optical lenses. Unlike Kracauer, Moholy-Nagy was very careful to detach this procedure of aesthetic compilation from traditional forms of ornamentation in what might be interpreted as the process of linguistic eradication that he described in *Vision in Motion*. His subjectivity was displaced from historical ornament to media, mesmerized by the productive capacities of the technological apparatus. Kracauer’s subject was the spectator; Moholy’s spectator, on the other hand, was active, capable of “recognition” and agency. To see was to discern. In his own words:

> […] not all repetition is ornamentation. Repetition—the series—belongs to present-day technique. In it, the modern man recognizes, though often with a mental reservation, what we are calling today, “the beauty of technique.”

Arguably, ornamentation was problematic for Moholy-Nagy from the very beginning. First and foremost, he had to assume a distance from ornament as a form of traditionalism, “emptied of all meaning” and therefore superfluous. Nonetheless, his work legitimized the mechanical expression and production of architecture or design to renew traditional decorative forms. His attempt to link the rise in ornamental forms to functional requirements (as in the case of

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Czechoslovakian linens) or, eventually, to a modern apparatus, partook of the logic of the relocation of subjectivity towards different social territories, as Kracauer also suggested.

Between the standardization of the as-found as a reproducible object and unrestrained multifariousness, material repetition and variety certainly became a central component of the curriculum and a trade-mark of the Bauhaus school. [Fig.069] The mastery over materials took place on the very appearance of surfaces, deploying an array of repetitive solutions for the different trades involved. Appreciation and attention towards textures and material treatments, whether manually ortechnologically produced, became a paramount quality of the Bauhaus curriculum. Josef Albers and Moholy-Nagy’s courses contributed to the sophistication and stylization of the initial exercises proposed by Itten, materializing through different media and techniques—pictorial craftsmanship in the case of Albers, technological apparatus in the case of Moholy-Nagy’s—the rich industrial tactile universe that the Bauhaus proposed. [Fig.070]

Three years before Moholy-Nagy’s Vision in Motion, his student, collaborator, and colleague György Kepes made his publishing debut with Language of Vision, as we have seen in the first chapter. Oriented towards reorganizing the visual space of the semiotics of advertising, the book reflected the commercial and industrial character of the board of the Institute of Design. In his reorganization of the visual field, surface treatments had a significant relevance to the process of making “the visible path of the creative act.” After Ruskin and Morris, modernity demanded a “genuine respect of the process of making,” and a rejection of “false attitudes” towards craftsmanship that only machine-made surface treatments could restore to its proper value. In a Constructivist turn, Kepes identified the “honest” surface of objects as those that granted “the

133 György Kepes, Language of Vision (Chicago: Paul Theobald, 1944), 188.
genuineness of the expression” and satisfied the psychological need of individuals.\textsuperscript{134} Photographic cameras played a major role in this process of differentiation between collective subjectivity as rendered by the final aspects of objects and individual appreciation and consumption. Photography was the reference for painters when it came to generating an “intersensory blend,” and not the other way around.\textsuperscript{135} The presence of texture in this new language of vision was mediated through the use of the mechanical apparatus to reveal, or better, to unveil the working process beneath the “wealth of the environment.” The double exposure of the industrially produced object—as produced and reproduced—helped to economically mediate between collective and individual subjectivities:

Technological progress contributed greatly to the introduction of another visual idiom: texture. A wider knowledge and more extensive use of materials and structures, the discovery of synthetic materials, and machine culture with its new wealth of surfaces, made familiarity with the new landscape imperative. The unaided eye could not follow, no manual skill could have the precision of coordination to represent, all the intricate surface qualities of the new man-made materials and objects—a gramophone record with its innumerable variety of sound tracks, for example, or a polished machine-made metal object with its perfect surface quality. Only the camera could cope adequately with the visual domestication of the new wealth of the object-world. Only the camera could keep pace with the speedily unfolding visual properties of the newly created forms and structures.\textsuperscript{136}

The reference to the traces of the gramophone’s record had already been proposed with an actual microphotograph of a record recorded by Italian tenor Enrico Caruso in the first English edition of Moholy’s \textit{The New Vision} in 1932. \textbf{[Fig.071]} Once selected and reduced to a pattern of wavy lines by the camera lens, the grooves in the vinyl were actually not very different from some of the ornaments that illustrated the section on savage tribes in Owen Jones’ 1856 \textit{The

\textsuperscript{134} György Kepes, }\textit{Language of Vision} (Chicago: Paul Theobald, 1944), 188.

\textsuperscript{135} György Kepes, \textit{Language of Vision} (Chicago: Paul Theobald, 1944), 152.

\textsuperscript{136} György Kepes, \textit{Language of Vision} (Chicago: Paul Theobald, 1944), 150.
Grammar of Ornament.  

Ironically, his unacknowledged selection of those images, redrawn, rotated, and rearranged by hand to emphasize the clumsiness of primitive art, appeared as Polynesian art in the folk section on usurpation—translated as plagiarism—in Le Corbusier’s *L’art décoratif d’aujourd’hui* of 1925.  

The primitivism of the geometric motif resurfaced in the popular media of reproduction and was later captured by Moholy’s productive eye. Le Corbusier’s attempt to scorn the precision of these ornaments follows the logic of his own narrative, which was to ascribe to machine production precision, regularity, and exactitude—a perfection represented by the Law of Ripolin, or a coat of whitewash as an “act of productive morality” meant to reconvene with the master self. In Kepes’ continuation of Moholy-Nagy’s narrative, this new modern subject was already flattened in the space between the eye and the camera. In addition, the photographic camera altered and distorted the scale of appreciation of the “texture wealth” of the new industrial landscape through abstract “defamiliarization:”

Explorations with macro-, micro-, and aerial photography opened up visual fields hitherto beyond human reach. In ordinary visual observation, the scale of things is clear in reference to the spectator. Manual representation had traditionally been based also upon a scale related to the spectator. The photographic image, however, is cut out from the familiar spatial frame of reference and there is frequently no cue for deciphering the spatial scale. […] Space is condensed or expanded according to the optical accessories used in its recordings. Because of the relativity of the spatial scale the varied qualities of texture values had become the only visible signs able to indicate spatial relationships. Form modeled by shading could no longer be regarded as the sole space-ordering agent of brightness-value differences. Visual form became only a borderline case in new, more extensive visual context—texture surface.

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The result was the fusion between eye and hand in a single continuous sensorium that could detect and appreciate light, contrasts, rhythms, and patterns in the environment:

Following the pioneer photographers, painters began to assimilate in the picture-image texture qualities inherent in every material. This new sensory property enriched the image. For texture has a unique dimension. The particular rhythm of light and dark that makes up visible texture is beyond our ability to distinguish in any form of visual organization in terms of modeling by shading. It has a fine grain of sensory impact which can be comprehended only in it structural correspondence to other sensory feelings. The surface-texture of grass, concrete, metal, burlap, silk, newspaper, or fur, strongly suggestive of the qualities of touch, we experience visually in a kind of intersensory blend. We see, not light and dark, but qualities of softness, coldness, roughness, restfulness—sight and touch are fused into a single whole.  

The technological alliance between sight and touch in relation to media was ready to beget its architectural and material offspring during the social construction of the upcoming consumer’s republic.  

[Fig.075] This new media was mastered and orchestrated by a new figure, the designer, a combination of a white and blue collar laborer anticipated by multiple images of Moholy-Nagy wearing a white shirt and tie beneath his red fisherman coveralls. [Fig.076] A different image, the one that the School of Design used for advertising summer sessions organized by Moholy-Nagy in Somonauk, Illinois and that we have seen in the previous chapter, is perhaps more revealing of the synthesis of craftsmanship, subject, and media. In it, we see three students leaning towards a sculptural model with a camera standing right next to them on a bright sunny day. [Fig.077] We can speculatively read the image as follows: the camera is simply another student-subject, and vice versa: every single student operates in the manner of a photographic camera. In any case, all of the subjects are subordinate to the apparatus, acting as temporary assistants in the production of the final image. The program emphasized surface treatments and tactile constructions made from materials in the Basic course taught by Moholy-

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Nagy, James Prestini, and Charles Niedringhaus (a former student), which were followed by experiments in surface treatment, textures, and structures in the photography class taught by Moholy-Nagy, György Kepes, Nathan Lerner, and Gordon Webber. [Fig.078-079] The continuity between materials and media concluded in the lectures on contemporary architecture by George Fred Keck. The literature assigned to this class predictably included only three titles: *The New Vision, The Bauhaus 1919-1928*, and *The New Architecture and the Bauhaus*. Among the sponsors of the Bauhaus resurrection in Chicago after the first two years of struggle were characters such as Alfred H. Barr, Walter Gropius, Julian Huxley, and Joseph Hudnut.
Chapter III
Elocutio: Discourses on Taste, Styles, and Ornaments.

People have a terrific loyalty to their brand of cigarettes
and yet in tests cannot tell it from other brands.
They are smoking an image completely.
Research Director, New York Advertising Agency, circa 1957

A building without decoration is like health in a state of poverty.
Johann Joachim Winckelmann, Remarks on the Architecture of the Ancients, 1762

And it was thus, and either by inadvertence or design, that when in the Nineteenth-Thirties,
European modern architecture came to infiltrate the United States,
it was introduced as simply a new approach to building—and not much more.
That is: it was introduced, largely purged of its ideological or societal content, and it became available,
not as an evident manifestation (or cause) of socialism in some form or other, but rather as a décor de la vie
for Greenwich, Connecticut, or as a suitable veneer for the corporate activities of ‘enlightened’ capitalism.
Colin Rowe, “Introduction,” Five Architects, 1972

The West everywhere rolls out its favorite Trojan horse:
the exasperating antinomy between the self and the world,
the individual and the group, between attachment and freedom.
Freedom isn’t the act of shredding our attachments,
but the practical capacity to work on them,
to move around in their space, to form or dissolve them.
The Invisible Committee, The Coming Insurrection, 2007

3.1_ International Style De-Ornamentation: The Super-Aesthetes

The status of architecture between the two World Wars changed epistemological grounds after
the Modern Architecture exhibition held at MoMA in 1932.¹

¹ Prior to its opening, Exhibition 15, later commonly known as the International Style exhibition, was announced
and publicized as an exhibit on Modern Architecture or an International Exhibition of Modern Architecture. One
statement was constantly repeated in press releases: to speak about modern architecture meant to speak about an
international way of understanding architecture as a specific style. For a history of the genesis and development
of the exhibition, catalogue, and book as well as the mismatches between them, see Terence Riley, ed., The
international architecture emerged after Alfred Barr recommended that Henri-Russell Hitchcock’s *Modern Architecture: Romanticism and Reintegration* be rewritten “in a more popular way.”² Facing incomprehension in Europe on yet another publication on modern architecture—“no one wants another book on modern architecture here in Germany […] In vain do we explain that there has been no book covering the whole style and nothing but the style”—Barr’s recommendation evolved towards an exhibition covering the aesthetic tenets of the new architecture.³ Eventually, a set of documents and multiple events, including a touring exhibition, a catalogue, a book, and numerous lectures, touted the arrival of modern architecture in America. The discrepancies in the content of the exhibition, the official catalogue, and Hitchcock and Johnson’s book *The International Style: Exhibition 15 and The Museum of Modern Art*, published in tandem with the show, are remarkable. [Fig.001] The European aesthetic, for example, was less authoritative in the show than in the book, in which only seven projects in America—two of them designed by European architects—and one in Japan were covered, as opposed to the nearly eighty on European soil. Moreover, while the exhibition included works by Frank Lloyd Wright and the Bowman brothers, the book did not.⁴ In the catalogue, in turn, European modern architecture was set in contrast to the material aesthetic of buildings by Americans such as Raymond Hood and George Howe, who still used

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⁴ Works by Raymond Hood exhibited alongside Richard Neutra’s projects and buildings in the section “The Extent of Modern Architecture,” were minimized in the book, which showed only Hood’s 1931 McGraw-Hill Building in New York. The catalogue, on the other hand, published a more comprehensive list of Hood’s works.
decorative spandrels or stone rustication as cladding techniques. Lastly, in the show, Europe was represented primarily in photographs of completed projects while the modern architecture of America—with the exception of the not “intimately related” work of Frank Lloyd Wright—was limited to images of unbuilt proposals, a disparity that sent the message that the New World still had a broad and long road to cover. After several disagreements and struggles over the final selection, curators Henry-Russell Hitchcock and Philip Johnson chose works by Le Corbusier, Mies van der Rohe, Walter Gropius, Jacobus Johannes Pieter Oud, Howe & Lescaze, Richard Neutra, the Bowman Brothers, Raymond Hood, and Frank Lloyd Wright. In addition, they included a section on “Housing” and on the “Extent of Modern Architecture.” The climax of the exhibition lay in the room that contained models of villas commissioned by affluent clients from Le Corbusier, Mies, Oud, and Wright. The show aimed at a highly specific potential audience. Indeed Hitchcock thought that the unexpected consequence of the critiques of the show was the shooing away of “investors” from spending money on buildings after the 1929 stock market crash.

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5 The uncanniest item in the catalogue is probably George Howe’s house, built in Philadelphia in 1914, where sculptures of infants decorate a small terrace facing the pool.

6 On Frank Lloyd Wright’s presence in the show, see Alfred H. Barr, “Foreword,” Modern Architecture. International Exhibition (New York: Museum of Modern Art, 1932), 15. Wright received recognition and his work was commemorated. In the catalogue, Henri-Russell Hitchcock closed his introduction on Wright’s work with these words: “The day of the lone pioneer is past, the advance may be on a more general front at last. Throughout the world there are others beside Wright to lead the way toward the future.” Ibid., 37.

7 In this last section were works by Alvar Alto, André Lurçat, Hans Scharoun and other European architects, outweighing the relevance of modern architecture to the rest of the world.

8 Henry-Russell Hitchcock defended the economic potential of the new aesthetic for the Great Depression as follows: “These critiques, these manifestos, these open letters, would doubtless impress the investors who are now holding up building by failing to provide funds as proof of the childishness of all who are not directly concerned in the main American activity of acquisition and preservation of wealth.” Henry-Russell Hitchcock, “Architectural Criticism,” Shelter, 2: 3 (April 1932): 2. The audience targeted by the show was likewise international, including patrons such as the Duke of Alba from Spain, M. Charles de Beistegui, Dr. Eduard Fuchs, Mme. Helene de Mandrot, and Alice Millard, many of who had commissioned modern houses. It is interesting that Eduard Fuchs, former client of Mies, was a patron of the show, given his relevance to Walter Benjamin’s theorization of the collector as the paramount figure in the materialization of culture. Walter Benjamin, “Eduard Fuchs, Collector and
Hitchcock and Johnson’s *International Style* established three stylistic principles through which to validate affinities and adherences to the modern architecture coming from Europe: the articulation of volumes, priority placed on composition thanks to regularity and standardization, and the lack of applied decoration. Their highly controversial use of the word “style” was aimed at finding a proper aesthetic definition with which to oppose European rationalism on the one hand, and the mimetic reproduction of obsolete, past historical styles, on the other. The new style was meant to remove “the dead hand upon the living material of architecture” that Gothic and Classical revivalism had brought about, and to encourage aesthetic growth and development through a “healthy” and “non-dogmatic” set of principles. Hitchcock and Johnson’s presentation of the new style seemed as reductive as it was persuasive. It served as a slogan, a product for quick consumption, lacking the aura and anthropological, social, and utopian drive that lay at the intellectual basis of European modern architecture.

Modern architecture had already been showcased as a codified style with a set of easily comprehensible and transmittable rules in the 1931 warm-up exhibition “Rejected Architects,”

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9 Alfred Barr capitalized the term in the preface to the first edition of the book, despite the authors’ decision not to do so in the show. However, Philip Johnson had capitalized it in earlier articles in *The Arts and The New Republic*. See Henri-Russell Hitchcock, “Foreword to the 1966 Edition,” *The International Style* (New York: W. W. Norton & Company, 1995); Philip Johnson, “Modernism in Architecture,” *The New Republic* (March 18, 1931): 134; “The Architecture of the New School,” *The Arts* 17, 6 (March 1931): 393–398. The association between modern architecture and internationalism—a term with significant political as opposed to nationalist connotations—was common by the mid-1920s in Germany, as can be seen, for example, in Walter Gropius’ *Internationale Architektur* (1925). Hitchcock already referred to a new style in his writings of the late 1920s, though “international” and “style” were first paired at meetings between him, Barr, and Johnson in preparation for the exhibition in late 1929 or early 1930. For previous uses of the term style, in relation to modern architecture see Henri-Russell Hitchcock, *Modern Architecture: Romanticism and Reintegration* (New York: Payson and Clarke, 1929); “Four Harvard Architects.” *The Hound and Horn*, 2: 1 (September, 1928): 41-47.


which presented models and projects that the Architectural League of New York had turned down for the exhibition of Modern Architecture at Grand Central Station the same year. In his curatorial début, Philip Johnson described the episode at the League as the twentieth-century counterpart of the establishment of the Parisian Salon des Refusés, in which “rebels” such as Gustave Courbet or Édouard Manet and the Impressionists could exhibit their controversial works. The alleged rebellion of architects Stonorov and Morgan, William Muschenheim, and Richard Wood—described as partisans of their European “founders,” i.e., Gropius, Le Corbusier, Oud, or Mies—was material and pragmatic rather than conceptual. “The style,” claimed Philip Johnson,

> takes advantage of new principles of construction and new materials such as concrete, steel and glass. Ornament has no place since hand-cut ornament is impracticable in an industrial age. The beauty of the style rests in the free composition of volumes and surfaces, the adjustment of such elements as doors and windows, and the perfection of machined surfaces.\(^\text{12}\)

An addendum to the volumetric principle of *The International Style* entitled “Surfacing Material” stressed the need for material continuity—“like the texture of a fabric”—that nonetheless relied *temporarily* on the use of stucco.\(^\text{13}\) This emphasis on material evolution was explicit in the growing appreciation for the singularities of Mies’ work in the early 1930s, a work described as “luxurious” and “elegant” in multiple communications between Johnson, Hitchcock, and the various parties involved in the organization of the 1932 exhibition.\(^\text{14}\) In fact, Mies’s more sophisticated use of materials brought him to the forefront of the modern masters at the MoMA


\(^{14}\) Alfred Barr, for instance, judged the Tugendhat House to be “the largest and most luxurious private house in the style.” Letter from Alfred Barr Jr. to Philip Johnson, 19 August, 1931, Museum Archives, MoMA, New York. On Johnson’s appreciation of the material elegance of Mies van der Rohe after his visit to Brno, see Philip Johnson’s letter to Homer Johnson, July 21,1930. Philip Johnson Papers, Museum Archives, MoMA.
exhibition, ousting Walter Gropius from the main room.\footnote{On relations between Johnson and Mies around 1932, see Emmanuel Petit, ed., \textit{Philip Johnson. The Constancy of Change} (New Haven; CT: Yale University Press, 2009); Franz Schulze, \textit{Philip Johnson. Life and Work} (Chicago, The University of Chicago Press, 1994), 65-70; 75-86.} This emphasis on materials translated into a full social and economic hierarchy that required further elaboration: “Brick appears the best material for large and inexpensive construction,” wrote Hitchcock in a letter to Catherine Bauer right before the show’s opening, “tile in the middle range and plate sheathing for exceptional buildings. In the last the architect has the opportunity to seek to the full possibilities of richness and individual distinction which the contemporary style affords quite as much as the styles of the past.”\footnote{Letter from Henri-Russell Hitchcock to Catherine Bauer, February 1932. Quoted in Terence Riley, ed., \textit{The International Style: Exhibition 15 and The Museum of Modern Art} (New York: Rizzoli International Publications, Inc., 1992), 54. A similar argument appeared in Henri-Russell Hitchcock and Philip Johnson, \textit{The International Style: Architecture Since 1922} (New York: W.W. Norton & Company Inc. 1932), 54-55.} To be modern meant to be able to discern the social status that the use of materials conferred and to exploit the expressivity of new industrial techniques in order to render that status self-evident.

Underscoring the absence of traditional decoration was part of the rhetoric of disseminating this as an unquestionable feature of modern architecture. Social aspects defended by other critics and pioneer partisans of modern architecture in America such as Catherine Bauer and Lewis Mumford—the latter, a member of the organizing committee along with Johnson’s father Homer Hosea—were minimized in the various media that the show included. But even though the social leanings of modern architecture may have been in dispute, there was certainly consensus around the demise of ornament. Such unanimity was far from the anthropological or economic reaction that many modernists had towards the excesses of design or industrial counterfeits. In her 1934 book \textit{Modern Housing}, for example, Catherine Bauer was to argue that
this quality of the new architecture was a question of taste. [Fig.007] The absence of ornament, she insisted, was simply joyful:

If we do not apply any surface ornament to a modern building, it is not because any theological adherence to pure engineering, but because we happen directly to enjoy the more dynamic idiom of intersecting planes and smooth impersonal surfaces [...] Perhaps there have always been two essentially different kinds of attitude toward a building. To one group of people a house is a necessary evil, which should be designed in so far as possible to melt into its background. Broken lines and surfaces, ‘textures,’ [sic.] the avoidance of everything rectilinear, are the means employed. But the other group likes a house as such, and makes it bold and positive, a statement of house-ness. The demarcation between the man-made world and the world of nature is sharply drawn. And if more urbane and orderly modern housing belongs to the latter class, so do the white-painted New England villages. 17

Bauer was distinguishing between Le Corbusier, Walter Gropius, Neue Sachlichkeit, and the institution of the CIAM, on the one hand, and more naturalistic and romantic attitudes towards architecture identified as conservative, on the other. Ultimately, there was a political dispute between internationalism and Heimatarchitektur, the latter defended by Bolsheviks and German nationalists who undermined modern architecture while favoring Fingerspitzengefühl architects, that is, architects with a sensibility in their fingertips. 18 For Bauer, the use of ornament distracted the mind from a more profound enjoyment of architecture based on abstract volumes and geometrical rules. The distinction between the accessory and the profoundly fundamental in modern architecture had ideological innuendos that influenced its very materiality.

Judging from the buildings exhibited in the Modern Architecture show, the major difference between European and American modern architecture lay in the final aspect of matter, in the architectural epidermis itself. Save Mies’ use of marble, onyx, and travertine, European modern architecture relied largely on white stucco, glass, and concrete, while American

modern architecture had an “ingenious rather than novel” understanding of materials and forms and minimized the use of stucco in favor of metal eaves and spandrels as well as brick dressing and stone claddings, these last often required by urban regulations. American acquiescence with industrial materialism had consequences: contrasting colors in bricks as well as artificial, playful bands of materials that were “unfortunate” and “hardly essential” to functional demands—as in the works of Raymond Hood for instance—and which therefore scored below those designed by other leaders of modern architecture such as Le Corbusier or Walter Gropius in the ideal aesthetic ranking in which Henri-Russell Hitchcock schooled American architects.

However, the joyful employment of materials was part of an American tradition that could not necessarily identify with the white purity that Le Corbusier or Alvar Aalto witnessed in Mediterranean villages. Aluminum houses, such as the one designed by the

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19 Such was the case with the Chrystie-Forsyth Housing Development project designed by George Howe and William Lescaze in 1932, a repetitive L-shaped block whose “superiority” to similar projects lay in its “skillful combination” of lightness and “necessarily inexpensive materials” with no compromise to its “sociological significance.” Henry-Russell Hitchcock, “Howe & Lescaze,” Modern Architecture. International Exhibition (New York: Museum of Modern Art, 1932) 146. As Terence Riley has pointed out, the Eurocentric committee, the exhibition, the catalogue and the book presented European works as the right style with the wrong ideology, and American modernism as the right ideology with a deceptive style.

20 Henry-Russell Hitchcock. “Raymond Hood,” Modern Architecture. International Exhibition (New York: Museum of Modern Art, 1932) 133. Hood’s response to his ambivalent association with the International Style captures the hierarchic, aristocratic, and commercial attitude of American architecture: “Ladies and gentlemen: I am so full of dinner and I am so full of the talk (by Henry-Russell Hitchcock, Jr.) we have just heard that I do not know what to say or what to think. I have a sort of curious experience. I started in my education at Brown University and continued through the Massachusetts Institute of Technology and the École des Beaux Arts, growing up, finally, as a thorough-going conservative. My position now is like that of the man who, after he came into a theatre in a dead-head ticket and finding an usher said “See if you can get me a good seat.” The usher said “Sure, I can find you a good seat.” So he took me down and put me in the front row where I stayed until somebody came along with the ticket for the seat I was in. The usher said “I am sorry, but you must get out.” That was the time when I was sitting with the good old conservatives and someone came along and wafted me out of my place. Then I made up my mind I would get another seat. I found the usher again, “Isn’t there some other school?” I asked, and he said “Sure, I can find you another seat.” Then another man came along and I was wafted out of my second seat. Then I found out that there was another school, an international school, so I was given a seat in the international school, and to prove it I have an exhibit in this museum. I said, “I’m an internationalist now” (laughter). And here I am with the internationalists. But when they wrote the program, this book (the catalogue of the Exhibition) inasmuch as I was one of the ten exhibitors, I had to be written up. I read very carefully what is written and what is wrong with my architecture and I find that I have not made the grade (laughter). I am wafted out of my seat again (laughter). And so I am back in the lobby (laughter) with no place to sit.” Raymond M. Hood, “Symposium: The International Exhibition,” Shelter 2: 3 (April 1932): 6.
Bowman Brothers, (1930) and the Harrison House by architects Lawrence Kocher and Albert Frey (1931), for example, offered an indigenous counterpoint to the white and glass dress of European Modernism. For MoMA’s director Alfred Barr, the material distance between the two traditions became evident in the 1922 Chicago Tribune Building competition, when popular opinion acclaimed Eliel Saarinen’s entry for its “agreeable eclectic compromise achieved by applying novel ornament,” a solution that Barr at that point deemed “less original” than Frank Lloyd Wright’s work to date. The reception of Saarinen’s eclecticism in popular media exceeded Barr’s palate and increased his awareness of the need to organize a show deploying a different aesthetic. For Barr, the general acceptance of Saarinen ornamented style was a symptom of the “backwardness” of American architecture, which therefore had to be undermined and underrepresented in the first architectural exhibition at the Museum of Modern Art. Ornamentation was a resilient feature and its banishment a matter of class and taste as much as a lesson for the liberal-conservatives “who distrust[ed] the American passion for mere fashionable novelties.” [Fig.012] Negative reactions to the lack of decoration in modern architecture included references to the Eighteenth Amendment of the U.S. Constitution, which prohibited the production, circulation, and consumption of alcohol, and was passed in 1920 but derogated in 1933. The austere aesthetic imposed by the “religion” of engineering was

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21 Projects for aluminum (or metal) houses were quite common in Bauhaus circles by the mid-1920s, as evident in Breuer’s aluminum house (1926), or Siegfried Ebeling’s all-metal constructions for workers. Albert Frey was a Swiss architect who had worked for Le Corbusier in the Villa Savoye. He migrated to the United States in 1930, where he initially collaborated with A. Lawrence Kocher in a series of projects before moving to California in the early 1930s.

22 See The International Competition for a New Administration Building for the Chicago Tribune, MCMXXII, Containing all the Designs Submitted in Response to the Chicago Tribune’s $100,000 Offer Commemorating Its Seventy Fifth Anniversary, June 10, 1922 (Chicago: Chicago Tribune, 1923).

tantamount to the lack of alcohol in the “Jazz-Age” in the early 1930s. For Alfred Barr, on the other hand, the de-ornamentation and austerity of modern architecture had the power to trigger urban order in American cities in the post-Depression years:

The United States was not represented in the Exposition [At the Museum of Modern Art] because its exhibits were not sufficiently modern. We are still suffering from this backwardness—both commercially and architecturally. Only recently has a deluge of ‘modernistic’ decoration from Vienna, Paris, Stockholm, and Amsterdam begun to diminish, but not before our more advanced architects, already stimulated by Saarinen’s success, had accepted the modernistic mode with enthusiasm and ornamented their buildings with zig-zags and chevrons instead of Gothic crockets and Classical modeling. The modernistic style has become merely another way of decorating surfaces. [...] As a result of these forty years of successive and simultaneous architectural fashions the avenues of our greatest cities, our architectural magazines and annual exhibitions are monuments to the capriciousness and uncertainty of our architecture. The present exhibition is an assertion that the confusion of the past forty years, or rather of the past century, may shortly come to an end.

The different positions on modern architecture had stylistic and geographic but also institutional bases. Two years before the MoMA exhibition, the Metropolitan Museum of Art had enjoyed great success with the exhibition “The Architect and the Industrial Arts,” which had presented rooms fully decorated by Eliel Saarinen, Ralph T. Watson, Ely Jacques Khan, and Raymond Hood, among others. [Fig.013] Here a committee of industrialists and manufacturers had offered economic support for an eclectic aesthetic that mixed modern traits with art-deco formal gestures, possibly the ones that Alfred Barr had later referred to as outlandish importations. [Fig.014] Barr, Johnson, and Hitchcock identified this aesthetic simply as “modernistic,” “half-modern” at best, a parody of the new style that led to an unacceptable “apologetic individualism.” Nonetheless, if a conspicuous difference existed between the images and

24 This statement was not insignificant; it was formulated by Ralph T. Walker, future president of the American Institute of Architects in the post-war era. Ralph T. Walker, “Prophets or Isms,” The T-Square Club Journal of Philadelphia, 1: 12 (November 1931): 5.
projects that the two shows presented to the public, the same could certainly not be said of the
dictums, in which the nuances in the definition of modern architecture lay in emphasis on and
the rhetoric of materials. Eliel Saarinen, for instance, advocated for a “logical, simple, and true”
style that focused on construction and avoided decorative inclinations, while Raymond Hood
insisted on the freedom to use new materials and processes so as to avoid contemporary
“contrivances.”27 In tune with Hood’s argument, Barr claimed that the aesthetic principles that
characterized modern architecture could be found in the “nature of modern materials,” though
not with the “dogmatism” evident in European examples. 28 Barr’s pedagogical agenda combined
the English tendency to condemn the inferiority of machine production with a certain
detachment from popular preferences:

The negative or observe aspect of this principle is the elimination of any kind of ornament or
artificial pattern. This lack of ornament is one of the most difficult elements of style for the
layman to accept. Intrinsic there is no reason why ornament should not be used, but modern
ornament, usually crass in design and machine-manufactured, would seem to mar rather than
adorn the clean perfection of surface and proportion. These principles are not as dogmatic as
they must necessarily seem in so brief a discussion.29

The photographs at the Modern Architecture exhibition helped clarify the aesthetic preferences
of the newly created institution and the difference between International Style, with its pure,

27 "The Architect and the Industrial Arts. An Exhibition of Contemporary American Design” (Metropolitan
Museum of Modern Art, 1929), 60; 72. Eliel Saarinen, Ely Jacques Khan, and Raymond Hood, members of the co-
operating committee had a strong influence on the concept and scope of the exhibition as they designed a dining
room (Eliel Saarinen), a rear garden, bath, and dressing room (Ely Jacques Khan), and an apartment house loggia
and business executive office room (Raymond Hood).

28 The relationship between materials and nature as a form of implicit determinism expressed through the
architect’s agency was the topic of a series of articles published by Frank Lloyd Wright in Architectural Record in the
late 1920s, and in which he periodically used the expression “in the nature of materials.” See Frank Lloyd Wright,
“In the Cause of Architecture III-VII: The Meaning of Materials,” Architectural Record, from April to October of
1928. Reprinted in Bruce Brooks Pfeiffer, ed., The Essential Frank Lloyd Wright. Critical Writings on Architecture
(Princeton, Princeton University Press, 2008), 120-150. The second book of Wright’s autobiography also includes
a section entitled “The Nature of Materials,” though here he refers to the accommodation of materials to machine
fabrication as the major difference between his work and Sullivan’s. Frank Lloyd Wright, An Autobiography from

1932), 15.
volumetric, planar principles and its emphasis on regularity and flexibility, and the “half-
modern” or “modernistic decorative style” that used modern features solely for the sake of
aesthetic legitimization. The catalogue accompanying the exhibition echoed Barr’s ambivalence
and yielding attitude to ornamentation. Far from discrediting the non-dogmatic approach to
decoration as Barr’s words suggest, The International Style book championed it, and thus
contributed to the non-prescriptive character of the tenet. Applied decoration was simply one
type of decoration among many others at the disposal of the modern designer and architect. The
difference between applied and intrinsic ornamentation was historical; as canonical examples of
past architectures demonstrated, buildings with aesthetic aspirations were never produced
without some sort of decoration:

[...] for decoration may be considered to include not only applied ornament, but all the
incidental features of design which give interest and variety to the whole. Architecture detail,
which is required as much by modern architecture as by the structure of the past, provides the
decoration of contemporary architecture. Indeed, detail actually required by structure or
symbolic of the underlying structure provided most of the decoration of the purer styles of the
past. 31

The ambiguity of Hitchcock and Johnson’s definition of ornament opened up new material and
formal locations for decoration in modern architecture, ones opposed to those discussed in the
late nineteenth century but in tune with the techno-seductive use of materials, which, as we
have seen above, was already present in the work of architects like Mies van der Rohe. 32 And the

1932), 14-15.
31 Henry-Russell Hitchcock & Philip Johnson, The International Style. Architecture since 1922 (New York:
W. W. Norton & Company, Inc. 1932), 70.
32 The techno-economic and pragmatic tone of Mies van der Rohe’s writings in the mid 1920s reconvened with his
earlier writings on the use of glass in skyscrapers to emphasize material vitalism. “My experiments with a glass
model helped me along the way and I soon recognized that by employing glass, it is not an effect of light and
shadow one want to achieve but a rich interplay of light reflections.” Mies van der Rohe, Frülicht, Vol.1, 4, (1992),
122-124. The article was published with no title though in later editions it was generically entitled “Skyscrapers.” In
the late 1920s and the 1930s, the locus of the cultural Zeitgeist became manifest thanks to the agency of the
architect. Upon his arrival in the United States, he encouraged young architects to concentrate on materials: “We
authors defined ornament in such an ambiguous way in order to fashion an open style for modern architecture decoupled from perennial codes and garments. Three years after the 1929 Wall Street crash, Hitchcock and Johnson relied on modern reflections, patterns, and textures to offer a definition of ornament that was situated midway between industrial standardization and mechanical simplicity and dovetailed with the market’s economic capacity. The removal of applied ornament arrived in the United States, as in the case of the Weimar Republic in the 1920s, at a moment when economic austerity made it highly advisable.

In addition to the machine-polished surfaces and decorations emerging from the serial standard mass-production of architectural materials, there was another legitimate source of modern ornament that Hitchcock and Johnson wished to underscore: the incorporation of sculpture and painting into architecture as exemplified by earlier collaborations between architects and modern artists like Willy Baumeister, Piet Mondrian, and Amédée Ozenfant. These two sources of ornamental expression marked a clear division between the intrinsic and the extrinsic in architecture, that is, between the materially essential and the aesthetically superfluous, in other words, between the ornament provided by the practical arts and that provided by the fine arts or the decorative arts.

34 These references were neither exhibited nor published in any of the books or catalogues associated with the exhibition. Henry-Russell Hitchcock & Philip Johnson, The International Style. Architecture since 1922 (New York: W.W.Norton & Company. Inc.1932), 73.
arts. Both types of decoration, either internal or external, became fields for the modern evolution of ornament: “whether from these two different forms of decoration—architectural detail and related works of painting and sculpture—the contemporary style will in time develop an ornament of its own as did the styles of the past, no one can say.” Johnson and Hitchcock did not demand that ornament be eradicated but rather that it be conceptually transformed and internalized so that it could circulate freely around modern surfaces. They argued that the International Style could set “a high but not impossible standard for decoration” but “better none at all unless it be good.” However, they were also making a class argument that established an economic hierarchy for the use of materials: “The principle [the avoidance of applied decoration] is more aristocratic rather than puritanical.” Whenever superficial continuity was granted, Hitchcock and Johnson made qualitative distinctions; thus terracotta and concrete blocks were “ordinary,” stucco “inferior,” brick aesthetically “less satisfactory,” wood sheathing “admirable,” and finally, natural materials such as stone and marbles “rich” and “luxurious.” What began as total condemnation ended up simply as a defensive and aesthetic open ground for preventing the recurrence of the architectural “monstrosities” of the nineteenth century—the same argument that had circulated within modern discourse, as, for example, in the writings of Louis Sullivan.

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35 Beside these two major sources of ornament development, other, minor “additions” could be reassessed as the place where modernity found glimpses of individual or collective subjectivity: lettering, the use of color, the use of furniture and objects in interior designs, and finally, the use of greenery and environmental features in exteriors. Henry-Russell Hitchcock & Philip Johnson, The International Style. Architecture since 1922 (New York: W.W. Norton & Company. Inc. 1932), 76-77.


Unsurprisingly, right after the show the absence of ornament became more of a rhetorical device than a stylistic feature for the public’s identification of the new aesthetic. There were further critical considerations regarding modern architecture; comments in journals and newspapers understood the celebration of the exhibited European projects’ horizontality as surreptitious criticism of Manhattan’s verticality while pointing out the “accidental” aesthetic value of modern architecture’s functional and economically driven constructions once they were rid of ornamental expression.\textsuperscript{40} [Fig.015] If there was consensus in newspapers and journals it was that the exhibition was “controversial” for an American public that had to choose between ascetics and “super-aesthetes,” that is, between those who religiously saw in functionalism the source of beauty and those who discovered “a style of architecture more chaste and beautiful, elegant and sincere, than the world has ever known”\textsuperscript{41} in the new manner of using new types of materials. Purged of ideological connotations, the new modern architecture exhibited a moral, economic, alien, and snobbish aesthetic superiority that not everyone could share. If the new style could be recognized in its volumetric compositions, standard repetition, and flush façade elements that avoided “arbitrarily applied ornament,” the result would have to be “monotonous” and lack the “inflections and refinements” that a potential modern ornament could provide. Solving the issue of ornamentation in modern architecture entailed overcoming a “Volapük, a fancy or fad,” that is, an artificial homogeneity that did not correspond with American taste in architectural matters.\textsuperscript{42} In addition, the claims of internationalism were phony and not genuine.


Contrary to European narratives that reacted against superficial and quickly perishing fashions, ornament became the structural feature that granted continuity over time; in order to supersede the idea of transient fashion, new modern ornamental forms had to be imposed and recognized as such, as a “décor de la vie.” The exhibition was simply an “aesthetic eye-wash” that could bring some clarity to the “increasing confusion of architectural and decorative tendencies,” despite the “uninspiring” results that the new style was offering by the early 1930s.

The Modern Architecture exhibition traveled around the country for the next three years, enjoying different degrees of success in places like Los Angeles, Philadelphia, Chicago, Milwaukee, Cambridge, Buffalo, and Cleveland. There were also several in-house spin-offs of the original exhibit, such as the one of Midwestern housing, which opened in April 1933. This show was presented in public media as the dismissal of the decorative. The New York Times, for instance, described the curatorial argument of the 1933 show as “shunning” the ornamental. The rejection to which the newspaper referred actually had aesthetic, social, and racial connotations; the removal of superficial ornament that modern architecture had brought about was quickly identified with the clearance of slums to accommodate public housing in places such as Cleveland. Strategies of suppression affected demographic distribution within cities as well as individuals belonging to specific class and race. By the early 1930s, a polarized understanding of the clinical distance from the subjective operated between aesthetic elitism and social disavowal.

41 The expression was used by Colin Rowe in his introduction to the catalogue Five Architects (New York: Museum of Modern Art, 1972), 4.

42 Ralph Flint, “Present Trends in Architecture in Fine Exhibit,” The Art News, New York (February 13, 1932): 5-6. The journalist noted that even Frank Lloyd Wright’s work was beginning “to look overloaded and fussy.”

43 “Architecture Show Shuns the Ornate,” The New York Times (April 11, 1933), 17. The equivalence drawn between the removal of ornament and the removal of slums in the show illustrates the continuity of class struggle, the built environment, and the eradication of the decorative.
To insist on the former, Johnson delivered several lectures to different associations and social groups. In addition, new exhibitions underscored the necessity of incorporating the new aesthetic into every corner of contemporary life, revisiting the early twentieth-century evolution of function in the practical and industrial arts. The simple forms and smooth surfaces achieved by machinery, as well as the way in which modern architects entertained the seductive capacities of industrialization were already producing aesthetic decorative effects and therefore introducing a new grammar of formal operations that circulated on the very surface of materials. Glittering, sparkling reflections in metals and glass—a property requiring electric or natural illumination—as well as relations between different industrial materials in the details, generated the “variety to the whole” that the International Style label espoused. The “Machine Art” exhibition curated by Philip Johnson, which ran from March 6 to April 30, 1934, continued contending that a modern aesthetic was already present in all sorts of scientific objects, industrial utensils, and housewares. The show thus demonstrated that this aesthetic was both available and materially inspirational.

In his preface to the catalogue—the cover of which, coincidentally, was designed by Josef Albers a year after his arrival in the United States—Alfred Barr stated that “machine art, devoid as it should be of surface ornament, must depend upon the sensuous beauty of porcelain, material, enamel, celluloid, glass of all colors, copper, aluminum, brass and steel.” For Barr, embellishment was no longer external to materials but something that lay in their visual appearance and was also intrinsically incorporated into the use of specific modern materials. Barr’s opinions had significant epistemological consequences; with the merging of material and ornament, agency became relocated from the decorator, designer, or architect to the industrial process that physically

46 See the various articles published by Philip Johnson in Shelter in 1933 and 1934.
produced commodities and was in tune with the Constructivist arguments with which he was so familiar. The role of the designer was not to produce external, unrelated decoration, but rather to scientifically embellish and “refine, simplify, and perfect” the use of materials, that is, to embody, encapsulate, and disguise a shared subjectivity in the very external epidermis of industrial products through the allure of precision and objectivity. Thus, machine art was not to respond to figurative needs but to abstract and geometric operations—the type of operations that in modern times were instrumental at the intersection between culture, economy, and industry: “Not only must we bind Frankenstein,” Alfred Barr stated, “but we must make him beautiful.”

The objects exhibited in the show were grouped according to different generic categories that speak of the deep transformations that the practical arts were undergoing as well as the diffusion of industrial design by the mid 1930s in household and office equipment, kitchenware, domestic furnishing and accessories, scientific instruments, and finally laboratory glass and porcelain.

[Fig.018] The exhibition disregarded “purely ornamental objects” in order to avoid unfair comparisons with the functional magnetism that came with the aesthetic understanding of industrial products. From the serial arrangement in the layout of the objects in the exhibition—and the catalogue—to the appearance of these objects as reflective polished steel surfaces beneath the general illumination of the space, the show did indeed have ornamental

aspirations, both formal and superficial. For instance, to guarantee the decorative effect of the objects, some of the pictures in the exhibition catalogue were manually touched up and repainted to eliminate unwanted gloss that could distract from the formal arrangements of items and thus provided a perfect industrial polished shine that could appeal to spectators as a new form of abstract ornamentation. [Fig.019-020] To witness the transition in the appeal and eloquence brought about by industrial production we can observe a motif sequentially reproduced in both Le Corbusier’s *L’Art decorative d’aujourd’hui*, and the 1934 show. From a mere illustration in the architect’s text, the photographic section and arrangement of the plaited steel cables gained resolution and materiality through the aid of artificial light and manual modification in the 1930s. [Fig.021]

The industrial designer, whose increasing participation in product design skyrocketed in the 1930s, legitimated some of the developments in abstract decoration. Designers like Henry Dreyfuss, Norman Bel Geddes, and Raymond Loewy, associated in the 1930s with the ever-present streamline aesthetic, merged two recurring topics in American inventiveness: pragmatic commercialism and the aesthetics of dynamism. A document of the American approach to architecture and design in the mid-1930s is the book *Art and the Machine*, published by Sheldon and Martha Cheney. According to the authors, industrial American design was “rightly determined by and geared to industry as is,” and found in machines the “influence and

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inspiration” of new forms of art that appealed to the “ultimate consumer.” The book identified common grounds between the European avant-garde and the most recent achievements in American architecture and design, and celebrated the future benefits that the abstract use of media by Moholy-Nagy could potentially have for the development of modern design. [Fig.022]

It was also conciliatory when it came to the struggle between handicraft and machine production, proposing the Swedish “middle way” of “simplified ornamentation.” The Scandinavian pattern of industrial production slowly incorporated the knowledge of craftsmanship into machine objects by transferring the laws that governed design rather than the motifs, which thus led to formal simplicity, as well as by using of natural effects in materials, and tending towards abstract ornament. To grant the customer aesthetic satisfaction, the “look” of industrial objects relied on the observer’s heightened subjectivity and enhanced vision. The subordinate role of architect and designer to the final commercial image of production created some unrest and confused identification. As Sigfried Giedion wrote in 1948, “America, even around 1945, still largely regarded the architect as one whose business was to decorate the house, as a confectioner the cake,” and who still had to find new grounds in the age of mechanization. This form of decoration was not the product of an abandoned practice of ornamental craftsmanship but an ornamental form that could be equated with the modern media of production:

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The mass-produced objects, multiplied in such tremendous numbers in the time of full mechanization, all bear the stamp of the industrial designer, his influence on the shaping of public taste is comparable only to that of cinema. The industrial designer does more than trace curves. The studios of the leading design firms, where over a hundred draftsmen are often employed, also undertake market research, reorganizing of stores or factories, as well as the design of buildings. Thus they must be decorative artists, architects, and organizers in one. For them only one consideration counts: the merchandiser, dictator of taste in the United States. This is a source of danger and bondage.  

Decorator, architect, and organizer played expanded roles for postwar creativity in the economic and aesthetic struggle that related “visions” and “looks.” The pedagogical influence of the “Machine Art” exhibition— in accordance with Moholy-Nagy’s New Vision and its sequel Vision in Motion—can be understood along these lines. Far from being a temporary show, the exhibition traveled around the U.S. over the next ten years. It first opened on July 1, 1934 at the Museum of Science and Industry in Chicago, and finally closed on May 27, 1944 at the General Electric Co., in Bridgeport, Connecticut. From this context emerged streamlining, a new aesthetic based on the symbolic combination of machine products and movement; it was its popular and commercial character that subsequent reactions targeted. Machine Art was new and symbolic of coming accelerated patterns of production. It had no traditional decoration since a newly imported rhetoric of bareness had facilitated the rapid production and dissemination of commodities at a moment of national economic hardship. Modern embellishments had to be found in the interplay of light and materials that existed on the surfaces of the built environment. To discuss ornament on qualitative rather than ethical, moral, hygienic, and anthropological grounds marked a significant change in modern rhetoric as well as a theoretical distance between American de-ornamentation and the early twentieth-century dismissals of the

decorative that influenced modern architecture.\(^{60}\) For architects like Loos, the antonym of beauty was not the ugly but shameful, as Aristotle had stated in his Rhetoric.\(^{61}\) In the aftermath of the world conflict, the rejection of ornament had economic leanings, but above all it was about an educated class imposing a specific taste. The opposite of the beautiful was not the ugly, but the outdated.

3.2_ Ornament and Élite.

The elitist modern rejection of ornament found strong counterarguments in indigenous aesthetic traditions and transitional postwar cultural values. However, these arguments were often confusing, responding as they did to the persistent “fad” of modernism, which was as disorienting for the layman as it was for academics. A good example of the friction and misunderstandings among different camps on this matter was an article entitled “In Defense of Ornament,” written in 1946 by the American art historian and pundit of nineteenth-century styles, George Haydn Huntley.\(^{62}\) Published in the College Art Journal, the article placed deornamentation at the center of architectural debate, treating it as a problematic feature—hitherto unsolved—and difficult to assimilate into American modern architecture. According to Huntley’s aesthetic standards and anti-modernist campaign, the overwhelming victory of the factory over the artisan during the industrial revolution had brought “death to folk art and confusion to architecture.”\(^{63}\) The techno-functional context ran parallel to a swap in the aesthetic preferences of the cultural and social elite: the ruling class shifted from an appreciation

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\(^{60}\) Reference here is to the 1924 Werkbund publication, Die Form ohne Ornament.


to a rejection of ornamented objects in the 1930s and ’40s. Huntley, however, perceived the new economic and social conditions after the Second World War as jeopardizing the “status quo,” the rapid proliferation of commodities and their availability to segments of society that had traditionally not enjoyed access to them added a new factor to the equation. Opposed to the academic elite advocating for the abandonment of ornament was “the great mass of the people which, through its immense buying power,” determined “what kind of article will sell and, therefore, will be made in quantity production.” Such historical circumstances prompted new segments of the population to take the lead in matters of taste after the turn in the economic capabilities of industry; ornament had once been expensive in the U.S., but now it was cheap. This argument echoed late nineteenth-century European discussions on the commodification of ornament. Huntley’s argument, however, is relevant in the postwar context for four principal reasons: The first one is biographical. George Haydn Huntley received his B.S, A.M., and Ph.D. in Fine Arts from Harvard University in 1927, 1930, and 1933, respectively; he thus overlapped with Henry-Russell Hitchcock and Philip Johnson. Second, his opinion illustrates American discomfort with the overly rigorous modern rhetoric that cast aside ornament in architecture. Third, as we shall see, Huntley’s polemical article triggered several responses from scholars, artists, and curators such as Edgar Kaufmann, Jr., by then affiliated with the Museum of Modern Art. Finally, Huntley’s arguments were in tune with the social change beneath the realignment of cultural production, distribution, and consumption in the postwar era, increasing weight that “middlebrow” and “lowbrow” tastes had as cultural categories.

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Texts such as Clement Greenberg’s 1939 “Avant-garde and Kitsch,” Dwight Macdonald’s 1944 “A Theory of Popular Culture,” T.S. Elliot’s Notes towards the Definition of Culture, or The Taste Makers, a compilation prepared by Harper’s editor Russell Lynes, attest to the puzzling anxiety caused by the collapse of traditional notions of taste by the mid-twentieth century. Originating in New York’s Marxists and Trotskysts circles, the critique of the non-representational avant-garde of the early twentieth century as the only legitimate position of the artist within capitalism gained authority. The dismissal of traditional folk culture in favor of industrial popular culture counter-argued European positions of the early 1930s that denounced the intellectual and cultural detachment felt by the layman when it came to an appreciation of abstract art. But, if Greenberg and Macdonald’s intellectual arguments were aligned with the political progressive left, then Huntley’s rejection of the elite’s aesthetic insisted on a conservative and nationalistic return to American historical forms. For Huntley, the intellectual groups and art connoisseurs that contributed to MoMA exhibitions—Alfred Barr, Henry-Russell Hitchcock, and Philip Johnson—had not succeeded in “founding a new order, a new tradition sweeping away ornament and the debris of historical styles.” In other words, Hitchcock and Johnson’s presentation of modern architecture in the 1930s was an outlandish fashion that would fade as

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soon as a new economy arose and reconvened with the tradition of modernism in the United States.

Huntley did not easily accept shifts in taste regardless of where they came from; the recuperation of ornament due to the new industrial and social situation had to be channeled by the same institutions that had banished it. Huntley advocated for a reactionary pedagogy that would enhance the sense of taste in manufacturers, producers, and art directors—something that was already taking place in many schools around the country. Taking as an example the British commitment towards the renewal of the arts and crafts after the 1851 Crystal Palace exhibition, Huntley proposed a two-step program that would first, “introduce and promote vigorously (...) the doctrine that well-made things of the best materials are both more elegant and cheaper in the long run than inferior goods of ephemeral vogue,” and second, force the “elite” to accept the fact that ornament was necessary, and therefore “to set standards for ornament by example and by education.”

The argument of an elite that imposes taste on society in modern democracies was common, as the aforementioned book by T.S. Elliot makes clear, and ran parallel to efforts in other fields such as the economic or social sciences to express power distribution shifts in the postwar era. The increasing atomization of taste—understood not as a socially and culturally codified construct but as an individual expression of personal choice and subjectivity—multiplied the forms and styles from which modern architecture could draw inspiration. Himself a member of the academic elite, Huntley tried to save ornament from

artistic ostracism with the help of older aesthetic definitions: “good ornament is good art.”\textsuperscript{73} The art Huntley had in mind lay not in photography and film as catalysts of cultural, social, and political evolution, as Walter Benjamin, on the one hand, and Theodor Adorno and Marx Horkheimer, on the other, had claimed, but rather in painting, sculpture, and the fine arts.

If the seeming rejection of ornament by the promoters of the \textit{International Style} was due to ornament’s inability to respond effectively to machine production, a complete reappraisal did, in fact, take place—one in which language and industrial rhetoric played a key role. Alfred Barr, for example, claimed that ornament was inappropriate for machine-produced objects, though he did note the efforts made by modern artists such as Fernand Léger and Willi Baumeister to understand and develop “the decorative and formal qualities of machines.”\textsuperscript{74} His argument resonated with Frank Lloyd Wright’s defense of machine-made ornament, which had led to the manufacture of the ubiquitous textile blocks of the 1920s. Regardless of Wright’s ornamental motifs, Johnson saw the machine as implying “precision, simplicity, smoothness, reproducibility: plain textiles, vases as simple as laboratory beakers, smooth polished metal work.”\textsuperscript{75} Material reproducibility performed as the \textit{ennui} of industrial production. For Huntley, Barr and Johnson’s tendentious and reductive reading of machinery had led modern architects to misconceptions about industry that disregarded the instrumental potential of machines in the production of ornament. Despite his analysis of modern technology and industrial capabilities, he was pessimistic over the possibility that a doctrine of ornament would emerge from the modern mode of production. Furthermore, he did not envisage any future development in


\textsuperscript{74} Alfred Barr, “Foreword,” \textit{Machine Art} (New York: Museum of Modern Art, 1934), 3-4. The catalogue has no page numbers, so the page numbers here match those of the pages in the particular article.

ornament that would be in tune with the ontological understanding of the machine in its relation to new media of reproduction. Hitherto, Huntley simply responded in the affirmative—but inattentively—to the axiom that “no ornament” was a “negative principle,” and thus disregarded the constructive aspect of any aesthetic theory based on the postwar recalibration of new art forms that overturned the mode of production and its aesthetic reception. The emphasis on the restoration of ornament had to be placed somewhere else; the fundamental fact for Huntley was that despite ornament’s departure from meaningful communication, it survived modern contempt due to its necessity. Therefore, a good ornament for the future had to reclaim an enthusiasm as contagious as that which primitive people had towards spontaneously generated symbolism. Hope was placed in recapturing ornament’s ability to express meaning, a task that not only involved design skills but also the recognition of and familiarity with the symbols depicted. This endeavor appears as the most difficult since communication is unconceivable without actual social correspondence between symbol and meaning—in other words, between signifier and signified.

Efforts to join technology, psychology, and semiotics were already taking place in postwar culture and promoting the redefinition of ornament with eager partisanship. For this to be achieved, stylistic dogmatism had to be replaced by a consumerist, environmental, and expansive idea of taste. Aesthetic agreement left space for individual freedom and choice. Huntley’s conservatism regarding the acceptance of European modern architecture echoed the uncoupling of taste and social class in the new social conditions that emerged after World War

II. Changes in consumers’ preferences, for instance, grew rapidly after the introduction of Public Relations departments in large corporations; publicity campaigns by companies such as Pepsi-Cola, the United Brewers Foundation, and Container Corporation of America, which used artists and industrial designers to increase their products’ appeal, contributed to that change. 79 [Fig. 023] Business culture was transformed by the increasing relevance of polls, surveys, and public opinion studies to decision-making. The industrial designer was increasingly dictating the built environment, and magazines such as Harper’s, Time, the New Yorker, and the Atlantic increasingly took the lead in fomenting specific lifestyle choices. An affluent population eager to differentiate itself and its households rejected modernism in its European housing form. Words such as “character,” “personality,” “ambiance,” and “atmosphere” flooded a rhetoric directed towards new suburbanites with women-oriented magazines such as House Beautiful, Ladies’ Home Journal, and Good Housekeeping, bombarding them with ideas of impermanence and the makeshift. The idea of an austere, “flat-chested” functionalist style, as Frank Lloyd Wright apparently described it, enticed neither the generation of Americans enjoying financial success after the Second World War, nor its “tastemakers.” 80 The acceleration in fashion, trends, and fads generated by television, radio, and an increasingly large market of specialized journals and magazines made postwar American population as homogenous in appearance as heterogeneous in spirit. Or thus it was perceived. As art historian Russell Lynes observed, the new cultural landscape made a “highly mobile suburban population take their tastes with them, rub them

79 In 1944, Pepsi-Cola sponsored “Artists for Victory” in partnership with the Metropolitan Museum of Art, an exhibition that turned out to be a major publicity campaign. The same pattern of business behavior, which celebrated abstract painters and modernists aesthetics, appeared in The Container Corporation of America’s publicity campaigns that involved collaborations with Moholy-Nagy, Gyorgy Kepes, and Herbert Bayer.

80 I have not been able to locate the context in which Wright referred to International Style architects as “flat-chested” modernists. The phrase appears in writings referencing Johnson, as in Robert Stern’s introduction to Johnson’s review of Wright’s work; Robert Stern, “The Frontiersman,” Philip Johnson. Writings (New York: Oxford University Press, 1979), 188. See also Russell Lynes, The Tastemakers (New York: Harper and Brothers, 1954), 244.
against new friends and absorb new tastes at the same time that they are depositing their old
ones in the new community.” The discussion on ornament was necessary but unimportant in
the overall construction of taste.

Within this cultural, social, and economic state of affairs, figurative sculptor Wallace
Rosenbauer and art critic and curator Edgar Kaufmann Jr. took sides in the mid-century
controversy on ornament. Rosenbauer remarked that there was no such thing as “good
ornament,” and thus the skills required to produce it were pedagogically negligible. Ornament
was not a separate function but an intrinsic procedure triggered by a “desire for both
embellishment and heightened intensity of meaning” in an already legitimate form. “Ornamentation [was] a natural outgrowth of a developing style,” and as such, it remained
significant only as long as it was dynamically interrelated with the culture to which it belonged,
that is, as a signifier of national historic, cultural, and economic conditions. For Rosenbauer,
ornament was impervious to importation and ill suited for quick geographic transferences that
the global economy demanded. Ornament had thus to be eradicated from pedagogical
institutions since their aim was to train artists to design objects that might be ornamented rather
than an ornament itself, based on the understanding of the latter as a broader category deeply
rooted in a dynamic system determined by the surrounding cultural and communicative milieus.
A lack of ornament facilitated production and distribution, but not consumption for Rosenbauer
perceived adornment as an indispensable human need and therefore as something that could
never be totally abolished from economy’s global expansion. All the same, “a temporary and
necessary revolutionary expedient” that placed a hold on ornament was highly advisable for the

production of fine mass-produced design in the future. Rosenbauer’s argument echoed a statement made fifty-four years earlier by Louis Sullivan and one that kept recurring in architectural theory:

> It would be greatly for our aesthetic good if we should refrain entirely from the use of ornament for a period of years, in order that our thought might concentrate upon the production of buildings well formed and comely in the nude. 

In contrast to Sullivan’s idea of bare architecture, Rosenbauer’s argument had a clear economic bias; the final aim of good design was to catapult sales thanks to a tacit agreement—euphemistically labeled as “taste”—between producer and consumer in the impending postwar “Consumer’s Republic.” Economic profit would be achieved through the proper understanding of machines as tools, “finer than anything known before” and able to “produce ornament willed by the designer as naturally as did the handtools of the artist craftsman.” In this fashion, “the public will buy it as the good things of the past were bought by that public, and greater numbers will be economically able to do so. This is the real manner in which the machine may raise our standard of living.” Ornament and surplus value went hand in hand with a financial twist that relied on the exploitation of machines as the basis of future developments in ornament within American democracy.

Equally preoccupied with market sales due to his social and economic status, Edgar Kaufmann Jr. remained suspicious of holistic readings of the meaning of ornament. Kaufmann Jr., son of

the businessman and architecture-patron Edgar Kaufmann, attended the *School for the Arts and Crafts* at the *Austrian Museum of Applied Art* in Vienna—the same institution in which Alois Riegl had developed his professional and academic career. Kaufman had worked for Frank Lloyd Wright in Taliesin in 1934, and had been responsible for convincing his father to commission Wright to design *Fallingwater* near Pittsburgh in 1936. Ten years later, the young Kaufmann became director of the *Industrial Design Department* at the Museum of Modern Art in New York, a position he held until it merged with the *Architectural Department* in 1948. The arrival of Kaufmann Jr. at the Museum of Modern Art meant a shift in the institution’s agenda towards decorative qualities in industrial design, a shift that provoked some dispute and friction with Philip Johnson. Alfred Barr’s protégé Kaufmann Jr. wrote his response to George Haydn Huntley in the next issue of the *College Art Journal*. The title of his essay—“Modern Design does not Need Ornament”—was certainly misleading; his indulgent attitude towards ornament, which he viewed as a source of “daily enjoyment,” often “rooted in peculiarities of materials and processes” came to the fore. For Kaufmann, modern design combined scientific mindsets (design as problem-solving), utilitarian romanticism (the most useful and necessary form is also the most beautiful), and political arguments (mass-produced objects as a source of social improvement for large segments of the population), to become a valid epistemological basis in which postwar design could be rooted. Although Kaufmann Jr. did advocate for continuity in modern architecture, his concern over the lack of expression in the International

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88 In 1946, another renowned architect, Richard Neutra, finished the Desert House for the same client in Palm Springs.


Style was hardly concealed. Although his family fortune lay in successful commerce, he surprisingly rejected easily marketable objects, claiming that deceptive objects and design in the rise of consumerism were manifest in surrogates such as Chippendale products (caricatures of handcraft), the “shallow tricks” of streamlining, and the whimsical appropriation of abstract art—e.g., Mondrian, Gris, and Matisse. In order to counteract the unrestrainable tendencies of the average postwar consumer, “considerable work on the psychological impact of design in daily life and considerable discussion on the expressive qualities available in the materials and process natural to mass fabrication” had to take place. Ornament could thus be redefined as the inevitable expressive result of the mastery of the new means of production in the postwar era:

“Ornament in the sense of applied pattern is dead; ornament in the sense of expressive emphasis is a permanent element of design.” In this sense, Edgar Kaufmann Jr.’s view did not depart far from the original assumptions of the authors of *The International Style.*

Kaufmann Jr.’s article was published few months before the symposium organized by the Museum of Modern Art under the title “Industrial Design: a New Profession,” which counted among its participants Moholy-Nagy and Joseph Hudnut. During it, the discussion centered on the “average taste” of consumers as the determining factor of the “symbolic” content that made industrial design products marketable. Kaufmann Jr. saw the “dramatization” of the symbolic response to customers’ preferences as nothing less than a revival of old ornamental practices. To avoid stylistic responses drawn from customer surveys, Moholy-Nagy defended the idea of training future industrial designers in the manipulation of materials, regardless of their

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To Moholy-Nagy, the idea of object obsolescence was an “artificial” imposition by spurious economic interests, though in the long term a skillful “gamut” of formal and visual training was more beneficial for design culture. By contrast, other participants at the symposium understood that expendability was a response to an “accelerated” renewal of the material environment that clients were constantly demanding. The problem was educational. If Moholy-Nagy defended his basic design training as a way of fostering student’s abstract creativity, Kaufmann Jr. criticized the kind of olfactory, tactile, and visual experience that students acquired in Moholy-Nagy’s curriculum as not being academic enough and therefore, ill-suited for college education.

3.3 _Neue Gemütlichkeit_

Given the new cultural and economic context after the war, the fact that the Museum of Modern Art in New York was among the first institutions to open fire at the idea of modern architecture as an ossified style should not come as a surprise to anyone. Once the “International Style” formula for exhibiting, canonizing, and popularizing modern architecture lost steam and relevance, a revision was peremptory. Postwar expectations of affluence after years of constraint as well as corporate eagerness for economic profit changed habits of consumption. The machinery of production and dissemination but also of renewal was part of the museum’s agenda in its path to becoming a world referent in matters of institutional aesthetics. The symposium organized at the museum in February 1948 under the rubric “What is Happening to

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Modern Architecture?” followed the logic of renewal and attracted great attention from architects, historians, and critics of the time. The symposium had as front matter an article published by Lewis Mumford in the New Yorker entitled “Skyline: Status Quo.” In it, Mumford celebrated the halt in significant skyscraper building in New York during the previous fifteen years as a return to construction on a more human scale. [Fig.024] Furthermore, modern comfort in residential spaces proclaimed the demise of “chilly and bleak” surfaces thanks to “contrasting colors and textures.” Detecting trends towards symbolism and material exuberance in his contemporaries—chiefly in Henry Russell-Hitchcock, who had published In the Nature of Materials six years earlier, as well as Sigfried Giedion’s late 1930s article on luxury—Mumford forecasted a “natural reaction against an abstract and sterile modernism” that had rejected historical “graceful stereotypes.” Architects practicing in San Francisco in the so-called Bay Region style—one that permitted regional modifications and variations—exemplified the new attitude to materials, history, and context advocated by Mumford. According to him, this style was a blend of Oriental and Occidental architectural traditions and therefore “far more truly a universal style than the so-called international style of the 1930s.” The path towards global internationalism required the fusion of different trends and tastes, a fusion that was channeled and fostered by cultural institutions.

Participants in the symposium included among others Walter Gropius, Frederick (Fritz) Gutheim, Alfred Barr, Henry-Russell Hitchcock, Philip Johnson, Marcel Breuer, Peter Blake, Eero Saarinen, George Nelson, Serge Chermayeff, and Edgar Kaufmann Jr. The debate was polarized by two factions: the first constituted by the aforementioned “originators” of modern

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architecture as a style—Philip Johnson and Henri-Russell Hitchcock—who by then were promoting a revision of the term and its contemporary meaning; the second by the camp that still rejected all labels and refused to speak about modern architecture in terms of “isms.” Among the latter were architects and critics of European origin such as Walter Gropius, Marcel Breuer, Peter Blake, and Eero Saarinen. In the background we hear the “denial” that architecture as an art that could easily accommodate popular or democratic tastes in the “cold, mechanical, utilitarianism” version represented by European modernism on the one hand, and the “menace” that the use of the word style entailed to individual freedom on the other.\(^98\)

According to Mumford, the domestication of the International Style would arrive through a \textit{Neue Gemütlichkeit} — a new coziness—consonant with the change in the use of materials. Wood, for instance, could respond to the inclination of a younger generation “to play with the ‘feelings’ of elements in design,” that is, with color and textures.\(^99\) Hitchcock saw this “new coziness” as having Scandinavian origins.\(^100\) The debate took the form of a trial and included sharp attacks on “the leader of the mechanical rigorists,” Sigfried Giedion, who did not attend the symposium, and on the potential evolution or expiration of modern architecture. Some defended their own past accomplishments in order to keep them alive and safe from the ossification of historical styles. Henry Russell Hitchcock congratulated himself on providing “emergency exits” for the problem of architectural expression in his 1932 book.\(^101\) But as his afterword to the 1950 revised


\(^{100}\) See Henry-Russell Hitchcock and Arthur Drexler eds., \textit{Built in USA: Post-War Architecture} (New York, The Museum of Modern Art, 1952), 14. By Scandinavian origins he meant Swedish Empiricism, widely promoted in the 1940s in magazines such as \textit{Architectural Review}.

edition of *International Style* (discussed below), demonstrates, these emergency exits were insufficient in the postwar context. According to Walter Gropius, for instance, the word style entailed “narrow limitations” that could jeopardize individual, regional, or national expression. Departing from a constrained notion of functionalism, Gropius advocated for addressing architectural design in a “subtle” manner, making it “more palatable to the people.”

To achieve this, the old Kandinsky formula—“Let’s not say ‘either/or,’ any more but ‘and’; let’s not exclude anything but include everything”—was brought to the fore by Gropius in order to expand the possibilities of adaptation in an increasingly commoditized society. This sentence was to resonate among members of the audience as a revision of old tropes and indictments in modern architecture; everybody—particularly Philip Johnson and Henry Russell-Hitchcock—seemed aware that one of the heaviest ballasts that had to be dropped for the modern movement to succeed was a linguistic assessment of ornament. Historian, author, and urban planner Frederick Gutheim emphasized the difficult relations between fact and language in any assessment of architecture while recognizing that words were responsible for the materialization of style. The functionalism that Gropius championed entailed the “embracement” of psychological problems as channeled by material expression. By the late 1940s, materials were masking the “unthinking uncritical acceptance of things” in the international context,

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103 “The language of the critic is important because only through language can we can understand what architecture has done, is doing and may do for us. But the same words do not mean the same things. You have heard tonight, for example, a group of speakers all of whom are saying the same things in different words, and I’m sure you could have heard a group of speakers, all of whom would be saying the same thing but meaning different things.” Frederick Gutheim, “What is Happening to Modern Architecture?” *The Bulletin of the Museum of Modern Art* 15: 3 (Spring, 1948): 14.

rendering identical buildings from Rio de Janeiro to London to New York. The problem was not internationalization but re-nationalization.

Marcel Breuer adopted a far more apologetic and emphatic tone: “If International Style is considered identical with mechanical and impersonal rigorism, down with International Style!” Paraphrasing Mumford’s article, he stated that Sullivan had neither eaten “his functionalism as hot as he cooked it,” nor had Le Corbusier built “his machine for living.” “Human” and its substantive, “humanism,” was inherently embedded in postwar modern architecture as a consequence of the playful use of “materials, details and construction.” By the humanism of materials Breuer meant the architect’s greater agency in and contribution to the final design of industrial elements. For Breuer “the crystallic quality of an unbroken white, flat slab, […] together with and in contrast to the rough texture-y quality of natural wood or broken stone,” that is, the surface qualities of architecture in relation to its production, were the source of the humanist concept of architecture—an architecture that was no longer about abstract space but rather about the environmental and psychological impact of the treatment of materials. The texture that Breuer advocated was not sufficiently abstract, mathematical, and prescriptive. Peter Blake, soon to edit Marcel Breuer’s work, complained of contextualism, regionalism, and organicism in construction: “I think that those who are going in for the new holy trinity of

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fieldstone, flagstone, and the kidney shape, are delaying that Industrial Revolution in building.”

Few references were made to the psychological gap between subjects and buildings. Gerhard Kallmann, a German-born, English-educated émigré and future winner of the Boston City Hall competition, hinted at it by proposing “detail, interesting surface patterning, [and] landscaping to meet the legitimate demands for richness, intricacy, dignity, which were often left unsatisfied by the over-schematic and blatant solutions in earlier phases of modern architecture.”

To illustrate his point, he described the newly constructed Zurich University Hospital by the Swiss firm Haefeli Moser Steiger, while encouraging the audience to follow the works of Alvar Aalto and Frank Lloyd Wright (rather than Le Corbusier and his South American disciples, namely Lucio Costa and Oscar Niemeyer) to achieve a truly vital “expressive architecture.”

The message was not to adhere to a specific group, tendency, or movement, but to emulate individual grammars and idioms, taking individual architects as models. Kallmann voiced the same statements on American soil that he had made ten years prior in the London magazine *Focus*, in which he had identified abstract textures and colors as the locus at which sight and touch could merge in order to respond to issues of scale and proportion—l’échelle humaine. The main task of the architect was “to create a vessel to hold the emotional content of our times.”

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108 Gerhard Kallmann, “What is Happening to Modern Architecture?” *The Bulletin of the Museum of Modern Art* 15: 3 (Spring, 1948): 17. Some of these references resonate in Loos’ separation of exteriority and interiority in architecture. Among them stood Mumford’s anecdote about his informal chat with a psychologist whom he had shown some examples of modern architecture: “This is very interesting architecture. It is completely extroverted. I can imagine a great many of my patients being happy in these homes. But what are you going to do for the man who has an inner life, who wants to close himself away from the world? Don’t the architects recognize that this is also an attribute of the human personality?” Lewis Mumford, “What is Happening to Modern Architecture?” *The Bulletin of the Museum of Modern Art* 15: 3 (Spring, 1948): 19.

109 Due to his Communist affiliations, Oscar Niemeyer had recently been denied entrance into the United States to deliver a lecture at Yale.
other words, he presented architecture as the material container and envelope of man’s emotions. The relationship that Kallmann drew between patterns and human scale echoed the later writings of Eliel Saarinen, who, when defining “organic design” in the 1940s as the continuity found in the patterns of nature between “the smallest particles of atomic life up to the most gigantic nebulae,” argued for simplicity in ornamental forms that had evolved from the local means and materials. Ornament, in other words, was simply a “mediator” between lines, colors, and materials that produced light, shadow, and rhythms. For Saarinen, ornament was the source of “wealth” as well as a “good advertisement,” stemming as it did from national and regional values, i.e., from folk traditions.

In the same magazine in which Kallman’s article appeared, Sigfried Giedion made the argument that modern architecture was linked to luxury—what Mumford had claimed when closing the event at MoMA. In 1939, Giedion had warned against the “flippancy” of material surrogates through the example of the imaginative use of materials. [Fig.025] For both Giedion and Mumford, Frank Lloyd Wright’s skillful combinations of materials in the great hall of the Johnson Wax Company was the right direction to follow. In Wright’s building, matter and light had vibrated to achieve an aesthetic and gratuitous magic that triggered a set of biological metaphors and historical references in Giedion’s work:

From a dark entrance, we arrive in a big hall consisting of mushroom pillars. All the engineers

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112 “…the need for Luxury and the wish to impress. These needs occur in every civilization and our own is no exception. If this is not sufficiently considered, the public avenges itself by turning away and taking refuge in a substitute.” Sigfried Giedion, “The Dangers and Advantages of Luxury,” Focus 3 (Spring 1939): 34-39.
have shaken their heads over those pillars which taper towards their bases, fitted into steel shoes. At the top there are wide-spreading circular dishes, which seem to float like leaves of the Victoria Regia among tubes of heat-resisting (Pyrex) glass. The pillars carry nothing but the air above them. This glass is only manufactured in small lengths, and it is very difficult to fix. But it does not discolour, and that is what Wright wanted. The pillars are a luxury, and so is the special glass […] The light that shimmers through the tubes is of a marvelous quality. The impression of the hall is magic. We look up into the light, like fish from the bottom of a pond, and the plates seem to swim in the flowing glass. The hall is the boldest and most overwhelming thing that has been conceived in the architectural imagination for a long time. This apparent pointlessness irritates many people—one could have spanned the whole space with a single truss. But the magic effect would have been lost. […] Luxury does not simply mean waste of material, but only makes sense when it broadens emotional experience by means of new discovery.\footnote{Sigfried Giedion, “The Dangers and Advantages of Luxury,” \textit{Focus} 3 (Spring 1939): 38.}

The mesmerizing combination of matter and light, an inexpensive luxury, led towards “magical” expressions in architecture and modern exuberance. The surprise generated by the unexpected in architecture depended on the performance of its materials. The final skin of buildings promised a long delayed field of visual and intellectual associations. Lewis Mumford paraphrased Giedion’s words a decade later in his closing remarks at the MoMA symposium, confirming architecture’s evolution thanks to the profound renovation of its material and biological wardrobe:

I don’t think that anything more serious is happening to modern architecture at the present moment than that it is growing up. You do not expect an adolescent to wear the same clothes as he did in babyhood. There will be a time when even whiskers may be appropriate.\footnote{Lewis Mumford, “What is Happening to Modern Architecture?” \textit{The Bulletin of the Museum of Modern Art}, 15: 3 (Spring, 1948): 18.}

If modern architecture was maturing, or better, aging, new material garments promised a seamless update of its apparel in the context of postwar affluence. Sartorial metaphors permeated postwar debates. Edgar Kaufmann Jr. for instance, expressed his concerns on the revival of ornament in an article that he published right after the MoMA symposium by referring
to it as a matter of regalia and dressing codes.\textsuperscript{115} [Fig.026] Kaufmann distinguished between modern architecture—a generic, flexible, and indeterminate category—and the International Style, which he described simply as a tasteful episode in modernity. Rescuing modern architecture from the ossification of a style required a redefinition of ornament in the postwar era.\textsuperscript{116} In his quest to find new ornamental expressions, Kaufmann expanded the definition of modern architecture to encompass four schools or styles, which he exemplified in his article in four buildings, three domestic, one industrial: Frank Lloyd Wright’s Avery Coonly House, Antoni Gaudí’s Casa Batlló, William Wilson Wurster’s Robert C. Green House, and Walter Gropius’s Fagus Factory. For Kaufmann, there was an artificial struggle in contemporary American architecture between the last two that needed to be overcome. Wright and Gaudí’s imaginative solutions, he suggested, offered a possible path to follow. Fashion came afterwards.

Speaking about context, function, and performance that had to be conveniently modulated, Kaufmann observed:

\begin{quote}
In dress we do not hesitate to adopt quite often different gear for formal occasions and business and for New York or Philadelphia. We expect appropriateness first and then are pleased if quality and beauty are super-added. Indeed, I see a very great danger in stressing the opposition between these architectural tastes for, hardened against an enemy, the International Style leads to arid formalism while the cottage style quickly degenerates into sloppy shanties.\textsuperscript{117}
\end{quote}

If the question of modern ornament laid claim to an intellectual space in the postwar architectural debate in the United States, it did so at the intersection of differing interpretations of modern architecture’s legacy and genealogies. The lack of vitality, social acceptance, and

\textsuperscript{115} The symposium had Lewis Mumford as chairman, and Alfred Barr, Henry-Russell Hitchcock, Walter Gropius, Marcel Breuer, George Nelson, Peter Blake, and Carl Koch, among others, as speakers. Source: “What is Happening to Modern Architecture?” The Bulletin of the Museum of the Modern Art 15: 3 (Spring, 1948): 4–20


consensus on modern architecture in America found in the reemergence of ornamental features the proper alibi for fostering the redefinition of its materials, dresses, and codes. It also made explicit the unfamiliarity and lack of clarity among certain modern architects when it came to issues of decoration, and its oscillation between the substantial and the superfluous. In 1950, for example, Marcel Breuer made an economic and anthropological argument that related new modalities of subject-object empathy to the necessary transference of biological to material substance.

Many feel that ornamentation provides the soul, humanity, comfort and confidence in the building. This ornamentation may move from pure decoration, through applied arts, to pure art, within the framework of architecture. As for the decorative wing of this concept, we may simply say we have no time for decoration. Although I believe that décor problems exist … architectural decoration is apparently eliminated because in this fast moving and complicated life we tend to clarify the details and not to complicate them. […] “décor”…probably reflects a human instinct to hide oneself, or to dissolve one’s own personality, one’s own physical image in a vacillating background. It is probably an instinct to fuse one’s otherwise too exposed person with this background. 118

Ornament was not a mere expression of subjectivity but, on the contrary, a mask controlling over-exposure once a subject’s presence was reduced to a simple “image” of the urban environment. Ornament was a social and cultural shield used to distance and integrate subjects in postwar societies, but above all, a mirror; ornament was a mask hiding the dissolution of the subject in postwar societies, integrating it into the background as simply another object in the visual landscape. It was also a weak recording device for postwar subjectivity; subject and object “fuse” thanks to the reification of biological presence in the patterns of everyday life. To that end, a new materiality had to confront the modern anxieties of the postwar subject:

The instinct for décor expresses itself differently today: the texture of materials, a broader and more architectural use of color, the effects of changing light, with an infinitely more conscious use of artificial and day light […] All this provides a vibration of background, more fertile, more personal, and in any case more contemporary than applied decoration. It seems that decorations

as such, (mechanically repetitive forms), belong to the sooner passing, quicker changing domains of our milieu—the domains of fashion, textiles, clothing, or things which are changed every one or two years. 119

Nothing was less accurate than Marcel Breuer’s predictions about the changing fad; the mechanical repetition and variation of material forms was to become the space occupied by modern ornament in the 1950s—in his own architecture as well.

3.4 _New Sybarites: A Question of Taste_

“Today,” stated Henry-Russell Hitchcock on the occasion of the twentieth anniversary of the events that led to the publication of _The International Style_, “I should certainly add articulation of structure, probably making it the third principle; and I would also omit the reference to ornament, which is a matter of taste rather than principle.”120 The omission Hitchcock referred to began circulating in MoMA’s documents by the mid 1940s. Writing for the catalogue of the exhibition “Built in USA, 1932-1944,” editor and curator of the show Elizabeth Mock, sister of Catherine Bauer, erroneously recalled the three principles announced by Johnson and Hitchcock as volume, regularity, and flexibility.121 She also added a non-existent fourth tenet, technical perfection, which aimed to supersede former applied ornament. Saluting the rejection of large panes of glass by average Americans due to excessive light and glare, she encouraged American architects to follow the example of their Brazilian peers and reject theoretical dogmatism.122

[Fig.027] By 1952, the second installment of the exhibition “Built in USA: Post-War Architecture” once again enrolled Johnson and Hitchcock, who, along with Arthur Drexler,

were set in charge of “proclaiming” the second “flowering” of American architecture once the International Style had “ripened, spread and been absorbed” in what Hitchcock labeled as late modernism.\(^{123}\) Renewed interest in building enclosures and materials necessarily resuscitated a form of language that had been equally banished from architectural discourse:

Modern architectural criticism has tended to eschew many terms favored in the immediately preceding generations because of the unhappy connotations such words acquired. Beauty, character, grace, and elegance have found little favor as terms of praise with a generation seeking extra-aesthetic sanctions for an architectural revolution. A generation sybaritic in many other ways was content to house its activities, as it were, in architectural blue jeans...To boast of the high cost of anything—the first boast of the contemporary film producer—was for architects in the worst of taste.\(^{124}\)

The postwar sybaritic generation of architects that Hitchcock was referring to needed distinctive clothes, further elaborated tastes, and a renewed vocabulary. Among the members of that generation of critics, Kaufmann further expanded on his position regarding the industrial-material continuum in *What is Modern Design?*, a book he wrote in 1951 within the orbit of a larger program sponsored by the Museum of Modern Art entitled “Good Design” that was curated by Kaufmann himself with exhibition designs by Ray and Charles Eames, among others.\(^{125}\) Mixing nineteenth- and twentieth-century theories of art and architecture, he proposed twelve precepts that enumerated and summarized the qualities that modern objects should possess. Modern design had to fulfill practical needs, express the spirit of our times, benefit from contemporary advances in the fine arts and pure sciences, take advantage of new materials and techniques, develop forms, textures, and colors that arise from the direct fulfillment of requirements in appropriate materials and techniques, be honest, express the

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qualities and beauties of the materials used, never cheat when it comes to the methods used to produce objects, blend the expression of utility, material, and process into a visually satisfactory whole, be simple, make evident the object’s structure in its appearance and avoid extraneous enrichment, exercise the mastery of the machine for the service of man, and finally, serve as wide a public as possible while taking into consideration modest needs and limited cost.  

Significantly, despite precepts seven and ten, the avoidance of ornament was not included, and the expression of the visual aspects of materials such as texture was emphasized above others such as function. Modern design was the “democratic” response to the needs of a new postwar subject: “modern design is intended to implement the lives of free individuals.” To describe contemporary design as an implementation of the existing consumer rather than as the fundamental consequence of modernization speaks of the inessential consideration of the objects that were exhibited. [Fig.028] In order to determine what was “Good Design,” the designer—a figure acting as the cultural antenna of economic profit—needed only to be aware of the artistic values around him and act accordingly by using available materials and technologies to generate integrity, clarity, and harmony. The catalogue was thoroughly illustrated with all sorts of chairs, sheer and printed textiles, “fantastic” glass forms, and ceiling lamps, some of which appeared to be decorated. Intrinsic beauty, a much-recommended goal in design was achieved according to “man’s perception of nature, where form and efficiency are one.”

Anxiety over the use of ornament in modern architecture was gaining momentum. Three years after the pedagogical and prescriptive “Good Design” program yet another symposium organized at MoMA on November 4 1953 under the rubric “Is Good Ornament Good Design?” brought together a multidisciplinary panel of experts.¹²⁹ Philosopher and Professor Suzanne K. Langer thought that a return to ornamentation could be justified once a strong sense of form had been achieved; designer Paul Mayer held architecture responsible for illuminating the path to new forms of ornamentation; and Professor Eva Zeisel pointed to the broad use of textures in architecture as the direction to follow. “Era of Ornamentation Termed Again With Us,” or “Place SOS Call for Changes in Ornamentation Era” figured among the media headlines to inform the public of the event while following the eagerness of the panelists towards new forms of decoration.¹³⁰ Edgar Kaufmann Jr., however, tamed expectations through a redefinition that would satisfy the “thirst for ornamentation” as experienced by postwar design and architecture without restoring banal and tasteless forms of representation.¹³¹ At the time of the symposium, Suzanne Langer had just published Feeling and Form—the sequel to her Philosophy in a New Key—in which she argued for the relational use of plastic images as generators of ideas and symbols. Influenced by Ernst Cassirer’s work on symbolic form and related to Herbert Read’s synthetic power of images, Langer’s book identified the symbolic formal constructions that arise from circulating images within a given community as responsible for cultural and anthropological unity and continuity. On the hierarchical scale, Langer located architecture within the “ethnic

domain” in which the “scenes” of paintings and the “kinetic volumes” of sculpture could find continuity. By ethnic domain—or virtual space—Langer meant the capacity of architects to construct spatial illusions and fantastic atmospheres in order to create the “image” of functional patterns and rhythmic forms that affected a given culture. Inspired by Moholy-Nagy’s interpenetrations of spatial divisions, Langer’s anti-materialist theory saw the illusion-image created by architecture as emanating organically from the internal position of the subject in society: “architecture proceeds from the inside to the outside of the building, so that the façade is never a thing separately conceived, but, like the skin or carapace of a living creature, is the outer limit of a vital system, its protection against the world and at the same time its point of contact and interaction with the world.” In this material surface, cultural and abstract motifs—such as circles, triangles, spirals, or parallel lines—contributed to the formation of the virtual space or ethnic domain in culture by making change and organic growth “perceivable” or “imaginable.” Langer did not offer a definition of ornament and decoration but rather of their effects: “to make the surface, somehow, more visible.” The decoration of buildings spoke about the seamless interdependence of subjects, culture, and nature. The feeling for forms was an organic construct in which every layer of image formation spoke of a shared subjectivity.

3.5_Something Rides Again: Curtains and Screens

In September 1957, the Australian modernist architect Robin Boyd signed an article in *Architectural Record* that would resonate in editorials to come.\(^{135}\) A close friend of Walter Gropius and harboring family ties to the cultural and social aristocracy of Australia, Boyd had been invited to teach at the Massachusetts Institute of Technology in 1956. [Fig.030] Boyd’s article, entitled “Decoration Rides Again” was triggered by a touring exhibition on the work of Louis Sullivan (to which I shall return in the following chapter)—a show that he described as “nostalgic” in its “emphasis on ornament” as made explicit in the ubiquitous presence of “bronze grilles” and “decorative samples displayed between the architectural photographs.” The exhibit equated the status of ornament to that of photography, that is, to a media through which subjectivity was both recorded and transmitted. Boyd had already expressed his concerns about mid-century eclecticism in the *Architectural Review* shortly after the opening of the Festival of Britain.\(^{136}\) In that article, he had described the “International Battle of the Styles” as a new form of eclecticism that was confronting regional, humanistic, romantic, organic, and empirical concerns on the one hand, and rational, mechanistic, and geometric interpretations of architectural form on the other. In this disputed terrain, a return to ornament, Boyd argued, could, through its techniques and locations, play a larger mediating and synthetic role between intellectual architectural traditions, namely, through the application of alien elements, the insinuation of architectural elements, and the invitation to the fine arts. He concluded that the impending return of ornament was not a “Victorian parlor” but a form corresponding to the


“rational basis” of construction. Boyd’s categories had a spatial quality, working their way from the inner core of construction to a detached exterior, and thus too he illustrated them in the article. He identified three “guises” that ornament assumed in postwar times: Sullivan’s application of ornament in the Wainwright Building; Edward Durell Stone’s veil over the U.S. Embassy in New Delhi; and Naum Gabo’s collaboration with Marcel Breuer on the De Bijenkorf warehouse in Rotterdam. All three instances stood as a sequence of disembodiment and detachment from material core towards the urban context. [Fig.031] “Now,” argued Boyd, “the first of these guises may be dismissed,” as he presented the other two as a social contract:

> The new ornament (the layman realizes) is not like the old kinds. It is in the best possible taste. The idea of gluing on decoration is unthinkably trite. Ornament must enter in the second or third guise. It must be integral, organic, a part of the conception of building: either the tasteful patterning of some material which has been specified already, or “art” magnanimously invited by the utilitarian structure to occupy a prominent position. Thus one should understand that the present revival of ornament represents no turning back on the principles of simplicity introduced by the modern movement; it is merely a more enlightened interpretation of those principles.\(^{137}\)

*Architectural Record* had published a comprehensive report on the “individual creative expression” of Edward Durell Stone in July 1957, just two months before Boyd’s article.\(^{138}\) [Fig.032-033] The cover page of the report shows a double, superimposed transparent pattern that tessellated Stone’s proposal for the future U.S. pavilion in the Brussels International Exhibition of 1958.\(^{139}\) In the upper part, the transparency of the graphic composition makes it possible to appreciate the shield of the United States, while in the lower part, a group of visitors enters the pavilion. In between, the translucent, plastic, aluminum-core panels of the façade serve as the real media of the design: a golden representational film screen. This solution had nothing to do with the

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environmental mechanisms of sun and climate control; Stone had previously used terracotta patterns for a residence in Dallas, then for a hotel in Pakistan, a museum on Columbus Circle in New York, and finally for an embassy in New Delhi. It was for this reason that the report concentrated on Stone’s evolution to “texture and color” while tempering “the bold outline.” In its editors’ view, there was a displacement of rationality to the visual aspects of space, materialized in “the principle of patterned sunlight in walls and striated, filtered light in ceilings and roofs.” The key results of his experiments lay in “screened surfaces” that produced “dignity and warmth” with a “nebulous hint of the past” for “private sanctuaries” displaying a “world of patterned shadows.” For the editors, these buildings oscillated between binary concepts: “the conservative and the experimental; the classic and the romantic; the austere and the highly decorated.”

Certainly, these patterns catapulted Durrell Stone’s persona to the national media; henceforth he gave many television interviews and appeared in popular magazines such as Time. In this sense, ornament opened up the space of media, becoming a door and a transition, in other words, a medium through which to access further media. For Boyd, the “insinuated” ornament in Stone’s architecture was as historically synthetic as culturally hyperbolic:

The terra-cotta grille for New Delhi […] is an admission in the second guise, like the cups and darts and diagonal dents in the metal panels of some new office curtain walls. It is one of a number of Eastern-Western devices in a sharply formed, imaginatively textured building where the twain may meet. Each terra-cotta block is pierced to leave a quadrant in silhouette and they build up together in the wall to produce a fetching combination of circles and rectangles, with that distinctive inter-racial quality of an Indian movie poster. The screen itself is an important part of the formal conception inasmuch as it presents,

while shading the glass, a continuous surface for the free-standing, gold-colored steel columns to play against.\textsuperscript{142}

The geometric pattern of the façade thus became an ambivalent and paradoxical background, as much an agent as a subordinated element to the integration and isolation of elements. [Fig.034] The dual nature of insinuating decorations was not superficial but intimately linked to the overall composition. It was a thin membrane between interior and exterior, between integration and detachment, and between architecture and image—the space Boyd defended for architectural embellishments. Ornament, on the other hand, was a “subtraction,” weakening the intellectual muscle of architectural form, particularly in those buildings where art made its presence, “leaving the architect’s hands clean” as in the case of Breuer’s collaboration with Naum Gabo for the De Bijenkorf:

[... ] at the point where insinuations begin to look important in themselves, when they lose servility to the form of the building and become in the least self-assertive, uppity—then immediately we can call them ornament and reach for a scalpel. Ornament has not worthwhile meaning of its own, but is parasitic, riding on buildings, drawing its subsistence from the forms it rides, inevitably detracting from them and weakening the impact of architecture. It is, therefore, never an addition but always a subtraction. The forms and spaces should be a delight in themselves without anyone feeling any need for adornment; architecture can’t escape this old axiom. It can only keep on delaying facing up to the implications.\textsuperscript{143}

This biological argument—the parasitic status of embellishments—indicates, however, the new spaces that ornament was colonizing and to which future contributions would dictate its presence: ornament as partaking of a larger environmental form and logic. The environmental form of ornament, not as an ecological construct but as an extension of architecture’s


\textsuperscript{143} Robin Boyd, “Decoration Rides Again,” \textit{Architectural Record} 122: 3 (September 1957), 185-186.
performance beyond the space defined by it, kept appearing in architectural magazines and publications.

Meanwhile, partisans of modernism in education were engaged in an ongoing recalibration of modern surfaces that included a return to romanticism and a distance from functionalism. For instance, in an article entitled “A New Eloquence for Architecture,” Joseph Hudnut, recently retired Dean of Harvard Graduate School of Design, distanced himself from the “re-shuffling of time, space and prejudice” perpetrated by pseudo-historians who did not want to assume a taste-change happening in the age of mechanization. Instead of tracing the histories of techniques and processes, Hudnut advocated a return to the abstract world of ideas that would rescue “an avenue of expression” in modern architecture. A good example of such a romantic attitude lay, once again, in Louis Sullivan, who had turned engineering into architecture in the Wainwright Building. With a surprisingly nationalistic tone—given his previous international preferences—Hudnut bitterly complained: “We are travestied by those naked buildings which proclaim a grim realism in the land they pretend to represent. Are they not, after all, an importation?

In an anti-scientific and anti-materialist reading of the needs of postwar architecture, he placed functionalism on the side of decoration: “To be factual and logical is to be as superficial in architecture as it is in life.” Poetry has not become more excellent through

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147 A similar argument against Gropius and Breuer’s pedagogical work at the GSD, albeit in the context of postmodernism, has been voiced by Klaus Herdeg, who condemned the “glib rationale” that professors and students at Harvard worshipped as “Bauhaus ethos.” This ethos, he argues, blocked “volition,” instinct, and creativity instead of fostering open-mindedness in future architects, and thus led to a dismissal of the subjective aspects of design as well as the “impoverishment of architecture as carrier of cultural meaning.” Klaus Herdeg, The Decorated Diagram. Harvard Architecture and the Failure of the Bauhaus Legacy (Cambridge; MA; The MIT Press, 1983), 90-93.
the invention of new words, Hudnut mistakenly argued, nor have typewriters generated new prose; so too no new technique lay at the origin of architectural creation. “These are new media, useful to widen the ranges of techniques, but they have in themselves no new meanings […] The notion that the arts progress with the evolution of techniques is the most dangerous fallacy in the architectural thought of today.”148 Although perhaps not expressed with that sincerity, Hudnut’s involuted understanding of media and technique was not that uncommon by the mid-twenties. The narrow reading of the arts, excluding film and photography, and the cultural and political changes they wrought in the production and reproduction of light and movement were not widely recognized. “We must not expect Utopias,” he concluded, but rather “dramatic” formal materializations in which to express current architectural times. To achieve this, he prescribed a departure from intellectualism: “The times come in the development of every work of art when we must be less concerned with what we know and more concerned with what we have felt.”149 The “new eloquence” that the title announced for postwar architecture relied emphatically on the synchrony between the ethos of the nation and the pathos of the individual rather than the logos of positive science.

The Architectural Forum’s “coincidental” editorial reaction to the articles in Architectural Record—particularly Boyd’s definition of decoration—appeared only a few months later. Entitling it “Ornament Rides Again,” the editors of The Forum were eager to accept any ornamental form rather than its counterpart. [Fig.036] Misreading the contribution of the “brilliant and eccentric” Adolf Loos in his “Ornament and Crime,” the editorial dismissed Loos’ dictum—“Vienna had a


good laugh”—as a form of “prophetic,” quasi-religious rhetoric: “Woe to him who carved, painted or otherwise supplied recognizably decorative themes for their own sake.” As in the case of the biblical Eve, history had provided “surreptitious” ornamental forms so that modern “sinners” could fall for the seduction of obstinate decoration: egg-crate screens casting “pretty shadows,” decorative railings, and sculptural forms. By the mid-fifties, “outright ornament” had emerged in the form of patterned structures such as Pier Luigi Nervi’s Palazzetto dello Sport in Rome (1955-1957); “ornamental completion,” as in murals and artistic contributions by independent artists embedded in architectural walls like the bulky brick façade that the artist Henry Moore had produced for the Bouwcentrum in Rotterdam in 1955; and pure and simple decoration or “stock decoration,” such as the U.S. Embassy in New Delhi by American architect, Edward Durrell Stone. For American readers, the material exuberance described by these three types of ornament had a well know precedent: Muuratsalo’s Experimental House, built by Alvar Aalto (1952-54) and published in The Architectural Forum in April 1954. Stock decoration risked becoming a mere fashion, dying even faster than functionalism had.

Nonetheless, two months after welcoming new ornamental qualities to architecture, The Forum was ready to tame the excitement: “America is the land where fashions swing en masse,” the editorial of the August 1958 issue began. “This year the fashion seems to run to the arabesque screen wall, the pierced grille, the peek-a-boo, which is made of concrete block precast, or of scroll-sawed wood, or wrought iron, or brick or sewer tile, or cut-off metal tubing.” The reference to sewer tile alluded to Marcel Breuer’s technique for sunscreen façades, proposed for

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the Library at the Institute of Advanced Studies in Princeton in 1956 but realized at Hunter College in 1960. [Fig.037-038] It also pertained to Minoru Yamasaki’s façade for the Reynolds Metal Company Headquarters. [Fig.039] Although The Forum advocated for ornamental qualities, the editorial was a clear warning against the excessive use of screens in modern architecture. Invoking sculptors Henry Moore and Constantino Nivola’s mural contributions to architecture—the former at the Bouwcentrum in Rotterdam, the later on Hartford’s Mutual Insurance Company in Connecticut—the editorial promoted a form of decoration that could get “into the very bones of the buildings” and permeate structure and subsidiary elements of construction. It went on to say, “One reason why ornamental architecture went out of style for about thirty years, except in the hands of Frank Lloyd Wright, was that ornamental themes, when repeated mechanically over and over again, became so quickly obsolescent.” And continued: “Buildings always wrapped in lace can become monotonous even faster than the dull nudities of speculative office buildings.” The editorial finished by advocating for a vernacular return to traditional elements like curtains as substitutes for the overwhelming presence of lattices and grilles in American architecture that served as a counterpoint to the much criticized glass box. While the Berlin wall was about to solidify the rhetorical metaphor of the iron curtain in 1961, the editor of The Forum turned to curtains as dematerialized, flexible forms that ensured sun protection, privacy, and embellishment. The Forum simply requested an accelerated renewal of an architectural aesthetic that adhered to a postwar ethos.

The August issue also included an article by Douglas Haskell on popular taste—referred to in the editorial as a testing ground. Celebrating the vitality of buildings in the U.S., Haskell

promised a “grand new reciprocal interchange” through which architecture would be molded by
popular taste.\footnote{154}{Douglas Haskell, “Architecture and Popular Taste,” \textit{Architectural Forum} 109: 2 (August, 1958): 105.} His article was a response to an earlier one in the \textit{Architectural Review}, presumably in the monographic issue entitled “Man Made America,” in which public taste in America was accused of “creating a man-made environment that is ‘dreary,’ ‘corrupt,’
the adaptation of design to machine production, toward the highly psychological task of adapting
design to an era of mass consumption.”\footnote{156}{Douglas Haskell, “Architecture and Popular Taste,” \textit{Architectural Forum} 109: 2 (August, 1958): 105.} The \textit{Architectural Review} had identified the new “syntax” offered by the multiple possibilities of prefabrication to the individual designer as the formal
quality that made the architecture of late 1950s America the herald of modernity.\footnote{157}{“Machine Made America,” \textit{Architectural Review} 121: 724 (May 1958): 295-394.} Haskell saw
a new “honky-tonk” generation penetrating “beneath the surface” of aesthetics responding to
three principal “popular desires:” the urge for “decorativeness” and “romance” in reaction to the
“highly intellectual architecture” proposed by modern architects, a quest for drama and
symbolism, and finally, a claim “for an architectural counterpart to jazz” that could affect

Call it a trio of schmaltz, googie, and honky-tonk; call it the new romanticism, the new
baroque, and the new improvisation; call it sweetness, symbolism, and the happy note, call it
the new Alhambra, the greater googie, and the new Times Square—in any of these triads
describing new trends it is possible to find evidence of the coming rapprochement between modern architecture and popular taste.\textsuperscript{159}

The example once again was Edward Durell Stone’s successful “star-spangled” United States pavilion at the Brussels 1958 exhibition. [Fig.040] Stone’s achievement lay in the “pretty latticed plastic screen,” the use of a “golden mesh” that supported a roof on which lights appeared as “jewels,” and in the adaptation of the functionalism of the American factory to the allure of the “new ornamental.” “In the citadel of ‘production’,” Haskell noted, “there are made available some of the pleasures of ‘consumption’.\textsuperscript{160} Examples of this same adaptation to “the same sweetening, the same direct effort at a non-patronizing popular appeal,” was affecting modern housing, particularly in the work of the Californian architect Vernon DeMars—a member of the Telesis group who incorporated the social sciences into architecture while following Lewis Mumford’s suggestion to revive the Bay Region Style. Along the same lines, Haskell defended the influence of “prettier, more popular tastes” in the work of young architects such as Paul Rudolph or Minoru Yamasaki, whose buildings for Wayne University were “as decorative as Venetian Gothic.” [Fig.041] According to Haskell, symbolism was “a weak” force in modern architecture that deserved a closer look at popular structures evoking fairyland. However, the design of Hugh Stubbins’s “pregnant oyster” for the Berlin Congress Hall—later known as the \textit{Haus der Kulturen der Welt}—Eero Saarinen’s “big bird” for the TWA terminal at New York City’s Idlewild airport, and even Le Corbusier’s “great hut” or “ship’s prow” in Ronchamp, offered a

\textsuperscript{159} References to “jazz-age” in architecture had circulated since the 1930s. Le Corbusier also spoke of jazz as a feature of American culture, and related race, primitivism, and precision in tap dancers: “Louis Armstrong…is mathematics in equilibrium…the exactitude leads to an unearthly suavity, broken by a blow like a flash of lightning…tap dancers shows that the old rhythmic instinct of the virgin African forest has learned the lessons of the machine and that in America the idea of exactitude is a pleasure. Le Corbusier “The Spirit of the Machine, and Negroes in the USA,” in \textit{When the Cathedrals Were White. A Journey to the Country of Timid People} (New York: Reynal and Hitchcock, 1947), 158-165. Original: \textit{Quand les cathédrales étaient blanches} (Paris, Plon, 1937).

kind of new baroque, “a varied architecture of drama, fairy tale, allusion, and symbol.”

The criticism was directed at functionalism, where Haskell and the audience found “nothing to get excited about.” Gillo Dorfles had to some extent introduced Haskell’s argument years earlier in the Italian context in his book Barocco nell’architettura moderna, which already suggested modernism’s discomfort with the new architectural expressions appearing after World War II. The association that Haskell drew between architectural form and facile popular symbolism as opposed to academic aestheticism constituted a precedent for years to come.

### 3.6 Jazz in Architecture

The final section of Haskell’s article was a bit more daring. Illustrated with images of Times Square, an anonymous San Francisco honky-tonk band, and a painting by Stuart Davis, the author introduced a topic that would soon be developed at length. If Adorno had dismissed jazz due to its power to alienate a public subject to the whims of fashion and fad, Haskell instead praised the “improvised and syncopated” qualities of this utterly “popular creation.” Le Corbusier too was fascinated by the primitivism and mechanistic rhythms of black New York culture as he demonstrated in his Quand les cathédrales étaient blanches, in which he referred to its sudden sounds as a “flash of lightning.” In a similar vein, Haskell saw in Times Square’s celebration of light and commercialism and their power to dissolve architecture at night an ideal for renewing architecture. Times Square turned buildings into mere “scaffolding” of the “show.”

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162 Gillo Dorfles, Barocco nell’architettura moderna (Milano: Libreria editrice politecnica tamburini, 1951).
provided by the new “popular abstract” style. The result was the culmination of Moholy-Nagy’s project of integrating light, music, and architecture, “a show of many-colored lights, in lines, patches and floods, flashing each in its own tempo.” The formal result was not only aesthetic but hyper-functional in pragmatic and psychological terms. The whirlpool of “abstract” light and shadows could have “hypnotic” effects on the relaxed beholder.\footnote{Douglas Haskell, “Architecture and Popular Taste,” \textit{Architectural Forum} 109: 2 (August, 1958): 109.} For Haskell, the combination of “decorativeness, symbolism, and improvisation” represented a compromise between popular and racial taste that led to a modernism prompted by marketing tactics aimed at welcoming new consumers. It also entailed the incorporation of psychological aspects to “make some impact on the threat of the democratic wilderness.”\footnote{Douglas Haskell, “Architecture and Popular Taste,” \textit{Architectural Forum} 109: 2 (August, 1958): 109.}

Haskell honed his argument a mere two years later in an article entitled “Jazz in Architecture: It Makes More Fun and Better Sense.”\footnote{Douglas Haskell, “Jazz in Architecture: It Makes More Fun and Better Sense,” \textit{Architectural Forum}, 113: 3 (September, 1960): 110.} In it, he became even more prescriptive, presenting the popular aesthetic as the remedy for those buildings that “resembled cages.”

Despite their different styles—“metal-classic,” “romantic Gothic,” or “neo-neo-classical”—Mies’ Seagram Building, Yamasaki’s McGregor Mermorial Center at Wayne State University, and the collaborative design for the Lincoln Center for Performing Arts, were all scorned for being “square,” that is, for their mechanistic monotony and cold elitism. According to Haskell’s assessment of early 1960s society, people as well as “modern prophets” were “scanning the past for devices of greater interest,” and searching to “cover the monotony” imposed by machine production.\footnote{Haskell, “Jazz in Architecture: It Makes More Fun and Better Sense,” \textit{Architectural Forum}, 113: 3 (September, 1960): 110.} The distance between highbrow culture and lowbrow expression was exemplified in the various reactions to Times Square, a pilgrimage destination for the multitudes, but
despicable to modern architects. Times Square was the cathedral of popular taste, the pinnacle of the new aesthetic, and “the Mecca” of “signmakers,” the “Great White Way” enticing the son of American missionaries that Haskell considered himself to be. Times Square provided a “magical architecture” by night through its “jeweled lighting display flashing or stepping or gyrating in its own tempo.” During the day, “the catch-as-catch-can improvisation of crowding signs together” transformed the space into a silent, “visual jazz” composition. Amid the aesthetic of commercialism stemming from the use of lights and temporizers, Haskell made strong social, anthropological, and political arguments:

There is no doubt about it, Times Square as visual jazz is low-class jazz—jazz suggested rather than accomplished. And there are those who would deny it any value because the collective effect does not represent a collective effort. Such people miss the point, however. Just as football rules, on a football field, produce a game of football, so the setup on Times Square—a method of covering long street façades with signs in varying dimensions—puts all individual improvisations into the game that everybody follows. That is how jazz works too, as a system (with lots of offshoots). What John Kouwenhoven says about musical jazz is true too of the Times Square basic setup: it points to Emerson’s ideal of a union which is perfect “only when the uniters [sic] are isolated.”

Jazz was a model for liberal economies since it corresponded to the idea of individual freedom as personal contribution to an undetermined common result. Such a musical and economic model had a corollary in modern architecture. Solutions based on repetition and variation were illustrated in the recent works of “Mediterranean architects” like Le Corbusier at La Tourette and Chandigarh, and Josep Lluís Sert at the Medical Center at Harvard, in which a multiplicity of ordering systems—e.g. fenestration and façade composition—echoed the “tom-toms” of African culture. Drawing on the musical theory of Leonard Bernstein, whose Broadway musical West Side Story was about to be adapted to the cinema, Haskell appreciated the value of these

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architects’ capacity to provide or remove “accents” from formal compositions for the sake of surprise and excitement and thus depart from well-known “variations” on a popular “theme.” Haskell echoed Arnold Schoenberg’s arguments on music, ornament, and construction, published in the years after World War I but translated and republished in English in 1950. In “About Ornaments, Primitive Rhythms, etc., and Bird Songs,” (1922), “Ornaments and Construction,” (1923), and “New Music, Outdated Music, Style and Idea,” (1946), Schoenberg claimed that ornament had been abandoned in early twentieth-century music in the transition from contrapuntal forms to homophonic compositions in order to enhance communication and comprehensibility. If contrapuntal music had granted ornamental subsidiary notes a harmonic relation to the principal voice, then homophonic music, jazz included, departed from a unified melodic theme as a common ground in which each instrument further contributes. Popular music also follows the homophonic system. Such a seamless, uncritical transference from architectural form to musical composition in Haskell’s narrative reveals the existent porosity among artistic disciplines in the late 1950s for the great mass of Forum readers. Ironically, due to his twelve-tone method of composition, Schoenberg was disparagingly called an engineer, an architect, even a mathematician.

170 Arnold Schoenberg, Style and Idea, translated by Dika Newlin (New York: Philosophical Library, 1950). The first English edition was an abridged version of future ones, containing only fifteen of his essays.
3.7_ A Style for Consumers

One example of the differing visions on ornament had *Playboy* magazine as its subject. The pages of the magazine presented a calculated runway of high and lowbrow references that helped illustrate and promote a different understanding of individuals—men specifically, but not exclusively—within society. From the outset, the magazine was a signifier of a different paradigm in culture, leisure, and urban lifestyle taking shape in the United States as it gained international prominence in the postwar era. Architecture was not impervious to this impending cultural evolution. However, the assessment of the multiple changes occurring at mid-century was uneven. On the one hand, affluent postwar U.S. culture was dismissed as frivolous and as one that placed the individual’s needs above those of society; on the other, the nation’s society was being celebrated as a source of inspiration for overcoming a stagnant moment in the ongoing renovation of modern architecture. In the background, we see the struggle to consider modern architecture as simply another episode in the history of styles, and therefore, in need of rejuvenation. When it came to evaluating contemporary culture, Sigfried Giedion and Reyner Banham represented opposite poles. Amid a disciplinary crisis, and thanks to Banham and Giedion’s appropriations, *Playboy* became a conspicuous metaphor for the battlefield in this confrontation.\(^{173}\)

In April 1960, Banham published an encomiastic article entitled “I’d Crawl a Mile for...Playboy” in the American magazine *Architects’ Journal*, which included photographs that the magazine had taken inside Frank Lloyd Wright’s Guggenheim Museum in New York. [Fig.043] Describing himself as an avid reader of the magazine, Banham understood Hugh Hefner’s ability to keep

\(^{173}\) In this respect, see also Stanislaus von Moss, “Playboy Architecture Then and Now,” in Emmanuel Petit, ed., *Philip Johnson, The Constancy of Change* (New Haven; CT: Yale University Press, 2009), 170-189.
“one foot firmly planted on the bedroom door” while “the other covers a lot of ground.”174 For the British architectural historian, Playboy had staged a profound cultural shift in which the subject’s internal expressions had finally found continuity and correspondence in the urban exterior. The circle between subjects and their urban representation was finally being closed and interiorized. Banham implicitly applauded the cultural continuity between the formerly opaque domestic domain and the gaiety and excitement of urban life in affluent American society as depicted in the mass media in England after the Second World War. After all, Hamilton’s 1956 “Just What Is It that Makes Today’s Homes so Different, so Appealing?,” a visual manifesto of the first pop age in Britain, was nothing but a public interior, an unabashed glance at a maze of desires, consumerism, and individual self-affirmation. It was not by chance that Hamilton drew inspiration from Playboy for his paintings in the early sixties, comparing the curves of the “Playmate of the Month” to the latest automobile model and even diving into the magazine in around 1965 to find a title for his series of four paintings. In tune with postwar rhetoric, the series, entitled “Towards a Definition of the Coming Trends in Men’s Wear and Accessories,” mixed political overtones, mass spectacle, fashion, and technology.

Reyner Banham continued to use Playboy as an example of consumer culture—the “Leisure People of the Age of Fun”—in articles such as “A Home is not a House,” “Horse of a Different Colour,” and “A triumph of Software.”175 [Fig.044] Mass media, technological obsolescence, transportation, environment, and a less academic notion of architecture within popular culture constituted a common ground for the historian and generation of English architects emerging at


the time; Archigram’s provocative 1963 “Living City Survival Kit,” a collection of objects comprised of sunglasses, jazz records, magazines, drugs, cigarettes, and alcohol, included an issue of *Playboy* in a shop-window-like statement as promoting the life of a fashionable urban consumer.

Sigfried Giedion, in turn, understood architecture as the solidification of timeless, universal, cultural, and social values. The continuity between exterior and interior that he advocated in his numerous publications was nothing more than a colonization of the domestic domain by the public objective, abstract order. Thus, the influence of the subject’s inner preoccupations, desires, and wishes could do nothing but jeopardize Giedion’s own *Weltanschaung*, a danger emerging first and foremost in the United States. It was due to this cultural distance as well as his disdain for current social and economic changes that he coined the term “playboy architecture” in 1961, thereby pandering to a popular taste that ultimately treated “architecture as playboys treat life: jumping from one sensation to another and quickly bored with everything.”¹⁷⁶ Falling into this disdained category were many American architects, specifically, the team in charge of the final design of Lincoln Center in New York City: Max Abramovitz, Wallace Harrison, Eero Saarinen, Pietro Belluschi, Gordon Bunschaft, and Philip Johnson, among others. For Giedion, fashion was restoring an eclectic historical bias in architecture clearly visible in “small-breasted gothic styled colleges, in lacework of glittering details inside, in the toothpicks stilts and assembly of isolated buildings or the largest cultural centers.”¹⁷⁷


unabashed presence of past formulations made the notion of architectural style conspicuous. The label “playboy architecture” first appeared in the new preface to the 13th printing of the 4th edition of Giedion’s seminal book *Space, Time, and Architecture*. Entitled “Architecture in the 1960’s: Hopes and Fears,” it was a response to a previous symposium held jointly at the Architectural League and the Metropolitan Museum of Art in New York, which, under the rubric “New Forces in Architecture,” had focused on the uneasiness, problematic fitness, and adequacy of modern architecture in an increasingly consumerist society. “The International Style: Death or Metamorphosis,” was the title of one of those evenings in which the architects and co-authors of the tag, Philip Johnson and Reyner Banham, discussed trends in the architectural panorama of the 1960s, namely, modern style, the brutalist “attitude,” and neohistoricism. Lincoln Center was precisely a sophisticated combination of all three.\(^{178}\)

*Playboy’s* multifaceted polemical arguments, its worldliness, as well as the ongoing consumerist revolution, guaranteed its success within the very society that Giedion criticized. It was by maximizing a forgotten notion of style and combining it with a specific understanding of how the urban and suburban man should live, that Playboy found its punch-line: the definition of an attractive modern lifestyle that was compelling to an audience eager to be represented inside and outside the private domain. On the other hand, the abstract humanist subject that Giedion was seeking could not find the proper public attire. Eventually modern architecture,

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succumbed—as inevitably did Playboy—to the freedom and stylization offered by new postwar trends in tectonic garb.
Chapter IV
Memoria: Reviewing Revivals

Architecture may shortly come to be pronounced dead.
Yet even that is perhaps preferable to having the corpse continue,
like Jeremy Bentham among us, attired like a superannuated
prostitute in the finery of her various periods of youth and glory.
Henri-Russell Hitchcock, “The Decline of Architecture,” 1927

I had to emphasize more than once that most modern architects
feel at sea as soon as they are asked to create for decoration, for adornment only…
Nikolaus Pevsner, An Enquiry into Industrial Art in England, 1937

“Do you know why we like El Greco so much?” von Tschudi,
the great German museum director, once asked. “It is because he reminds us of Cézanne.”
Alfred Barr Jr., The Selective Eye, 1955

American architecture is the art of covering one thing with another thing
to imitate a third thing, which, if genuine, would not be desirable.

4.1_Sullivan and The Architecture of Free Enterprise

In 1948 the Museum of Modern Art organized a solo exhibition on the work of Louis Sullivan for the first time.1 The show took place from May 26 to July 25 and was far from comprehensive, consisting of merely a few images selected from the historical collection of its Department of Architecture. [Fig. 001] Only seven of Sullivan’s buildings were exhibited, five of

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1 A previous show in January 1933 dealt with architectural developments in Chicago, “the most important creative period of American Architecture.” Although the exhibition “Early Modern Architecture: Chicago 1870-1910” presented the skyscraper as a problem of building methods, it concentrated on the work of three architects: Henri Hobson Richardson, Louis Sullivan (“whose slogan ‘form follows function’ has been used as a battelcry [sic] of many modern architects”) and Frank Lloyd Wright. Press release, The Museum of Modern Art, New York, January 15, 1933. The concept of modern architecture in MoMA’s early years seemed in dispute. Alfred Barr’s article “Modern and ‘Modern’” denounced the temporal, characteristic assignment of the term “modern” to art as a “blind faith, insufficient knowledge, or an academic lack of realism.” But a clear cut existed in the field of architecture; announcing four exhibitions on the work of Richard Neutra, Le Corbusier, the relationship between abstract art and modern architecture, and Henri Hobson Richardson, the Museum apologized for introducing, from time to time, the work of some “forerunners,” such as the latter.
which were collaborations with his partner Dankmar Adler: the Auditorium Building Tower, (1887–89), the Wainwright Building, (1890–91), the Guaranty Building (1894–95), McVicker’s Theater (1890–91), and the Tomb of Martin Ryerson (1889). To these were added two later works designed by Sullivan himself: the Gage Building (1898–99), and the Carson Pirie Scott Department Store (1903–04). [Fig. 002] Commenting on the show, Philip Johnson portrayed Sullivan as a fundamental contributor to the modern movement despite the fact that his work was too often “dismissed as old-fashioned.” Sullivan’s performance, he wrote, “should be understood as an exciting and necessary part of the development of the architecture that we know and admire today.” Sullivan had pioneered achievements in structure and design for multi-story buildings, fought the “fashionable revivalism” of earlier styles and helped define “the new architecture that industrial growth and structural advances had made possible.”

The qualities that Johnson praised in Sullivan did not escape the attention of one of the most authoritative voices among mid-century historians of the modern movement. In the second, 1949 edition of his Pioneers of Modern Movement (1936), symptomatically retitled Pioneers of Modern Design, Nikolaus Pevsner emphasized that “Sullivan was in fact just as much a revolutionary in his ornament as in his use of plain, smooth surfaces”—a trait that qualified him

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as a pioneer. Pevsner also underscored the intimate relation between ornament and “function” in Sullivan’s work, reassessing it as “an ‘organic’ decoration befitting a structure composed on broad and massive lines.” For Pevsner, the Chicago architect’s “theory of severe functionalism” could not be understood “without a careful look at his flowing ornament, nor his ornament without a vivid memory of the austerity of the main lines and blocks of his buildings.” Pevsner located ornament somewhere between material dynamism and machine-like simplicity and recollection. The removal of these additions seemed sufficient to make Sullivan appear as a pioneer of modern architecture de tout coeur along with his contemporary, the English architect Arthur H. Mackmurdo. Going against the traditional modern misunderstanding and misappropriation of Sullivan’s definition of function, Pevsner advocated for a recalibration of the decorative within the larger context of Sullivan’s work. In his view, Sullivan belonged to a select small group of architects that included Otto Wagner, Adolf Loos, Henry van de Velde, and Frank Lloyd Wright, all of who understood the essential nature of the machine and its consequences for ornamentation. According to Pevsner’s genealogies, Sullivan was the only architect who had clearly detached himself from the Arts and Crafts movement with enough of a building pedigree to challenge the Englishness of modern architecture. In this respect, Pevsner’s criticism resonated with MoMA’s “campaign to cultivate an American breed of modernism,” since neither the ornamental aspects of Louis Sullivan’s architecture nor his organic definition of

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architectural structure were mentioned or addressed in Johnson’s review. A Although Pevsner polemically labeled Sullivan’s ornamental intricacies as *Art Nouveau*, the evolution of “these curious tangles of tendrils, cabbages, scalloped leaves and coral reef growths” remained a mystery to the German-born architectural historian, who, after moving to England in 1933, insisted on the English origins of modern architecture. If Pevsner was looking for a “powerful vocabulary” that was equally valid for all kind of media—the decorative arts, painting, architecture—and identifying a universal style that responded to the industrial ethos and cultural Zeitgeist that permeated turn-of-the-century modernism, then he could not avoid Sullivan’s ornamental inklings. In Pevsner’s alignment of artistic practices, decoration played a primordial role parallel to that of the Semper-Riegl theoretical axis influencing German aesthetics. And it may be due to his lack of identification with new art-forms and media such as photography and cinema that Pevsner distanced himself from post-World War I architectural developments and concluded his archaeologies of the history of the modern movement with the Bauhaus as the latest bundling of former fine arts defining a spatial construct.

Pevsner’s consideration of Sullivan’s work was deemphasized in relation to that of other architects in the revised and enlarged edition of his book published by Pelican in 1960—

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11 Pevsner moved to England in 1933 thanks to a research fellowship at the Department of Commerce at Birmingham University.
12 Alina Payne, “Architecture and Objects: The Power of Pevsner. Review of Pevsner’s *Pioneers of the Modern Movement* from William Morris to Walter Gropius,” *Harvard Design Magazine* 16 (Winter/Spring 2002): 67-68. To the triad of Hitchcock, Giedion, Pevsner, Payne added the work of Herbert Read in order to discuss the permeability of *Kunstindustrie* and *Kunstwissenschaft*. Despite Payne’s claims on the separation of the decorative and the architectural in Read, I would argue that though inexplicit, a continuity in his work certainly does exist and was explicitly formulated in the 1950s, as I argue in Chapter 1 in this dissertation.
13 Quoting Ruskin, “ornamentation” was actually the first word of the book, which indicates the German art historian’s preferences when looking at architecture.
architects such as the Catalan Antoni Gaudí, whom he too considered “pivotal” in the development of modern architecture. During the eleven years that separated the 1949 and 1960 edition of Pioneers, further scholarship on Sullivan’s work became available, changing in turn the reception of the turn-of-the-century architect for the author. It was between these years that Pevsner received a copy of Hugh Morrison’s book *Louis Sullivan: Prophet of Modern Architecture* from Philip Johnson and Monroe Wheeler, director of publications at MoMA, as well as the catalogue of MoMA’s exhibit *Early Modern Architecture: Chicago 1870-1910*, both of which were used as references for further amendments in the 1949 edition.\(^\text{14}\) Morrison was appointed professor by the Art Department at the University of Chicago after receiving his Master of Arts degree from Princeton and teaching as faculty member at Dartmouth College in 1931, where he had obtained his Bachelor’s degree. His book, written before many of Sullivan’s buildings had deteriorated to the point that their original features were jeopardized, became the standard critical text on the architect’s work and life. Indeed, due to its gentle prose and accessibility to the general public, it soon set the path for contemporary historians such as Lewis Mumford and Henri Russell-Hitchcock.\(^\text{15}\) However, Morrison dedicated surprisingly little space to Sullivan’s

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use of decorations, a decision grounded in his preference for two-dimensional, pictorial arrangements:

The ornamental detail [in the façade of Sullivan’s Carson Pirie Scott Store Building] is perhaps of more questionable merit. The broad band of ornamental iron framing the show-windows and the small terra cotta decorations in the spandrels are, to be sure, admirably inventive if possibly, over-exuberant…And just as certain virtuosi over-embellish their piano playing, Sullivan was sometimes too little restrained in his decorative fancy. The huge foliations spreading from the tops of the two piers…represent an attempt to increase the plasticity of a structurally rather flat composition.\textsuperscript{16}

Like other modern historians such as Giedion, Morrison found Sullivan’s ornament utterly unnecessary, and therefore advocated for a less buoyant use of materials and decorations. Coincidentally, his publication was made possible through the economic support of the Museum of Modern Art, which helped finance the cost of the book’s many illustrations. Furthermore, Henri Russell-Hitchcock reviewed the book and made suggestions, which might explain its ideological leanings.

Although the monograph was very well received due to its thorough documentation of Sullivan’s work and life, Frank Lloyd Wright, who refused to collaborate with Morrison on the book, wrote a devastating review of it for the \textit{Saturday Review}, in which he questioned the value of the author’s sources and the role that he had assigned to Adler. Ironically, Wright described “\textit{lieber-meister}” Sullivan as the genius who had inspired his notion of organicism. Sullivan’s work also prompted Wright’s criticism of what he called “mobocracy,” or the dead stylistic patterns imposed by ruling taste, be they “provincial-Colonial, papier-maché French, Oxfordian or pansy Greek, German Bauhaus, or the stenciled [sic] cliché for sterility now called ‘modern’.\textsuperscript{17}


\textsuperscript{17} Frank Lloyd Wright, \textit{Genius and the Mobocracy} (New York: Duell, Sloan and Pearce, 1949), 23.
Wright rejected history as an “autopsy” on dead bodies while advocating for individual freedom and farsighted genius as opposed to imitation. Opportunistically published after MoMA’s show on Sullivan, Wright’s critique reclaimed the baton of organic architecture as his own by disqualifying Sullivan’s persona. After the latter’s death, authors and commentators had dwelt on the multiple sexual exploits and alcoholic episodes in his later life, which to Morrison represented the “failure” of a man who had had “little or no sense of practical realities.” As in the case of the modern architecture exhibition of 1932, details of Sullivan’s personal life represented another chapter in the puritanical identification of ornament and alcoholism, on the one hand, and banishment and individual freedom, on the other.

The years 1946 and 1947 witnessed a series of articles celebrating Sullivan’s ninetieth anniversary as well as his belated Gold Medal recognition by the American Institute of Architects. These also coincided with the issue of Sullivan’s hitherto unpublished revision of his Kindergarten Chats. But controversy also existed around his use of ornament and misappropriation of the modernist dictum “form follows function.” For some critics, Sullivan’s “vivid ornament” came to be concealed after Chicago’s “White City” exhibition, which marked the outbreak of modern European style in the United States, capturing “the fancy of junketing

18 As Morrison recalled, “As late as 1927 a popular history of American Architecture appeared with a chapter entitled, ‘Louis Sullivan and the Lost Cause.’ The author, Mr. Thomas Tallmadge, has lived to say that if he were writing the book today, the chapter would be called ‘Louis Sullivan and the Cause Triumphant.’” Hugh Morris, Louis Sullivan, Prophet of Modern Architecture (New York: W.W. Norton and Company, 1998), xiv.


If Morrison had a clear preference for Sullivan’s least-decorated buildings, other authors such as Harvard-educated art historian Henry R. Hope found in Sullivan’s ornamentation a strong argument against the architecture of the International Style:

There is no doubt that Gropius, Le Corbusier, and the group of architectural critics who have supported them in their demand for a pure functional style have cast an air of disgrace over all ornamental excesses. And it is equally true that these purist theories of the 1920’s are rooted in the architectural developments of the 1890-1895 period in Chicago, as well as in Europe. Sullivan was a prophet of modern architecture, as were Voysey and Mackintosh, the youthful Van de Velde, Horta and Hankar, and Berlage. But for several years we have been emerging from the heroic period of the unadorned architecture of the 1920’s. The machine for living did not satisfy our needs, neither functionally nor esthetically. The transplanted Bauhaus (at Harvard, at the Chicago School of Design, and the Illinois Institute of Technology) has been turning out a crop that look as much like Taliesin as Dessau. Frank Lloyd Wright, Louis Sullivan’s greatest disciple, never did abandon ornament altogether, and now, as we enter a less frugal, less puritanical period of contemporary architecture, the younger men and the critics seem to be turning towards his teachings. Perhaps, then, we are nearing a period when Louis Sullivan’s ornament may be studied without a feeling of heresy and distaste.

Sullivan’s ornament was naturalistic, meaningful, and symbolic, fulfilling architecture’s function in the least of its details. [Fig. 003] Moreover, it was genuinely American, the originator of a tradition that felt overlooked by historians, especially ones of European origin. That tradition revolved around the idea that unadorned architecture was not as culturally sound from a social science point of view. Henry Hope’s article in Pevsner’s co-edited *Architectural Review* speaks about the changes in the assessment of ornamental features in modern architecture. It was soon followed by Frank Lloyd Wright’s chapter in *Architecture and Mobocracy*—with the anticipated name of “Sullivan Against the World” in *Architectural Review*—a title that never made it into the final book. Wright argued against those accounts of modern architecture that presented it as a simplified international “stencil” legitimized by an elite consisting of the “academic arbiters of

22 Henry R. Hope, “Louis Sullivan’s Architectural Ornament,” *Architectural Review* 102: 610 (October 1947): 112. The article had appeared earlier in the *Magazine of Art* in March of the same year, and it was published prior to Sigfried Giedion’s article on the mechanization of the bath.
our industrialism.\textsuperscript{23} In its place, Wright advocated for individuality, naturalism, growth, and a vague sense of democracy. These were the paramount traits in Wright’s definition of the organic that emerged from the American use of materials. But his constant references to the masses as an ignorant force that drove taste ran counter to the generative agency that he assigned to this mob.

Louis Sullivan’s life and work seemed to allow unlimited space to appropriation and misappropriation. As early as 1951, William Gray Purcell, partner of George Gran Elmslie, Sullivan’s disciple, upgraded Sullivan to a “prophet of democracy.”\textsuperscript{24} To identify Sullivan with modern architecture and democracy came with its own issues: the article, which perceived Sullivan’s adhesion to organic architecture as the unity of freedom and nature, was a response to one published by the scholar and future Republican candidate to the U.S. Congress, Denison B. Hull, who proclaimed the Romanticism of machine and science as the “new religion,” which, in the name of freedom, ironically proposed to “add to [America’s] artistic wealth by a process of subtraction and prohibition.”\textsuperscript{25} Following the logic of McCarthyism, Hull equated modern architecture “escapism” with the intolerable solutions proposed by fascism and communism. Instead, “Freedom in architecture is freedom of choice among many motifs, and many traditions…to combine and synthesize into new appropriate forms.” In other words, modern

\begin{itemize}
\item \textsuperscript{24} William Gray Purcell, “Louis Sullivan. A Prophet of Democracy,” \textit{American Institute of Architects Journal} 16 (December 1951): 265-271. “And what should be said to one who behind a shooting blind of architectural dialectic, declares Sullivan to be the sparkplug of disintegrating Leninism in America?”
\item \textsuperscript{25} Denison B. Hull, “Freedom in Architecture,” \textit{Journal of the American Institute of Architects} (June, 1951): 255-261. Hull (1898-1988) was a former graduate at Harvard, soldier in World War I, Greek scholar, and Republican Congressional candidate. Hull’s argument repeated earlier claims of the 1930s that modern architecture countered the American ideology of individual freedom.
\end{itemize}
architecture, like city planning, or housing projects, was an appurtenance of an entire ideology: “the cultural counterpart to political authoritarianism.”

During the early 1950s, new details about Sullivan’s personal life—especially his later years—which had been omitted by Morrison due to their highly personal nature, began to emerge. At the same time, postwar economic joy fueled an historiographical preoccupation with the skyscraper. Tributes to Sullivan increased as the centenary of his birth approached. A 1956 exhibition on Sullivan in Chicago grants insight into the polarized views on design and ornament—which also speak of the different camps at MoMA—and the permeation of the institution’s cultural agenda on the individuals who collaborated in its multiple programs and exhibitions. It also exemplifies some of the deeper reasons behind the revival of interest in the formal properties of Sullivan’s architecture. The Art Institute at Chicago exhibited many of his manuscripts, drawings, buildings, and documents, mostly in photographic form. The exhibition entitled *Louis Sullivan and the Architecture of Free Enterprise* was curated by Edgar Kaufmann Jr. and designed by Chicago architect Daniel Brenner. [Fig. 004] The show was not the only event commemorating Sullivan; an earlier complementary exhibition had been hosted by the *Burnham Library*, likewise in Chicago, which had presented additional drawings, photographs, and

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documents along with fragments of actual architectural ornaments.28 Kaufmann, who had recently left the Good Design program at MoMA, emphasized the novelty of Sullivan’s program in the commissions that he had undertaken in the final decades of the nineteenth century: office buildings, shops, warehouses, etc. Sullivan’s work had been entrusted “to fill the needs of commerce.”29 Undoubtedly, Sullivan’s revival was related to the rise of consumerism in postwar America and the growing demand for free commerce among corporations. The pragmatism that Kauffman saw in Sullivan’s work percolated into the exhibition’s catalogue. Both book and exhibition were highly prescriptive. To this end, Kauffman organized the book around three principal questions: Sullivan’s model, Sullivan’s relevance, and Sullivan’s accomplishments.30 To illustrate Sullivan’s influence on current developments, Kaufmann paired quotes by Sullivan with actual pieces of architecture that exemplified them. For instance, he juxtaposed Sullivan’s statement on the part and the whole in reference to his 1895 Guaranty Building in Chicago—“[a building should show] a single, germinal impulse or idea, which shall permeate the mass and its every detail with the same spirit”—to Frank Lloyd Wright’s 1912 Press Building in San Francisco, Fritz Hoeger’s 1923 Chile Haus in Hamburg, Mies van der Rohe’s 1951 Lake Shore Apartments in Chicago, and Gio Ponti and Pier Luigi Nervi’s 1956 Pirelli Building in Milan, in a sequence that seemingly followed a teleological progression.31

28 An exhibit held in 1954 of Louis Sullivan’s work curated by the students of the Institute of Design. Richard J. Dadley Library, Special Collections, Institute of Design Papers, MSIDes72, Box 5. Folder 147.
In addition to formal genealogies and identifications, the show underscored Sullivan’s reflections on ornament celebrated as a “valid part of architecture” that made buildings easily recognizable. Its exploration of Sullivan’s ornamental forms was relational, informative, and demonstrative. Following the analysis of Sullivan’s ornamental sources—conventional botanical ornament in the 1870s (as in Frank Furness, Christopher Dresser, and the early Antoni Gaudí), Queen Anne Revival or vernacular ornament (as in R. Norman Shaw and Henry Hobson Richardson), poetic expression (as in Eugène Viollet-le Duc, Victor Horta, Antoni Gaudí, and Charles Rennie Mackintosh), and symbolic and psychological expression (Henry van de Velde, Hector Guimard, or Joseph Maria Olbrich), the exhibition related Sullivan’s work to contemporary architecture along two different lines: on the one hand, the ornament of structure as illustrated by the work of Frank Lloyd Wright, Le Corbusier, Eero Saarinen, Marcel Breuer, Edward Durrell Stone, and Minoru Yamasaki; on the other, the ornament of surface as exemplified by the work of Harrison and Abramovitz, J.J.P. Oud, Carlos Villanueva, Juan O’Gorman, and Oscar Niemeyer. Yet the classification and the individual figures associated with these two forms of ornament were puzzling. Both Edward D. Stone’s 1954 U.S. Embassy in New Delhi and his 1956 Town House in New York were conspicuous exercises in surface or “dressing” rather than structure. [Fig. 005] Equally baffling was the exhibition’s classification of Oscar Niemeyer’s 1943 Church of São Francisco de Assis in Pampulha, and Juan O’Gorman, Gustavo Saavedra and Juan Martínez de Velasco’s 1953 UNAM Central Library in Mexico among buildings with “surface ornament” since both depended on contributions by artists—the former by the painter Candido Portinari, the latter by painter, architect, and

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sculptor Juan O’Gorman. [Fig. 006-007] Such misrepresentations may have been symptomatic of the inadequacy of old labels for representing current architectural phenomena. But certainly all these demonstrations of postwar ornamentation relied on the photographic eloquence of the buildings to make their case.

Philip Johnson could not restrain himself from reacting to his former colleague at the Museum of Modern Art and, in turn, to Sullivan’s “mythographer,” Frank Lloyd Wright, though he did so indirectly. Johnson, who never saw the show in Chicago, spoke from the photographs in the book published by John Szarkowski, which he wrongly believed to be the catalogue of the exhibition. 33 [Fig. 008] This inaccuracy made Johnson criticize the omissions as well as the overall aesthetic judgment of Sullivan’s work: “Here was a young Richardsonian designer, full of talent, who had a gift for Whitman-like prose that transformed the merest platitude of tautology into an aphorism.” 34 Ranking below John Root in talent, Sullivan, in his stubborn rejection of Classicism, had created “painfully ugly” ornament and “ill-proportioned” architecture. Johnson celebrated Chicago White City as a “splendid sight” far from the influence of Sullivan. In what one can read as vicious criticism, he aired Sullivan’s problems with alcoholism and sex, which he associated with his unpopularity and loneliness, and claimed that history had been too gentle on him. Sullivan was not a “proto-modernist” but a man of the “pencil in his designs and a Richardsonian in his buildings.” Above all, Johnson disliked his use of ornament, particularly in

33 John Szarkowski, The Idea of Louis Sullivan (Minneapolis: The University of Minnesota Press, 1956). Szarkowski, a young photographer at the time, developed his photographs before the exhibit while on a fellowship from the Guggenheim Foundation. Some of the photos in his publication were taken by Edgar Kaufmann Jr. for the exhibition, but the book came out independently.

the capitals of the Guaranty Building, which did not conform to his idea of ornament as complying with structural expression and self-consistency. Expressing his view along similar lines, the British architectural historian Reyner Banham, vented his rage at Sullivan’s “vegetable obsessiveness” by raising his voice against Szarkowski’s book, which he described as an “hypnotic” depiction of Sullivan’s ornamentation that failed to appreciate his work as “the poet of structure, the elaborator of structure.” Without diagrams, axonometric projections, and plans, the book became “rhetorical in pitch” presenting only “half an idea” and paving the road towards an on-going “devaluation” of Sullivan as the father of functionalism. Nonetheless, there was one aspect of Sullivan’s work on which both Johnson and Edgar Kaufmann Jr. agreed: “What courage in the face of the problem of building cheaply for the profit of the entrepreneur! What a triumph of art in the epoch of commercialism!”

Vincent Scully applauded Philip Johnson’s disparagement of Sullivan’s ornament since it offered him a valuable opportunity for stating his own critical model. [Fig. 009] Scully’s reading of Sullivan’s architecture was a postwar one: despite floral motifs and hung fibulae, Sullivan’s mullions and spandrels were surface elements “clacketing downward like a dropped screen.” Imitating arabesques or the “interlaced continuities of Irish manuscript illumination,” Sullivan ornaments were “weight-denying” elements due to their “piercing of the solid.” For Scully, both Sullivan’s ornament and his aesthetic drive were a response to commercialism in a materialistic age that accommodated the nineteenth-century American need for empathy. His

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37 Vincent Scully Jr., “Louis Sullivan’s Architectural Ornament: A Brief Note concerning Humanist Design in the Age of Force,” *Perspecta* 5 (1959): 73-80. Scully was referring to the highly ornamented Celtic *Book of Kells*, created around 800 A.C.
work therefore proposed a different kind of humanism than the one claimed by modernists, one that validated the “power of the forces which move through all matter” while necessarily turning the subject back into an actor and spectator of modern urban life. If Sullivan didn’t break the box, as Johnson complained (“why should he have done so?”) then for Scully this was because his buildings:

[...] were not so much ambients within which human beings might move—which has always been the Wrightian position—as sculptural presences which might complement and challenge human beings and, through physical association, awaken in the new mass age a renewed sense of the possible dignity of an active human presence in the world.

Scully’s argument was well illustrated by John Szarkowski’s book. [Fig. 010] Regardless of the degree to which Johnson misread Szarkowski—a young photographer who would later become the director of the photography department at the Museum of Modern Art—these images made a powerful statement that would not have escaped Johnson’s insight. Szarkowski often photographed Sullivan’s buildings as a backdrop behind everyday life, urban scenery in which architecture seemed more exciting than the actual city of Chicago. [Fig. 011] Many of Szarkowski’s photos appeared in Walter McQuade’s review of the book in *Architectural Forum*. “Architecture” stated McQuade, “involves ornament, mood, underskin enjoyment,” and Sullivan’s buildings were, for instance, the sparkly notes behind “a suburban matron seeking a bus in Chicago’s Loop.” [Fig. 012] There was something about Sullivan’s ornamented buildings that made the life of Chicagoan’s distinct from that experienced by inhabitants of modernist buildings: character. And that character was exploited to formalize an implicit and explicit critique of the modern International Style that had to do with life in American cities:

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For humanism’s claims, see Herbert Read and Walter Gropius literature since the 1930s.

It is painfully true in most of our best modern buildings that humans—bathed in soft, completed floods of light, standing on bland wall-to-wall carpeting, enclosed by simple planes, primary colors—often seem mindless. They are reduced. Sullivan enlarged them….His florid formal decorations have vivid force, direct not abstract. He deliberately created complexity in feel and shadow, as if to declare to the unlettered: 'I know, I know, our modern business buildings have to be spare and efficient, but you’re not that way. Your mind is ornamented with many devious impulses. I know it is, because mine is too.'

In an act of ventriloquism, McQuade animated Sullivan through his own buildings to describe the psychological complexity of human beings in the urban context as well as their emotional needs. The “ornamented mind” that McQuade referred to was a turbulent postwar mind. Its corollary was the belief that modernity had created “mindless” subjects, void of any individual expression, automatons in the modern jungle of concrete and asphalt. Ironically, the urban characters caught by Szarkowski’s lens do seem dull and un-energetic, trapped in a context that could bring more gaiety to their life. They captured the “image” of everyday working class parades and routines under capitalism. [Fig. 013-14] McQuade’s “survival” dovetailed with Szarkowski’s “idea” in its implicit criticism of modern architecture, leaving Sullivan’s decorations in the background.

Precisely for its insistence on the photographic qualities of Sullivan’s work and its efforts to relate his ideas to contemporary practice, the exhibition, in contrast to Szarkowski’s book, was perceived as a failure by American art critic Frederick Gutheim, all the more so as it was held only a few blocks away from his buildings. His remarks on Edgar Kaufmann Jr. were underhanded, if only for the lessons Gutheim had learned at the Chicago exhibition. Gutheim’s

42 Frederick Gutheim, “The Sullivan Centenary Exhibition. It Presents the ‘Rich Treasure’ of his Work but Wants Context and ‘Relevance’,” *Architectural Record* 120: 6 (December 1956): 16. It is noteworthy that nearly all the critiques of Sullivan’s work in the 1950s refer to his alcoholism in later years, but rarely to his sexual escapades.
authority within American architecture was reinforced nearly a decade later when he curated the centennial celebration of the American Institute of Architects in Washington, where seventy-five buildings were exhibited in the National Gallery of Art from May 15 to July 14, 1957. Displaying only large images, the exhibition had an unapologetically pictorial and photographic quality. Not even the exhibition catalogue included any architectural images other than photographs—not a single drawing or model. This was a historical account, organized according to period and style with the aim of portraying the “conflict” between the goals of architecture and “the increasing limitations put upon creative expression.” Such “rigid disciplines” were “hostile” to the creative mind of the architects, which was increasingly constrained by the mechanical rigors of modernism and economy. “The transient, the commercial, the irrelevant” argued Gutheim, “all leave their mark of vulgarity and insincerity on architecture:”

It has been shrewdly observed that America is a land of many beginnings and little continuity. It has been a land of unparalleled architectural opportunity. Restraints imposed in other lands have here been lacking, or present in a lesser degree. New problems have faced the architect. In the historical record, experiment and novelty seem to contain what has been best in our architectural experience rather than continuity and refinement.

All this eclecticism was portrayed as a political and ideological issue; educational institutions, the hospital as a commitment to a better physical environment, the informality of family life expressed in the open plan, the factory as a work place, etc. reflected the impact and “obligation” towards the construction of an “avowedly classless society” in the U.S. The polyhedron of the evolution of American architecture was the result of a mode of understanding

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political and social relations rather than that of any technological achievement. To amend this outlandish rigor, Gutheim presented ten buildings that were going to serve as models for America’s architectural future designed by architects such as Eero Saarinen (General Motors Technical Center, Detroit, MI, 1951-1955), Victor Gruen (Northland Center, Inc. Detroit, MI, 1954), Hellmuth, Yamasaki & Lienweber (Lambert-St. Louis Municipal Airport Terminal Building in St. Louis, MO, 1953-1955), Matthew Nowicki (the State Fair Arena in Raleigh, NC, 1952-1953), etc. These buildings constituted the basis of an emerging architecture: structurally sound and frank, humanly compromised, meaningful, and finally, ready to “admit once again to architecture color and the arts of painting, sculpture, and decoration.”

Interestingly enough, all the photographs of the buildings were “decorated” with extended lights, playing children, reflections in glass and water, etc. reminiscent of Moholy-Nagy’s work. If the conflict lay in the definition of American architecture as a representative of postwar culture, then the arsenal was full of ornamental forms. The target was to overcome the “rigid disciplines” that had proven “hostile to creative design.”

4.2_ Outsider Gaudí.

*Originalidad es volver al origen.* Antoni Gaudí.

More controversial was the growing appreciation of the work of the Catalan architect Antoni Gaudí (1852-1926). Oscillating between Art Nouveau, Expressionism, Naturalism, Dada, Surrealism, Gothic Revivalism—with Baroque overtones and occasional Moorish and


Orientalist touches—his architecture was systematically identified with the representation of the fantastic. And yet, the material gestures of the “fanatic religious” Gaudí seemed incapable of being pigeonholed in the 1950s. In the early postwar period, his works were viewed as “anachronistic,” expressing “frenzy,” and as constituting a formal potpourri of various past styles that led to a “crazy Pyrenean historicism.” However, there was a historical reason for the association between Gaudí and the fantastic, for the relationship between delusion, Dada, and Surrealism in his work was in line with the close association that the Museum of Modern Art drew between the various avant-garde art-forms in its 1936 “Fantastic Art” exhibition. [Fig. 015-016] Wandering among paintings, collages, photomontages, and sculptures, the visitor would eventually enter the architectural section of the show and see several images of three of Gaudí’s projects—The Parc Güell, Casa Batlló, and Casa Milà—juxtaposed with Ferdinand Cheval’s Dream Palace at the Hauterives (1879-1912), Kurt Schwitters’ Merzbau, and the projected structures of the Cuban architect Emilio Terry, which included a spiral house designed in circa 1930. [Fig. 017] A photogram of cylindrical, interlaced motifs in glass by Man Ray illustrated the catalogue’s cover. Images of Christian Shad’s rayographs and Moholy-Nagy’s collages were likewise included as signs of the complex and bizarre formal language proposed by the various avant-gardes. Fantasy had an uncanny ability to migrate from media to matter and back again. [Fig. 018]

After the Second World War, Gaudí’s work became increasingly described as modernity *avant la lettre*. His architecture became an instrument with which to explain, prescribe, and associate the puzzling morphologies of mid-century modern architecture. Accordingly, Gaudí’s decorative materials, sculpture, and details as well as the complex structures he designed and built became the raw language for articulating a postwar modern architectural grammar. Furthermore, his architecture served as an innuendo for architects and historians, helping contemporary criticism deal with the anxiety of evaluating the forms engendered by postwar architecture. The revival of Gaudí’s work in the postwar era was far from historiographical or academic; rather it served as a contentious and rhetorical signifier of different formal approaches to modern architecture. La Sagrada Familia, for example, was so baffling to foreign eyes that Kidder Smith described it as “tooth paste” yet worthy of inclusion in the history of 20th-century architecture. Others described Gaudí’s architecture as formless, informal, and formative. It is not surprising that despite its different takes on the complex structural and decorative world of Gaudí’s forms, the growing international attention towards his buildings departed from the renewed interest in so-called “organic architecture,” a label that despite being vague, ambiguous, and imprecise, distanced itself from the prescriptive rigors identified with the architecture of the International Style. It is important to remember that an image of the undulating, continuous bench designed by Gaudí for the Park Güell illustrated the cover of the original edition of Bruno Zevi’s 1950 *Storia della architettura moderna*. [Fig. 019] This privileged space was a late recognition of Gaudí’s work as inaugural; Zevi had made no references to

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Gaudí’s fantastic architecture in his earlier Verso un’architettura organica, and merely acknowledged it in a footnote in his slightly later Saper vedere l’architettura. Besides receiving minor and often accidental acknowledgements, Gaudí’s architecture had begun generating greater albeit rather belated critical attention outside of—and, to some extent, also inside—Spain. Published in Spanish in New York, the journal Proyectos y Materiales dedicated an extensive report on Gaudí’s work in its first issue, which included a thorough aesthetic, symbolic, and technical assessment of the work of the Catalan architect written by architects and critics such as Josep Maria Sostres, Francesc Folguera, and Alexandre Cirici Pellicer. The journal also tapped the Prats photographic archive for images. International scholarship on Gaudí was quite limited at the time. Nikolaus Pevsner’s 1936 edition of Pioneers of Modern Movement made no reference whatsoever to his work, while the 1949 edition—renamed Pioneers of Modern Design—first mentioned the Catalan architect, as Zevi had a year prior, in a footnote, accompanied by a single photograph of the ornamental ironwork of Palau Güell (1885-1889) shot from the narrow street before the main entrance. The insecurity of postwar historiography vis à vis Gaudí’s buildings relegated the architect to the margins of the literature on modern architecture. Gaudí’s meager presence in Pevsner’s 1949 edition seems even more

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52 Bruno Zevi, Verso un’architettura organica (Torino: Giulio Einaudi, Editore, 1945); Saper vedere l’architettura (Torino: Giulio Einaudi, Editore, 1948); Bruno Zevi, Storia della architettura moderna (Torino: Giulio Einaudi, Editore, 1950). Gaudí’s presence was still linked to the forms of German expressionism, probably after the association drawn by Henri-Russell Hitchcock in 1928, when he spoke about the scant international knowledge of the Catalan architect’s work in the late 1940s.


54 Zevi published an image of the sub-structure of Parc Güell. With a few exceptions in Germany, England, and the United States, the earliest assessments of Gaudí’s work appeared in French journals, such as L’Art décoratif, Gazette des Beaux-Arts and L’Art et les artistes ca.1910, and in Minotaure, Formes formerly appropriated by Surrealism in the 1930s.
miniscule when compared to the attention received by Louis Sullivan’s architecture, mentioned so frequently in Pevsner’s book.\textsuperscript{55}

Further scholarship was in preparation, however. Around 1952, a significant amount of literature appeared in Spain in commemoration of the centennial of Gaudí’s birth,\textsuperscript{56} coinciding with increasing interest in his work elsewhere. This movement, commanded by the Asociación Amigos de Gaudí and his zealous secretary Enrique Casanellas, dovetailed with the economic need of the Franco regime to open the country to foreign governments. The United Nations’ recognition of Spain occurred in 1955 thanks to the support of the United States, in exchange for which it obtained rights to establish military bases on the Iberian peninsula. With the establishment of this climate of international cooperation, historians of art and architecture began traveling to Spain. Pevsner, for example, travelled to Barcelona to see Gaudí’s work in 1952; George Collins and Philip Johnson did so in 1956 as did Henry-Russell Hitchcock a mere year later, in 1957.\textsuperscript{57} As early as fall 1946, James Johnson Sweeney—by then transitioning from

\textsuperscript{55} In eighteen pages, to be precise.

\textsuperscript{56} In Spain the most comprehensive reassessment of Gaudí was José F. Rafols and Francesc Folguera, Gaudí (Barcelona: Editorial Canosa, 1929), reprinted in 1952. Joan Bergós, Gaudi, L’home i l’obra (Barcelona: Ariel, 1954); Alexandre Cirici Pellicer, El arte modernista catalán (Barcelona: Aymà, 1951); La Sagrada Familia de Antonio Gaudí (Barcelona: Ediciones Omega, 1952); Juan Eduardo Cirlot, El arte de Gaudí (Barcelona, Ediciones Omega, 1950); César Martinell, Gaudí i la Sagrada Família: comentada per ell mateix (Barcelona, Aymà, 1951); Gaudinismo (Barcelona: “Amigos de Gaudi,” 1954); Isidre Puj Boada, El templo de la Sagrada Familia: síntesis del arte de Gaudí (Barcelona: Ediciones Omega, 1952). A combined book review, bibliographical note to El arte de Gaudí, La Sagrada Familia de Antonio Gaudí, and El Templo de la Sagrada Familia, was published in 1954 in Architectural Record, which, however, focused on the nationalism, religion, and eccentricity of the Catalan architect without a deep understanding: “Strange as the work seems, it is sympathetic with the rugged Catalan landscape and temperament.” See “The Strange Work of Antoni Gaudí,” Architectural Record 116: 1 (July, 1958): 46-48.

\textsuperscript{57} George Collins was an art historian and professor at Columbia University who inaugurated the archive of Catalan art at Avery Library in the summer of 1958. The archive began as an association named Amigos de Gaudi, USA. For a detailed explanation of his trips, see George Collins, “The Archive of Catalan Art and Architecture. Los Amigos de Gaudi en EEUU,” Antoni Gaudi (1852-1926) (Madrid, Museo Español de Arte Contemporáneo, 1985), 42-49. Philip Johnson took a field trip around Europe in January and February of 1956. He visited Barcelona, where he thought Gaudi’s work was "more than up to expectations." TLS from Philip Johnson to Henry-Russell Hitchcock, March 9th, 1956. Henry-Russell Hitchcock Papers, Smithsonian Archive of American Art, Box 7. Hitchcock had visited Barcelona earlier, in the 1950s, but when exactly remains unclear.
the Museum of Modern Art in New York to the directorship of the Guggenheim Museum—and Josep Lluis Sert—working in New York while developing urban plans for South America—were considering publishing a book on the Catalan architect. According to later accounts, the book project had been triggered by the impression made on them by Joaquim Gomis’ color photographs of Gaudí’s work. In as much as Gaudí’s architecture posed a historiographical problem, it was also a puzzling subject for photographers. Man Ray’s 1933 photos of Casa Milà, Casa Batlló, and Parc Güell—the same ones that appeared in Dalí’s article “De la beauté terrifiante et comestible de l’architecture modern’style,” in the French magazine Minotaure—which were taken from oblique angles, offered a mere foretaste of the photogenic potential of Gaudí’s forms as re-manufactured through the optical lens of a camera.59 [Fig. 024] In postwar historiography, Gaudí’s polemical architecture lay parallel to the increasing sophistication of the internationally circulating images of his structures.

It was in the popular press that Gaudí’s work made its appearance to a large audience in the United States. [Fig. 025] Coinciding with the Barcelona exhibition celebrating his anniversary, an article in Time magazine presented the architect as a profligate and beggar oblivious to the worldly issues that concerned his commissions and clients.60 Gaudí “never passed up an
opportunity to ripple or budge a surface, scallop an edge or stick on a few mushrooming towers.” His fantasy therefore was economically unsustainable, only affordable by “aristocrats.”

It was also in the British Broadcast Corporation’s popular magazine The Listener, that Nikolaus Pevsner introduced the “phantasmagoria” of Gaudi’s forms to the aesthetically profane visitor.  

[Fig. 026] Two articles on Gaudi’s architecture that appeared in 1953 speak of its contested terrain as well as the multiplicity of views that it offered. One in the Yale magazine Perspecta, introduced Gaudi’s Casa Milà—also known in Catalan as “La Pedrera”—with a black-and-white photographic essay by Herbert Brooks Walker paired with commentary by the art dealer and historian Robert Schoelkopf.  

[Fig. 027] In it, Gaudí was described as a “naturalist,” a man whose Gothic forms were the nationalistic Catalan response to Madrid’s classicism. Henry-Russell Hitchcock, who had addressed Catalan Modernisme with contempt in 1928, probably induced the mixture of architecture and politics that kept appearing in future accounts of Gaudí’s work in the American context. For Schoelkopf, Gaudí’s style oscillated between Gothic revivalism and a “highly variable personal idiom” that included recurring features such as “irrelevant, mad details” that had eventually generated the “flaring curves” of Casa Milà. Such


64 “In Spain however, the worst late nineteenth century Beaux-Arts manner uncontrolled by any restraint whatsoever governs the mass of the work. There is in Barcelona, due to the revolt of the Catalan architects against Madrid, a certain amount of exceedingly fantastic building, as for example the notorious church of the Sagrada Famiglia [sic] which can only be compared with the worst results of German Expressionism.” Henry-Russell Hitchcock, “Modern Architecture I. The Traditionalists and the New Tradition,” Architectural Record, 63 (April, 1928): 344. See also James Johnson Sweeney, “Antoni Gaudi [sic],” Magazine of Art 46: 5 (May 1953): 195-205. In Sweeney’s opinion, Gaudi’s romantic preference for Gothic architecture was a way of neglecting the Renaissance, viewed as the period marked by a loss of national identity after Catalonia’s subordination to Castile. A year later a book review in Architectural Record, identified Gaudi as a response to the “oppressive Central Government.” See, “The Strange Work of Antonio Gaudí,” Architectural Record 116: 1 (July, 1954): 46.
forms could appear both structural and decorative in equal parts. \[\text{Fig.028}\] Despite historical references, Gaudí’s style was, above all, individualistic and self-referential—an extension of his own character through the imaginative use of sandstone, Majolica tiles, concrete, and ironwork that defied any established categorization. Reinforcing such a view, the photographic report showed the entire Casa Milà, nearly covered by the urban vegetation around it, in only one tiny illustration. On the other hand, the reader was confronted with details, fragments, scenarios, and a dramatic collapse of the undulating façade viewed from below. \[\text{Fig.029}\] Gaudí’s formal richness and interest in ornament was further exacerbated by Herbert Brooks Walker’s camera, albeit reduced to its most contradictory elements. It was thus that the pedestrian views of the façade and its interior features were made to appear as a sequence of flowing lines and highly contrasted optical textures and material patterns.

The second article was by James Johnson Sweeney and corresponded with his and Josep Lluís Sert’s postwar interest in Gaudí’s work. In anticipation of their later publication, Sweeney published an article that presented Gaudí as a synthetic artist, master of sculpture and painting, and for that very reason, architecture. \[\text{Fig.030}\] In it, Johnson Sweeney undermined Pevsner’s definition of Gaudí as an “outsider” and rejected the Northern European criticism of his work as one that embraced “anachronism” and “frantic concoctions.” For Sweeney, such criticism concentrated too often solely on surface decoration and the convoluted gestures of Gaudí’s architecture while failing to recognize its structural, material, and technical features. \[\text{Fig.030}\] The pairing of Gaudí and ornament was a “popular” misconception, based on the architect’s

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naturalistic associations and the rhythmic motifs present on his surfaces. What contemporary criticism failed to recognize, Sweeney insisted, was that these ornaments where structural and expressed the “natural forces” beneath the surface expression. If so, then Gaudí’s decorations were three-dimensional forms engrossed by the materiality assigned to the floating, meandering lines that circulated through his building elements. Gaudí’s architecture was the best example of the reunification of the arts and the quest for monumentality in postwar architecture. A few years after Churchill’s rhetorical imposition of the “iron curtain,” Gaudí’s architecture offered a monumentality that was ideologically opposed to the one in the Eastern bloc and characterized by individualism, imagination, and material richness.

A mere two years later, Josep Lluís Sert’s article in the French-Swiss magazine L’Œil had a similar tone. Sert, however, ascribed a different meaning and depth to Gaudí’s naturalistic ornaments, claiming that they were instrumental to the development of the building as a whole. Ornaments were simply micro-representations of the structural and organizational laws and geometric principles that “governed” his architecture. Spires, sculptures, and motifs were mere specimens in Gaudí’s laboratory, that is, models for testing matter and acquiring greater physical goals as a necessary step towards an enhanced form of functionalism tinged with

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69 Winston Churchill delivered his famous lecture “Sinews of Peace” at Westminster College in Fulton, Missouri in March 1946, where he popularized the term “iron curtain.”

naturalism. This time, the Hungarian photographer Brassaï shot the photos for the article, capturing Gaudí’s buildings in relation to the city of Barcelona and its worldly activities.

[Fig.031] In them, details in Gaudí’s work appeared as yet another subject within the skyline of the industrial city, a photographic strategy similar to the one that Ernesto Nathan Rogers was to follow several years later in the description of BBPR’s project of Torre Velasca in the pages of Casabella.71 It may not be a coincidence that Sert had published an earlier version of his article in the same Italian magazine only four years earlier. Close-ups of Gaudí’s details appear either as yet other silent citizens—as subjects fashioning the urban spectacle of modernity. These images recalled those that Juan Eduardo Cirlot included in El Arte de Gaudí, published in 1950, with illustration taken from the photographic Archive Mas. [Fig. 032] Analyzing the seamless presence of older architectures in modern contemporary cities, Sert concluded that the classic structural tradition of modernism was no longer valid: “We cannot continue to construct our cities limiting our selves to edifices exactly like boxes, exclusively inspired by the system of the slab and the pillar.”72 Gaudí’s architecture was the ventriloquist’s puppet voicing concerns that Sert himself had expressed previously at professional conventions during which he had rejected modernism’s “clichés of appalling poverty.”73 [Fig. 033] The totemic presence of La Sagrada Familia’s spires in the city anticipated the linguistic richness of the postwar era. Actually, relations between Gaudí’s form and social wealth were hardly disguised in many postwar evaluations of his work. But Sert’s audience was indeed the American consumer of architectural culture: As New York Times art critic Dore Ashton wrote in the 1950s, the attention on Gaudi’s


73 “The Changing Philosophy of Architecture,” Architectural Record 213 (August 1954): 181. This was the topic of an A.I.A convention in which speakers including Paul Rudolph, Eero Saarinen, Ralph Rapson, and Josep Lluís Sert, heralded “a richer and more flexible vocabulary.”
ornament originated in issues of structure and geometry once “the pendulum [began] swinging away from the anti-ornamental style of the International School.” For Danton, in turn, Gaudí was the “Dante of architecture,” who had generated a synthesis between the vernacular and modern instrumentalism through a new formal linguistic forerunner of mid-century architectures. Gaudí’s religiosity performed an exorcism through his architecture by dismissing earlier European geometric and decorative austerity.

Three years after his first article on Gaudí and coinciding with the thirtieth anniversary of the architect’s death, Johnson Sweeney wrote an essay in anticipation of his forthcoming joint publication with Sert—at the time, already Dean at Harvard’s Graduate School of Design. In it, Sweeney emphasized the structural qualities of Gaudí’s architecture and went a step further in relating its decorative features and the arts: “Gaudí’s patterns taken by themselves anticipate modern painting, modern sculpture.” Gaudí’s work thus became premonitory and inspirational. This association between painting, sculpture, and architecture ran counter to Henry-Russell Hitchcock’s attitude in his 1948 Painting Toward Architecture, a book commissioned by the Miller Company, a manufacturer of light equipment, with the aim of revamping architectural design by circulating the visual creations of the artistic avant-gardes of the first half of the twentieth century. For Hitchcock, architecture was subordinate to the

78 Henry-Russell Hitchcock, Painting Toward Architecture (Meriden; CT: The Miller Company, 1948). The book was written with the assistance of Vincent Scully and included a foreword by Alfred Barr Jr., expressing his opinion that “modernistic’ cubist ornament of the 1920s was if anything worse than Gothic and Greek architectural cosmetics.
other arts; for Sweeney, if we take the case of Gaudí as example, it was the other way around.

Amidst contemporary discussions on the repositioning of the traditional arts included in architecture—sculpture, painting, and murals—Gaudí offered architecture the possibility of autonomous generation. For this to happen, however, his unrestrained fantasy and decorative frenzy—still regarded with some suspicion—had to be subdued so that the structural qualities of his architecture could be better appreciated:

The total impression immediately derived is that Gaudí [was] primarily an eccentric, a fantast and a decorator in an age of ostentation and crude taste. From an architectural viewpoint, however, there is another aspect of Gaudí’s work which is only now beginning to receive the attention which it has long deserved. This is Gaudí’s structural genius which underlies his decorative surface eccentricities—at times almost smothered by them, but in other instances, particularly in his latest work, making them often a necessary product. For what is remarkable about Gaudí is the capacity he shows fully in his mature work to translate natural forms into sculpture and to derive intuitively from these forms valid structures which are geometrically probable. 79

Gaudí’s eccentricity and fantasy first had to be arrested, domesticated, but also utilized. In this final aspect, Sert’s arguments had an impact; it was just after Gaudí “discovered the structural and geometric laws that govern these forms, that he was able to give real unity and sculptural quality to his buildings.” 80 But even if this knowledge came from a deep understanding of natural forms and their behavior, Gaudí’s naturalism could not be regarded simply as stylistic but rather as empirical and scientific. Sert and Sweeney made this explicit in their future publication, in

of the same decade,” and celebrating the fact that the new abstract anti-cubist forms of Miró or Jean Arp were understood as a reference for light fixtures and showcase details. The publication of the Miller Collection of abstract art had to help the postwar architect in the “education of the eye” (10). The same operative tone relating arts and architecture is present in Henry-Russell Hitchcock’s essay, a piece criticizing functionalism and indicating new avenues for the development of modern architecture, particularly in the work of young abstract American painters. Abstract art “should… stimulate” the new forms of architecture further without falling into ornamental “vulgarization” (52-54).

79 James Johnson Sweeney, “Is Yesterday’s Fantasy, Tomorrow’s Working Geometry?” Architectural Forum 104 (March, 1956), 113. Sweeney’s article was introduced editorially as follows: “Decades ago a Spaniard’s fanciful architectural details hit on a new geometry for today’s molded shapes (1).”

which photos of building elements—all of them taken by Joaquim Gomis and Joan Prats—were likened to skeletal structures and snail formations. [Fig. 034] Sweeney’s emphasis on the structural forms that “underlay” ornament seems also to have been an inevitable consequence of accommodating Gaudí’s architecture to the postwar new vision, and resonated with the biological concerns of the period’s aesthetic debates.81

In December 1957, the Museum of Modern Art in New York opened the first American retrospective on the work of the Catalan architect. The idea for it arose from Alfred Barr Jr. and Philip Johnson, as the former stated in a letter to Hitchcock in May 1956. [Fig. 035] According to Johnson, Barr had been “horrified” by the images of the Jewett Arts Center in Wellesley College designed by Paul Rudolph, a project that had triggered much discussion on the ornamental use of modern elements.82 [Fig. 036] As the correspondence between Johnson and Hitchcock suggests, the show on Gaudí was meant to be remedial and reactionary—a response to the curiosity that the revivialist trends of postwar American architecture had raised in Johnson. This had led him to visit Barcelona early that year and to convince the Museum of Modern Art to send Henry-Russell Hitchcock to study Gaudí’s buildings. [Fig. 037-038] At the time, Hitchcock was closely collaborating with Nicolaus Pevsner, director of the Pelican History


of Art series, on the Pelican edition of *Architecture: Nineteenth and Twentieth Centuries*. Writing from London, Hitchcock visited Barcelona in the summer of 1957 in order to select materials for the exhibition, which had been commissioned by the museum’s Department of Architecture and Design under the direction of Arthur Drexler. The show opened on December 18, 1957 and ended on February 23, 1958. [Fig. 039-040] Located on the third floor of the museum, the exhibition showcased five major projects: Casa Milà, Casa Batlló, La Sagrada Familia, Colonia Güell, and Parc Güell. Also on display were several details of minor buildings and actual casts of sculpture, a nave window, and a column from La Sagrada Familia, together with a chair from Casa Batlló and a wrought-iron window grill from Casa Milà, sent from Spain for the occasion by the *Asociación Amigos de Gaudí*. [Fig. 041-044]

The show was meant to foster “singularity” in postwar architecture. Gaudí may not have been an architect to imitate but rather to follow in his quest for subjectivity—a subjectivity that seemed confined to the analyst’s couch: “Is it not curious that while psychoanalysis has increased our knowledge of ourselves, in architecture alone among the arts we have not yet made use of our new information?,” asked Drexler rhetorically. Denouncing the “unnecessary restrictions” imposed by modern architecture, he advocated for unleashing the “range of permissible effects”—mainly textures and organic forms stemming from his structural imagination—conspicuous in Gaudi’s work. The invocation of Freud helped re-surface a forgotten past that could remediate the maladies of modern architecture.

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Although initially the exhibition had been planned to be part of a larger show that was to include the works of Charles Rennie Mackintosh or Victor Horta, it was later limited to Gaudí, whose work at that time was deemed largely unknown to the American public. But as in the case of Sullivan's postwar rehabilitation, the Museum's press release justified the mounting of the exhibition on the basis of current trends in architecture and design. According to Henry-Russell Hitchcock, Gaudí's architecture achieved “an unusual richness and complexity of forms quite unlike the main line of development taken by architecture since the mid-twenties.” The show responded to the “recent preoccupation of many architects with sculptural forms and curved surfaces, and the latest international movements in painting and sculpture—the ‘action’ painters and the sculptor-welders— which, although not directly influenced by Gaudí’s little known work, have nevertheless provided the impetus for the recent quickening of interest in his architecture.” Le Corbusier, Félix Candela, Eduardo Catalano, and Pier Luigi Nervi’s continuous curved structural surfaces were, at that point, an international reference. But despite efforts to establish parallels between the work of Gaudí and current building trends, Henry-Russell Hitchcock, likes his close friend Nikolaus Pevsner, viewed Gaudí’s work as unique and isolated from twentieth-century developments. Gaudí remained an example of how limited “the aspects of the building art” exploited by modern architects in the early twentieth century had ultimately been. In fact, Hitchcock barely disguised his suspicions towards Gaudí’s

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87 Museum of Modern Art, Press release, Tuesday, December, 17, 1957. By “sculptor-welders” he was probably referring to the works of Jacques Lipchitz, highlighted in his *Painting Toward Architecture* of 1948, and particularly to Mirko Basaldella, who was working as design professor at Harvard’s Carpenter Center after his successful ironwork for Mario Fiorentino, Nello Aprile, Cino Calcaprina, and Aldo Cardelli’s monument for Le Fosse Ardeatine in Rome.
architecture, which he continued to describe as a historical rarity. In the exhibition catalogue, for example, he noted that:

Accustomed as we are in the twentieth century to buildings whose esthetic content is relatively simple and homogeneous—for this is true even of most of the work of Wright and of the latest work of Le Corbusier—a Gaudi building is like a ten-course dinner taken in one gulp—‘comestible’ perhaps, in Dali’s favorite image, but indigestible to all but the strongest stomach. 89

What made Gaudi’s work interesting was not its structure, which was poorly understood, but its ornamentation. Unlike Sullivan, Gaudi rarely worked with portico-like frames; instead he relied on masonry, producing forms that were technically very different from the continuous concrete shells of postwar architecture. 90 Hitchcock relied repeatedly on gastronomic metaphors: Gaudi had looked for a “richly orchestrated” architecture that posed some risk of indigestion. “…[S]o rich are the meals his work offer that it may make them more digestible to divide up those meals, so to say, into some of the main courses.” 91 [Fig. 045-046] With these words, Hitchcock entered in resonance with Dali’s 1933 article, noted above, which had been published in English the same year of the exhibition on Gaudi, this time, however, without the images supporting Dali’s argument for an “edible” modern style. 92 In the 1950s, Salvador Dali established a more personal engagement with Gaudi’s work. Ricard Sans photographed the artist during his visit to Casa Milà in 1951 and the renowned Catalan photographer Francesc Català Roca did the same in 1953 when Dali visited Parc Güell, in a more casual setting, surrounded by people visiting the park. [Fig. 047-048] Dalí appropriated Gaudi’s architecture in a theatrical fashion, as a form of costume and an extension of human fantasy that completed his own

90 Misled by some of the images, he had previously thought that the structure of the Casa Milà was made out of reinforced concrete.
subjectivity. Dalí, in other words, used Gaudí’s architecture as an ornament and background for his persona in a fashion recalling Hans George Gadamer’s repositioning of the concept of ornament in the postwar context: architecture as space and background, but also as a decoration of everyday life, simultaneously concentrating and dispersing attention. By the late 1950s, Gaudí had become an image ready to be deconstructed and misappropriated. “Simple and homogenous” developments in postwar architecture compelled Henry-Russell Hitchcock to reassess his legacy:

What is it that has made Gaudi’s architecture lately so topical? On the one hand, undoubtedly, it is the latest work of Le Corbusier, most notably his church of Notre-Dame du Haut at Ronchamp in France of 1949-54 and, to a lesser extent, his High Courts at Chandigarh in India of 1950-55. Le Corbusier’s work is, of course, not specifically Gaudian, nor is there any evidence that he is especially an admirer of Gaudi’s work. But his recent pre-occupation, particularly in the church, with extremely sculptural forms, with much use of curved surfaces in three dimensions, is in such sharp contrast to the line of international modern design [...] that interest in Le Corbusier’s latest buildings has naturally turned attention towards earlier twentieth-century architecture of a similarly plastic character. More subtly –perhaps even half unconsciously– the fact that Gaudi’s polychromy, generally executed in a mosaic of pieces of broken tile or broken glass, and his ornament, particularly his ironwork, has some resemblance to the work produced by the latest international movements in painting and sculpture, has played a part as well.

Certainly, as Sweeney, Sert, Johnson, and Pevsner were aware, the interest in Gaudí stemmed from the formal eye-catching complexities of his works that resembled those of modern masters. However, Henry-Russell Hitchcock was misinformed about Le Corbusier’s knowledge of Gaudi’s architecture; two months before the exhibition opened, Le Corbusier wrote a letter from Paris stating his admiration for the force and persona of Gaudi, who, he felt, had been

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capable of amalgamating the energy necessary to combine economy, utility, technical knowledge, and structural expression. [Fig. 049] Guided by Josep Lluís Sert acting as cicerone, Le Corbusier visited Celler Güell in Garraf, Barcelona—which he called a villa—and Gaudi’s buildings in Passeig de Gràcia, and referred to Gaudi’s buildings as carrying “the emotional capital of 1900.”95 Certainly, his sketches of the undulating roofs on the schools erected for the laborers working on La Sagrada Familia increased his interest for vernacular techniques and materials such as the Catalan vault.96

What I had seen in Barcelona was the work of a man of extraordinary force, faith and technical capacity, manifested throughout his life in the quarry, that of a man having stone carved before his eyes from really master drawings. Gaudi is ‘the’ constructor of 1900, the professional builder in stone, iron, or brick [...] Architecture whose meaning shines forth at the moment when lofty intentions dominate, triumphant over all the problems assembled in the firing line—structure, economy, technique, utility—triumphant because of an unlimited inner preparation—‘that’ architecture is the fruit of character—properly speaking, a manifestation of character.97

Together with the exhibition, the Museum of Modern Art organized a symposium on which the controversy around the work of the Catalan architect was staged. Arthur Drexler introduced a panel that was initially supposed to include Henry Russell Hitchcock, Josep Lluís Sert, James Johnson Sweeney, and Salvador Dali.98 Medical problems kept Dalí away from the event, however, and a tape-recorded presentation of his lecture was played for the audience.

96 See, for instance, Le Corbusier’s project for the Jaoul houses in Le Celle-Saint-Cloud in 1935. On the relationship between Le Corbusier’s sketches and his fascination with Gaudi’s architecture, see Juan José Lahuerta, Universo Gaudi (Madrid: Museo Nacional Centro de Art Reina Sofía, 2002), 173-178.
98 Frederick Kiesler was also considered as a possible panelist though in the end he was not present.
Hitchcock opened the session with a lecture on Gaudí’s work, illustrating his talk with color slides taken on his recent trip to Barcelona. He lay emphasis on Gaudí’s polychrome mosaics and the formal aspects of his architecture, which provided it with a “Dada-like” feel without displacing central modern topics such as space or structure.\(^\text{99}\) As for Dali, though he spoke in English, his thick Spanish accent made his speech difficult to understand. The organizers therefore decided to retranslate his presentation before those of the other speakers. For him, Gaudí was the “only big genius of modern times” and the “prophet of a forthcoming classicism,” emerging “after the last experiences of some heroic abstract painters [are] concluded and the contemporary ‘masochistic’ architecture collapses completely.”\(^\text{100}\) Dalí named Le Corbusier, the quintessentially masochist architect, as the central figure of that hypothetical collapse:

> When I was barely twenty-one years old, I happened to be having lunch one day at my friend Roussy de Sales’ in the company of the masochistic and Protestant architect Le Corbusier who, as everyone knows, is the inventor of the architecture of self-punishment. Le Corbusier asked me if I had any ideas on the future of his art. Yes, I had. I have ideas on everything, as a matter of fact. I answered him that architecture would become “soft and hairy” and I categorically affirmed that the last great genius of architecture was called Gaudí whose name, in Catalan, means “enjoy,” just as Dalí means “desire.”\(^\text{101}\)

Joy and desire were not sufficient; Dalí had strong complaints about the equation of Gaudí’s work with the extravagance of Disneyland, a comparison drawn previously by certain American critics. He also claimed for himself the prerogative of continuing the still unfinished temple of La Sagrada Familia in Barcelona.\(^\text{102}\) For Dalí, Gaudí was a universal character, able to enlighten and enliven every single piece of art: “In the tragedy of Modern Art, every big artist is more or

\(^{99}\) Henry Russell Hitchcock, Tape-recorded intervention in Gaudí’s symposium at the Museum of Modern Art, January 14, 1958 [Ref. 58.2D]

\(^{100}\) Salvador Dalí, Tape-recorded intervention during Gaudí’s symposium at the Museum of Modern Art, January 14, 1958 [Ref. 58.1]


\(^{102}\) I have not found any associations made between Gaudí’s work and Disneyland before the date of the symposium. It is significant that Dalí invoked the theme park as a fantasy of popular imagination.
less Gaudinian. It is necessary the most violent attack of form and distortion for recuperate a little part of life of art almost dead [sic].” Accordingly, he viewed Gaudí not at the origin of a modern tradition in architecture, but rather as a key figure in a broader and universal understanding of timeless architecture that emancipated subjects from their context and immersed them in the oneiric and fantastic, the empathic and the erotic.

Dalí did actually contribute to the reproduction of Gaudí’s work, though in a different medium and with a different material. He returned to Park Güell three years after his photography session with Francesc Català Roca to deliver a lecture that also entailed a performance. In it, he painted a homage to Gaudí on the floor. The image, suspended over the podium after Dalí’s performance, depicts La Sagrada Familia in its incomplete state, albeit as a dark, black silhouette. In his notes for the lecture, Dalí acknowledged his appraisal of Gaudí to Gala, his life-long partner who had taught him to see the spiritual dimension of Gaudí’s work as opposed to viewing it as a two-dimensional image. Ironically, what we see in Dalí’s painting is a simplification of Gaudí’s work to a figure and ground composition in tar—a material alien to Gaudí’s engagement with matter. [Fig. 050] This act of material synthesis and migration resonated with Dalí’s preoccupation with matter that relied on the scientific discoveries of twentieth-century physics:

The most transcendent discovery of our epoch is that of nuclear physics regarding the constitution of matter. Matter is discontinuous and any valid venture in modern painting can and must proceed only from a single idea, as concrete as it is significant: the discontinuity of matter.  

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103 Salvador Dalí, Tape-recorded intervention in Gaudí’s symposium at the Museum of Modern Art, January 14, 1958 [Ref. 58.1]

For Dalí, Gaudí’s work had nuclear power, a material radiation that affected the morphology of his buildings in a spiritual fashion.\(^{105}\) Its after-effects too had the form of decorative undulations and configurations that gently deviated attention from Gaudí’s ultimate relevance as the master of the unconscious:

I here emphasized the essentially extra-plastic character of Modern Style. To my mind, any use of the latter for properly “plastic” or pictorial needs could not only fail to imply the most flagrant betrayal of the irrationalist and essentially “literary” aspirations of these movements. The “replacement” (a question of fatigue) of the “right-angle” and “golden section” formula by the convulsive-undulating formula can in the long run only give rise to an aestheticism as melancholy as the preceding one—momentarily less boring because of change, and that is all. The best subscribe to this formula: a curved line appears today to become once more the shortest distance between two points, and the most vertiginous—but all this is but “the ultimate wretchedness of plasticism,” an antidecorative decorativism, contrary to the physic decorativism of Modern Style.\(^{106}\)

Disregarding Dalí’s \textit{extravaganza}, Josep Lluís Sert continued with the rationalistic line of thought of his mid-1950s articles, and presented a less fervent appraisal of Gaudí.\(^{107}\) Admitting his disinterest in Gaudí’s architecture during his student years, Sert acknowledged that it was time to reconsider the architect’s contribution through the intrinsic, spatial values of his work. Sert described Gaudí’s buildings as the product of a nineteenth-century spirit of collaboration between craftsman and builder that was in tune with a traditional national preoccupation with construction and details. [Fig. 051] However, his opinion changed after 1946, when he had reevaluated Gaudí’s work in light of the new material and photographs provided by Joaquin

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\(^{105}\) An image of the argument that paired Gaudí and the nuclear bomb and which Dalí delivered during his speech in Park Güell in Barcelona on September 29, 1956 is published in Montse Ager, \textit{Dalí Gaudí. The Revolution of the Sentiment of Originality} (Barcelona: Fundació Caixa de Catalunya, 2004), 78-83.


For Sert, the reason behind the renewed interest in Gaudí’s work in the postwar era lay in a “search for a greater enriched architecture vocabulary.” This was not a fight between trends in form but a belief that the urban environment could accommodate formal variety and innovation in accordance with new industrial possibilities. Despite earlier superficial readings of Gaudí’s work, the critic was obliged to come to an understanding of the structural forms behind the variety and freedom of his formal language. In Sert’s opinion, therefore, Gaudí’s formal filigrees did not express a mere personal vocabulary, but also exploited an urban quality, through which they enriched the perception of the built environment. Sert ended his speech with a prescription for current architecture, whose aim, he claimed, was to find formal expressions instead of rigid principles and doctrines. In this context, Sert’s response to one of the questions regarding ornament asked by a member of the audience was unsurprising. Despite the surreptitious contempt for decoration as a lower form within the modernist aesthetic, Sert, whose commitment as secretary of CIAM to the development of modern architecture was indisputable, welcomed ornamental qualities in postwar architecture as an aspect of modernism’s inevitable fate. But in such a case ornamentation became a qualitative rather than a moral issue:

“I have nothing against good decoration. I have it when it is bad decoration. I think that it is better to be a good decorator than a bad architect. Decoration itself should not be considered as something derogative or insulting.”

108 Although the idea of a joint book with James Johnson Sweeney arose before 1950, correspondence between Sweeney and Monroe Wheeler, the Director of Exhibition and Publications at MoMA, in MoMA’s archive reveals that the idea of a book on Gaudí began to take shape as early as 1955. See footnote 58.
Josep Lluís Sert’s words are significant to our understanding of the ongoing loosening attitude towards formerly dubiously held practices by one of the spokesmen of the modern movement. Nonetheless, the reluctance to deal with ornament is still conspicuous in the exhibition’s textual descriptions of Gaudí’s works. Disregarding their ornamental qualities, the symposium and the captions in the show avoided any direct confrontation with the question of ornament by presenting it as a normative aspect of late 19th century architectural practice. None of the legenda identifying the photographs of Gaudí’s buildings at the MoMA exhibition made explicit reference to ornament. However, such academicism was to change several months later. In 1959 an exhibit on Gaudí designed by Bernard Rudofsky and based on the MoMA original travelled around the United States, stopping among other places at the Philadelphia Art Alliance and The Harvard Graduate School of Design. [Fig. 052-054] In this new version of the exhibition, the legenda and building descriptions were changed and far greater emphasis was placed on decoration. The original epithets and nouns—“multi-planar surfaces,” “rough textures,” “shell-like form,” “plasticities,” “organic vitality,” “natural formations”—were substituted with ones like “flat decoration,” “cut-out patterns,” “naturalistic decoration,” “geometric mosaic decorations,” “ornamental stone columns,” “coxcombs,” or “iron decoration.”¹¹² This linguistic shift in the description of Gaudí’s architecture is highly significant; on the one hand, it discloses the effort made by the curators of the original show to refer to ornament euphemistically; on the other, it shows that the avoidance of the term in architectural academic circles was often artificial and self-imposed.

¹¹² MoMA Archives. [CE II.2.131.2.1] and [CUR 627].
However, the images that the different photographers produced of Gaudi’s work were as important as these captions. [Fig. 055] The publication of Joaquim Gomis’ photographs was carefully choreographed by Joan Prats through a technique they called “photoscope;” a sequencing of images based on an aesthetic relationship that conveyed specific meanings in Gaudi’s work; “the idea of movement and continuity, or contrast” aimed at providing a cinematic experience for anyone reading the book.113 [Fig. 056] With a few exceptions, the photographs were close-ups of several details, sometimes polychrome, sometimes monochrome, but always heavily saturated and contrasted. In them, shadows were as important as light. Sweeney and Sert used several of these images in their book, where they presented a sequence actually recalling the work of Moholy-Nagy in The New Vision, albeit with different subjects and materials. [Fig.057-058] Rather than topics, what triumphed was the technique of material appropriation and transformation through the apparatus of photography.

Unsurprisingly, none of Joaquim Gomis’ photographs were used in the MoMA show, which offered more conservative depictions of Gaudi’s work.114 What had changed in the postwar era was not the appreciation of Gaudi’s architecture but the way in which Gaudi was perceived through the camera lens, which allowed for a selective appropriation of his multiple features and designs.

The same photographers and techniques were to illustrate Carola Giedion-Welcker’s book on the Park Güell a decade later. This time “photoscope” was presented as a photographic

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114 The images for the show were provided by Asociación Amigos de Gaudí, largely from the Archive Mas in Barcelona. Contributions also came from Francesc Català Roca and Hebert Brooks Walker.
language.

Gađi’s tile work had already triggered Giedon-Welcker’s interest in the mid-
1950s. In this revived circulation of Gađi’s work, she aligned herself with
Hitchcock’s understanding of Gađi as a synthetic character albeit with economic overtones: a
painter, sculptor, and architect, whose “indigenous calligraphy” had relied on the use of stark,
austere materials that linked him to Cubism, Surrealism, and Dadaism. The wide range of
materials that he had employed had generated an architectural vocabulary that exercised
“universal radiation” and an aesthetic effect that was “very valid for our own time.”

### 4.3 Revisioning the past

If there was an antagonistic figure in Sweeney and Sert’s publication on Gađi, against whose
constant presence their text was directed, it was was no other than Nikolaus Pevsner. The book
contained so many direct rebuttals of Pevsner’s opinions on Gađi that the German architectural
historian responded to them as soon as it was released. Pevsner had visited Gađi’s work in
person only in 1952 and thus had lacked first-hand knowledge when preparing the 1949 edition
of his *Pioneers of Modern Design*. However, his visit to Barcelona simply confirmed his view of

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117 “[Gađi’s work with the humblest materials] are a prelude to the later cubist “papier collés” of Picasso, Juan Gris and Miró, to those of Dada-Merz and the surrealist collages. What these painters did in their time with paper, wallpapers, pieces of newspapers and other everyday ‘rubbish’ creating with them veritable marvels, what Kurt Schwitters transformed into new poetry of painting with old tram tickets, wires, buttons and wood-shavings, was created here by our architect out of the construction rubble of his own work and milieu. With these ‘poor means,’ with these fragments of ceramics, pieces of coloured glass and chips of porcelain, he initiates a new way of regarding beauty, one in which it is only a question of inventive force in painting or composition and not of the original beauty of the material used.” Carola Giedion-Welcker, *Park Güell de A. Gađi* (New York: George Wittenborn, Inc., 1966), 43.
Gaudí as an outsider rather than a pioneer. Gaudí’s experimental nature was too empirical; he had been “a man unhappy in the office and happy only on the site,” as revealed by his own lucubrations on the natural world and material speculations on how to represent it. For Pevsner, Gaudí’s work offered a radically different epistemological and scientific paradigm from the one within which architects and engineers such as Candela or Nervi operated. The distance between material and aesthetic craftsmanship, on the one hand, and scientific structuralism, on the other, was the alibi that brought a shadow of suspicion against Le Corbusier’s latest work:

Sculptor-painters doing architecture are very well for churches and can be wonderful whether at Sagrada Familia or Virgen Milagrosa, or Ronchamp, but when it comes to Law Courts or Cambridge colleges or science blocks of universities, then Heaven preserves us. So to me, without hesitation, there is one style of the twentieth century, there are thrilling magicians, outsiders, rogues, and there are, of course, imitators.119

However, growing interest in Gaudí’s architecture made Pevsner reconsider his historical relevance, and his assessment of the Catalan architect changed substantially in the multiple revisions of his early Pioneers.120 Soon after the closing of the MoMA Gaudí show in March 1958, Pevsner asked the institution for permission to use some of its images to expand his coverage of Gaudí’s architecture in the 1960 Pelican edition of his book. As stated, the photographs were quite conventional and consisted of large images of entire buildings along with some close-ups of sculptures as attachments and decorations. In this new edition of Pioneers, Pevsner elaborated on the most distressing aspect of Gaudí’s work: its program. If such a “fantastic design and so fantastic a method of construction” could be devoted to housing, argued Pevsner, Gaudí could only be described as an outsider with respect to his Europeans counterparts. For Pevsner, it was highly improbable and inconceivable that anyone would be willing to live in such delirious,

dangerous, and even treacherous constructions “whose ironwork might stab at you at any moment.”

But despite Pevsner’s critical distance, the reason behind the growing interest in Gaudí in the late 1950s was very much in tune with the arguments presented at the MoMA exhibition, which, in turn, marked a pivotal moment in the development of modern architecture:

> We are now in the middle of a second […] interlude, the one for which Le Corbusier (with such recent buildings as the pilgrimage chapel of Ronchamp) and the Brazilians are responsible. Like Gaudi between Sullivan and Behrens, Loos and the others after 1900, like Expressionism between the Fagus and the Bauhaus buildings, so late Le Corbusier and the structural acrobatics of the Brazilians and all those who imitate them or are inspired by them are attempts to satisfy the craving of architects for individual expression, the craving of the public for the surprising and fantastic, and for an escape out of reality into a fairy world […] The whims of individual architects, the strokes of genius of others cannot be accepted as an answer to the serious questions which it is the responsibility of the architect to answer.

What had begun in 1952 as an anecdotal flippancy or an architectural divertimento for the masses, turned out by the end of the decade to be a plausible nightmare.

For Pevsner, Ronchamp was more closely related to La Sagrada Familia than to the modern movement, and he therefore used Gaudi’s persona—a “freak” and as fantast as Sant’Elia—to indirectly criticize Le Corbusier’s latest postwar creations. His extemporal evaluation of Gaudi’s work was useful as a transitional historical mirror that reflected current events even though it was an unfortunate

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121 “Who would be ready to live in rooms of such curvy shapes, under roofs like the backs of dinosaurs, behind walls bending and bulging so precariously and on balconies whose ironwork might stab at you at any moment?” Nikolaus Pevsner, *Pioneers of Modern Design* (New York: Pelican, 1960), 116.


123 Describing the spires of La Sagrada Familia for a larger audience in 1952, Pevsner wrote with a mixture of awe, fascination, and wonder: “The façade culminates in four narrowly spaced, tall, conical or sugar-loaf towers in pairs of two and two, close together. They rise and taper, first consisting of tall columns, then of taller piers with spirally set horizontals—transoms, if you like—between, and finally ending in forms of no architectural precedent whatever, spires of a crustaceous form, details sometimes like the jazzy light-fittings of 1925, sometimes like celestial cacti, sometimes like malignant growths, sometimes like spikes of bristly dinosaurs. And the whole of the these spires above the conical, brown stone towers is made of glazed *faience* with an incredible technique.” Nikolaus Pevsner, “The Strange Architecture of Antonio Gaudi,” *The Listener* 48: 1223 (August 7, 1952): 214.

bridge between early twentieth-century architecture and “some of the more outrageous innovations of the architecture of the 1950s.”

On January 10, 1961, Pevsner delivered a lecture at the Royal Institute of British Architects—later published by the journal of the same Institute—entitled “Modern Architecture and the Historian or the Return of Historicism.” With the assistance of Reyner Banham, Pevsner interpreted the “chaotic” revival of past styles as a sign of weakness in the modern tradition. Unlike earlier historical revivals, the peculiarity of late 1950s architecture was that the styles that it revived had never been previously revived. To illustrate his argument, Pevsner identified eight neo-trends in contemporary architecture: neo-accommodating, neo-Art Nouveau, neo-liberty, neo-Gaudí, neo-de Stijl, neo-School of Amsterdam, neo-German Expressionism, and finally, neo-Perret. On account of all his personal and individualistic traits, Gaudí deserved a full chapter in the history of revivals, opening up the path to a definition of style based not on a codified set of aesthetic and generational rules, but as an expression of subjectivity. Better than that of any other architect, Gaudí’s work represented the hyper individualization of taste taking shape in postwar cultural consumerism. Nevertheless Pevsner misinterpreted the growing interest in fin-de-siècle movements as it appeared at various exhibitions in the 1950s. Although numerous international shows revolving around historical styles were organized during these years—Victorian and Edwardian Decorative Arts at the Victoria and Albert Museum in London, for example, or Um 1900 in Zurich, both in 1952—Pevsner failed to accommodate the new

postwar taste for variation and stylistic differences; there was a new subject and a new vision.\textsuperscript{127}

And perhaps no one expressed that changing paradigm within modern constraints better than did Philip Johnson:

I feel we are in one of the great golden ages of architecture. We are beginning to reach a wonderful style background in which to build and that’s why you can talk in terms of the future. Imagine if we had to practice 75 years ago. I would have to invent a new style for every building I built. For Richardson or Sullivan every building was a challenge! They had to start from nothing. Now I can use all Mies’ work, all of Le Corbusier’s work. All of the International Style, to use the phrase, is grist to our mill. For the first time since the Baroque synthesis of the Eighteenth Century, we have come to a period where we have a stylistic background that is part of our bloodstream on which we can start designing. Now I’m not telling you that architects have to go and do International Style work. Let them break away if they can. Let them try to bend the style which I’m trying to do, which any architect worth his salt is trying to do.\textsuperscript{128}

Pevsner cited two exhibitions in support of his arguments, both of them at MoMA: the Gaudí one discussed above, and the 1960 Art Nouveau show. Reinforcing the enthusiastic revival of the Catalan architect were seven critical and descriptive studies of his work published between 1955 and 1960, among them a catalogue prefaced by Le Corbusier, illustrated with photographs by Joaquim Gomis.\textsuperscript{129} The reasons for this paradigmatic shift towards revivalism were manifold but Pevsner admittedly shared some agency in it. As a member of the editorial team of the Architectural Review, he had contributed to the historical revival on three fronts: first, through the recent refurbishment of The Bride of Denmark, a pub belonging to Hubert de Cronin Hastings situated in the building of the English magazine’s headquarters, a project that had granted legitimacy to a Victorian revival. Second, on the front of the public, through the Architectural Review’s typography as well as the historical topics that the editors addressed. Finally, through

\textsuperscript{127} Paul Mebes, \textit{Um 1800: Architektur und Handwerk im letzen Jahrhundert ihrer traditionellen Entwicklung} (München: F. Bruckman, 1908).


his Reith Lecture series on “The Englishness of English Art” for the BBC, which were aired between October and November 1955.\footnote{Nikolaus Pevsner, The Englishness of English Art (London: British Broadcasting Corporation, 1955). For an account of the Victorian origins of John Reith’s lecture series at the BBC, see Shundana Yusaf, Broadcasting Buildings, Architecture on the Wireless, 1925-1945 (Cambridge; MA: The MIT Press, 2014).} Certainly, there was an individual agency in Pevsner’s work that was closely related to the trajectory of his 1936 Pioneers of the Modern Movement. Eleven years after the 1949 MoMA edition of the book rocked sales, the Pelican edition granted it an even broader audience. Between the first and final edition, the book expanded to include architects that had not been fully understood or considered in the original edition. Pevsner naively believed that his constant reassessment of modern and pre-modern architects had nothing to do with fostering revivalism. Attempting to distance himself from postwar developments, he claimed that his book was misunderstood since the real reason behind the 1950s return to past trends was boredom and a certain relaxed attitude on the part of the masters of the modern movement, to which he was stubbornly opposed:

> When the really original people in architecture start doing funny turns, then the less original people will imitate the funny turns on the one hand and, on the other, will turn to where they can find similar things in the past, provided this interest in the past is not likely to be branded as historicism in the sense in which they had learnt to regard historicism, that is, as an imitation of Gothic or Georgian or neoclassical forms.\footnote{Nikolaus Pevsner, “Modern Architecture and the Historian or the Return of Historicism,” The Journal of the Royal Institute of British Architects 68: 6 (April, 1961): 235.}

The “funny turns” denounced by Pevsner were not proven false by modern American criticism. For instance, Edgar Kaufmann Jr. partook in the modern recuperation of the ornamental as opposed to the functional aspects of Sullivan’s work by participating in exhibitions and lectures, such as the joint conference of the College Art Association and the Society of Architectural Historians in Detroit in January 1957.\footnote{Edgar Kaufmann Jr., “On Sullivan’s Ornament and Art Nouveau,” Annual Meeting, Society of Architectural Historians, Detroit, January 1957.} Furthermore, two years later Kaufmann
authored an article entitled “Architectural Coxcombry or the Desire for Ornament” that came to serve as a visual statement that seamlessly knit together Mies’ details, Pier Luigi Nervi’s structures, Sullivan’s ornaments, and Gaudí’s architecture—a postwar attempt to recuperate a modern and organic concinnitas identifying the part and the whole.  

Ironically, those critics and architects who defended an organic relationship between the forms of architecture and nature were also the ones celebrating the individual’s detachment from his or her political and economic context as a demonstration of character, genius, or nationalism. Writing in the magazine Zodiac, the American art critic Jules Langsner summarized the nationally “legitimate”—albeit difficult to classify—ornamental efforts within modernism as a complex combination of consumerism, symbolism, and industry. [Fig.063] “Ornamented Modern” was a response to the convoluted environmental and cultural relationship between art and the machine, a new technological situation that deserved further clarification:

Ornamented Modern constitutes one response to a conflicted state of mind in present-day America. The common notion of America as (above all) a mighty industrial machine fails to take into account the ambivalence of many Americans in regard to the image they hold of themselves as masters of a 20th-century environment. On the surface at least, Ornamented Modern [sic] might be construed as a regressive tendency, a lapse into the protective embrace of buildings reminiscent of remote and therefore erotic cultures.

Postwar ornamental expressions were ubiquitous in modern American architecture. Thus, despite Pevsner’s fascination with taxonomies of revivals, it was difficult to ascribe the resurrection of ornament to a simple historical or neo-historicist trend. Arguably, the

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135 After discussing the disruptive effect of impending capitalism on the technical arts caused by shifts in the educational system, which produced specialists and emphasized labor division, Gottfried Semper classified his contemporary aesthetic trends into three different camps: the materialists, the historicists, and the purists (idealists). Semper accused the historicists of a lack of imagination that led them to mechanically produce forms for the market. Aesthetic legitimacy lay in a “servitude” to religious and archaeological authorities, which were in
criminalization of ornament associated with Loos in the English-speaking context did not have the same intellectual impact as it had in Germany or France, for instance. Loos’ condemnation circulated through texts and books with references to the work of the Austrian architect as in P. Morton Shand’s critical assessment of Van de Velde, Hoffman, Loos, and Wagner, which was based on their attitudes towards ornament in 1934. 136 Although Reyner Banham published a partial translation with commentary of Loos’s “Ornament and Crime” in the Architectural Review in 1957, the full text of Loos’s famous 1909 lecture became available to the English speaking audience only in 1966 with the publication of Adolf Loos: Pioneer of Modern Architecture, which included an English translation of “The Plumbers,” “The Story of a Poor Rich Man,” and “Ornament and Crime.” 137 The book was prefaced by Nikolaus Pevsner, who acknowledged in the work of Loos a displacement of applied ornament by geometric decoration, a type of decoration that was being produced lavishly in the 1950s. 138 Previously, Pevsner had shown sympathy for the Austrian architect—with whom he shared Anglophile leanings—identifying him as one of “the greatest creators in modern architecture” who had managed to displace charge of exacerbating the forms of the past “uncritically,” thereby depriving them of evolutionary drive. His was not at all an anti-revivalist statement but a condemnation of aesthetic ossification. See Gottfried Semper, “Prolegomena,” Style in the Technical and Tectonic Arts; or, Practical Aesthetics: A Handbook for Technicians, Artists, and Friends of the Arts, trans. from the German by Harry Francis Mallgrave and Michael Robinson, and from the Latin and Greek by Amir Baghdadchi (Los Angeles: The Getty Research Institute, 2004); original: Der Stil in den Technischen und Tektonischen Künsten; oder, Praktische Aesthetik: Ein Handbuch für Techniker, Künstler und Kunstfreunde. 2 Vols., Frankfurt am Main: (Verlag für Kunst und Wissenschaft, 1860), 78-79


138 Speaking about Loos’ jobs from 1898 to 1910, particularly his 1898 Goldman and Salatsch shop interior, Pevsner said: “for there is no applied ornament, and what is decorative is geometrical,” ibid., 15.
ornament in modernity by the use of rhythm and expensive materials even though his “influence had] remained negligible for a long time.”

Loos was invoked as portraying a renewed idea of taste. Displaying a better comprehension of Loos’ work and following an evolution that resembled Pevsner’s from the 1930s to the 1960s, Hitchcock diminished Loos’ anti-ornament stand in his longer 1958 edition of *Modern Architecture, Romanticism and Reintegration*, which had originally been published in 1928. In it, Loos, an “enthusiastic admirer of English domestic architecture,” particularly the “English eighteenth-century furniture of the Queen Anne and Chippendale periods,” had simply had a different taste in ornamental matters. His commitment to architecture was similar to that of Sullivan, Van de Velde, and Frank Lloyd Wright—all of whom had already understood the possibilities that machine production entailed for architecture. However, Loos’ “distinctive quality” lay in his built work: “He seems to have been principally concerned to clear away inherited tradition in order to lay the foundations of an immanent architecture. That architecture, however, he himself was never able to bring fully into being.”

Gaudí’s work was therefore recuperated for its “immanence” rather than its transcendental spiritualism. Pevsner had been misled by earlier revivals and had failed to recognize that the timely and sporadic interest in Gaudí and Sullivan’s architectures in the postwar era was not properly speaking a revival, but a review. Their architectures were being repositioned in the historiography of modernity thanks to a selective and effective isolation of fragments (Gaudi),

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and scenes (Sullivan), prompted by the technical eye of the camera and the popularization of a new language of vision in the field of photography. Gaudí and Sullivan’s architectures were thus decomposed and deconstructed in a number of images that provided new raw material for an updated postwar modern architecture. Neither Pevsner nor Hitchcock grasped the recalibration of ornament in all its historical and discursive power. The use of ornament by a generation of “early moderns,” as Henry-Russell Hitchcock had called them in 1951, had caught the attention of architects and critics at the time, but the revival of past figures had been fostered by a deeper interest in their work thanks to their exuberant use of geometry and building materials. In this sense, ornament did not appear on the architectural scene of the 1950s due to a revival of fin-de-siècle architectures but rather through circular cross-fertilization; the use of ornamental expressions by modern architects had triggered critical interest towards past ornamented architectures. The work of the early masters of modern architecture was legitimate enough to provoke a recalibration of their forms in the postwar period. A reconsideration of the rhetoric embedded in building materials as a form of modern decoration took place around discussions on the ornamental, the superfluous, and the intrinsic in modern architecture.

These discussions thus placed ornament at the very center of the postwar architectural debate by highlighting the need for material involvement on the part of architects in order to achieve proper representation. It is along these lines that Hitchcock’s description of Gaudi’s approach to materials can be better understood, [Fig.064-065] namely, “that of a freehand craftsman who selects each piece of material by eye, composes what he has selected by eye, and finishes the surface with simple hand tools, rather than the conventional architectural approach to materials.
as a mechanical realization of effects predetermined in drawing." By the late 1950s, ornament was no longer an outsider to architecture or to architectural debates even though its presence was still quite often uncomfortable within the criticism of architecture. Inasmuch as ornament does not fully belong to buildings, it is also not an alien element. Such a condition of “in-betweeness”—both geometric and discursive—offered ornaments the prerogative of being the ultimate space-definers seeing that they were able to embody the visual demands of the epoch. Parallel to the linguistic epistemological shift of the 1950s, ornament in its multiple forms—as a material and technological achievement, applied art, or structural intricacy—paired architectural expression with rhetoric potential within industry and society to emphasize the built environment as a distinctive and responsive cultural media. Gaudí’s architecture, which represented the turn-of-the-century industrial bourgeoisie of Catalonia became a reference for assessing and manipulating materials in the postwar consumer economy. By a few decades after his death, Gaudí’s audience had changed considerably.

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142 Years later George Collins was to establish the U.S. chapter of the Asociación Amigos de Gaudí, with holdings at Avery Library at Columbia University in the City of New York.
Chapter V
*Pronuntiatio*: On Marcel Breuer’s textures.

We know that things and people are always forced, to conceal themselves, have to conceal themselves when they begin. What else could they do? They come into being within a set which no longer includes them and, in order not to be rejected, have to project the characteristics which they retain in common with the set. The essence of a thing never appears at the outset, but in the middle, in the course of its development, when its strength is assured.

Gilles Deleuze, *The Movement-Image*, 1983

Often you ask:
Where and how and what are esthetics, beyond functions needed?
Colors which you can hear with your eyes,
the void you touch with your elbow,
the taste of space on your tongue,
the fragrance of dimensions,
the juice of stone.

Marcel Breuer, “On Freezing the Terms of Aesthetic,” 1951

In every case, we draw closer to that secret [the mystery of the hidden life within materials] by realizing the play of light and shadow divided into infinitely variable rhythms had the ability to animate stone, wood, metal, and fabric.

Henri van de Velde, “The Animation of Materials as a Principle of Beauty,” 1910

5.1 _Wo Wir Stehen?_ Contrasting Modern Architecture.

For a non-prolific writer such as Breuer, the preparation of the lecture _Wo Wir Stehen? (Where do We Stand?)_, delivered in Zurich in 1934 after his journey to Morocco, Spain, and Greece, and before his departure to London, must have represented a considerable effort.¹ A rapid circulation of the text in different languages, media, and geographies during the mid 1930s compensated that effort while serving for him as an intellectual introduction to uncharted cultural grounds. [Fig.001] Published in 1935 in the _Architectural Review_ as “Where Do We

¹ “Wo Wir Stehen?” (Where Do We Stand?) Marcel Breuer Papers. Special Collections Research Center. Syracuse University Libraries. Oversize 20.
Stand?,” the effective circulation of Breuer’s arguments in magazines and venues testifies to the significance of one of the earliest writings of Breuer for his future career in a historical moment when work for him was sparse. Far from static, the text he first wrote evolved and metamorphosed throughout the years: the original version was recycled, transformed, adapted, and enlarged during the following decade to gain higher resolution in his architectural thinking. As another design piece, Breuer’s initial statement stood as the theoretical substratum to which many layers of design experience and intellectual considerations would be superimposed in years to come. Paradoxically, given the longevity, scope, and future relevance of the topics Breuer addressed in the article, the text will resonate with postwar concerns in relation to the practice of modern architecture.1

The title Breuer chose for the lecture and the article had a significant historical precedent in the lecture that Herman Muthesius delivered at the Deutscher Werkbund annual meeting of 1911 which was published in 1912 in the Werkbund Almanach under practically the same title “Wo Stehen Wir?” There is a symmetrical distance of almost twenty-five years between Breuer’s

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paper, Muthesius’s address to the Deutscher Wekbund, and a later text published by Philip Johnson also in the *Architectural Review* in 1960 under the title “Where Are We At?” If we consider them together, they become hallmarks of significant transitional moments in twentieth century architectural theory. If Muthesius had urged for an autochthonous modern style without historical connotations—-*Stil ohne Arcaismus*—, and Philip Johnson announced a period of “foggy chaos” following postwar affluent variety on the doorstep of postmodernism, Breuer’s text illustrates instead the cultural evolution modern architecture was undertaking as well as moment of individual despair. Given Breuer’s pessimism by mid-1935 in relation to his difficult situation as an architect and designer, the text triggered in him the most bitter reactions against his own past, including distance and detachment from his time as a Bauhausler as well as from his earlier intellectual and formal roots. Breuer’s discomfort by the mid 1930s indicates a reconsideration of modern architecture culture coinciding with moments of personal unrest and uncertainty in relation to professional goals and private life. Ise Gropius’s insistence on migrating to England, where she and Walter Gropius arrived in 1934, as well as her efforts to find the ideal professional partner for Breuer in London finally modified Breuer’s prewar gloom.

Francis Reginald Stevens Yorke, a founding member of the Modern Architectural Research (MARS group) in 1933 and publisher of *The Modern House* in 1934, was a good match for Breuer

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that allowed him to bypass the country’s restrictions on foreign architects to practice independently. England provided Breuer a new opportunity to demonstrate his design and social skills while absorbing different lineages and interpretations regarding the heritage of the modern movement. A year before Breuer’s arrival, Yorke had become very vocal denouncing the “ignorance” towards modern architecture that resulted in a label applied as a “surface treatment” to “traditional jobs.” For Yorke, modern architecture was being disseminated and accepted by architects at large as “new manners,” since the new generation of English modern architects were unable to discern between “faithful reproductions and ‘gentlemanly’ adaptations of the antique.” Haunted by the use of ornament as “wealth,” “fancy dress,” and “historicism,” Yorke described the essence of modern architecture as a new codified style superseding all past historical standards following the logic of the machine: “surely, every style is a standard in essentials. Without a standard there can be no architecture.”

And certainly, there were new conventions and manners emerging from industrial and material standards: modern architecture was evolving towards a meta-style capable of accommodating the ongoing democratization of aesthetic preferences demonstrated in the final appearance of new and old materials. There were certainly codes and rules in the expression of modern architecture that circulated widely by the mid-1930s around modern architects. It is no coincidence that Yorke’s criticism and position towards modern architecture resonated in Breuer’s lecture and later publication. Both men assumed general knowledge of the tenets of the “New Architecture” and the way these principles translated aesthetically while expressing

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reservations about narrow definitions that could jeopardize individual expression. Theirs was indeed a superficial reading of modern architecture: Breuer’s article was a good example of his pragmatism and distance towards elaborated ruminations by rejecting closed-end theories that were “carried too far.” He was also concerned about the “discrepancy” between words and facts representing modern architecture: the theory sustaining modern architecture was for him in crisis. Breuer felt by the mid-1930s that the struggle for the survival of modern architecture had in the use of language its most conspicuous battlefront, and therefore, he encouraged architects to distance themselves from “modern terminology,” kidnapped by “snappy slogans” and “catch phrases” that obscured the open-ended drive of modern architecture. The goal of his criticism was to promote a counter-current within modern architecture attempting to find in the combination of tradition and the modern means of production the logical evolution of types and solutions. The “New Architecture,” Breuer claimed, did not originate in technology but in the necessity to “civilize technology,” and he announced the “end days” and “divorce” of the association between architectural beauty and technical, rational knowledge on the one hand, and political aspirations and romantic nostalgia on the other. While hoping to get commissions in England—which he eventually did—Breuer rejected “statistical attitude” and “technical efficiency” as the source of aesthetic success that had characterized some of the work of his former colleagues and friends at the Bauhaus, mainly those celebrating the engineering origins of

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11 A man of action, Breuer was hardly utopian. As a young student in 1923, in a lecture given after the exhibition of the Bauhaus designs—later printed in Offset magazine—he gave a hint of his life-long utilitarian understanding of the fields of architecture and design: “Unrealized or unrealizable ideas are more of a step backwards than forwards,” Typescript “On Form and Function at the Bauhaus in 1923”. Published in 1925 in Offset magazine. Marcel Breuer Papers, Smithsonian Archives of American Art. Box 7, Reel 5718. Frames 912-917


the new aesthetic.\textsuperscript{14} Architecture, Breuer inferred, was made for senses and perceptions, and not for zealots of the “rationalization process.”\textsuperscript{15} To achieve this end, he decoupled the modernistic enlightened idea of “clarity” from puritanical “simplicity” to associate the former with “the zest to obtain greater effects with less expenditure” thanks to design intelligence. Simplicity and formal austerity were both dismissed. This new idea of clarity utilized forgotten features and formal traits to achieve “color, plasticity and animation, from a flat, white wall.”\textsuperscript{16} By modulating the presence of images, materials, and concepts, a new formal representation for modern architecture would emerge. Breuer described this new formal and conceptual mechanism as the quintessential characteristic of modern life: contrast. For Breuer contrast had to be considered as a “third dominant impulse” in addition to Gropius’s insistence on the continuity between art and technique. Contrast celebrated the multiplicity of individualities, rhythms, and materials, offering continuity and seamless integration between them once reduced to an image that could be modulated: contrast was “the relation of unbroken elements to one another.”

Breuer’s rejection of any identification of modern architecture as style by the mid-1930s was due to the homogenizing character of the term rather than its normative underpinnings. The very use of the word style neglected the fact that the goal of modern architecture was not about uniformity but about contrasting elements in every single level of human experience. These contrasts appeared staged in the surface of the wall, metaphorically transformed into a film-

\textsuperscript{14} Marcel Breuer, “Where Do We Stand?” \textit{Architectural Review} 77: 461 (April, 1935): 135. Marcel Breuer designed the Dolderthal appartments for Sigfried Giedion in Zurich in 1934, which resulted in personal distance between both men during the 1940s and 1950s. Given Sigfried Giedion work during the late 1920s, perhaps Breuer rejection of engineering aesthetic can also be interpreted as responding to biographical contingencies.


screen fashioning the intermingling between culture, urban anthropology, and the employment of new materials: “contrasts like house and garden, a man’s working and home life, voids and solids, shining metals and soft materials […] can all be realized against the stark plain surface of a wall.”\(^\text{17}\) The capacity for representational multiplicity in the very medium of the architectural surface expanded the theoretical genealogies of the Bauhaus. Vertical parapets could no longer remain silent but had to materialize instead the semiotics of everyday life as screens portraying the mode of production and the design process; in sum, the vertical modern surface was presented as a complex palimpsest recording the diversity and the continuity that architecture culture entailed. The locus of photographic materialization in Breuer’s cosmology was not in the organization of spaces and superposition of volumes but was rather reflected in the sensitive media constituted by the modern vertical surface. Contrast emerged then, following photography, as a technical and rhetorical device allowing Breuer to navigate between Yorke’s dialectic of “standardization” and individual “freedom” that would identify his practice in the following decade. And as happens in the photographic medium, contrast provided common relational grounds between topics, materials, and images: the unbroken relation of elements that Breuer argued for. In this context, Breuer also referred to the issue of ornament in modern architecture as antagonistic for aesthetic and functional purposes. Invoking ornament as a negative dialectic prompted him to dismiss the presence of unnecessary alien bodies in the very medium of architectural representation.\(^\text{18}\) In Breuer’s mind, ornamental forms had to be embodied in the material presence of architecture.


While in London, Breuer had also contributed to the publication *Circle, International Survey of Constructive Art*, a book edited by modernist artists and architects like Naum Gabo, Leslie Martin, and Ben Nicholson. The book was the origin of Breuer’s “new approach” that represented constructive art, a new approach roughly described by Naum Gabo as the indivisibility between form and content. Amidst Antoine Pevsner’s plastic experiments and Nicholson’s reliefs, Breuer presented his work by decoupling the relation between new materials and modern architecture: steel, chromium, glass, glass wool, aluminum alloys, plywood, Bakelite, silk, and even asbestos could be employed towards the realization of the idea of modern architecture in the same way that bricks, stone, and wood could, providing that these materials were manufactured using new techniques and processes for the “truer exposition” of the living environment. His essay dismissed material aesthetic determinism to place agency in pragmatic social necessity. Building materials, animated or not, were at the very center of the renewal of architecture:

The mind does not travel on rails, nor is it mechanically guided. It chooses the method which will most effectively advance it: in jumps, or step by step, by trial and error, or by logical precision. What is already there is adapted; what is lacking is created anew. I would therefore regard it as a matter of indifference whether modern architecture is called upon to fulfill the spirit of new materials, or whether the new material (an inanimate thing in itself) should only serve the will of the new architecture. (A new aesthetic?)

The basis for modern architecture was neither form nor materials but a critical “new mentality” that manipulated new and old materials as a form of modern exploration. Distancing his

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material practice both from mechanistic and biological notions, Breuer argued for an epistemological transformation of building materials that could respond to new pragmatic concerns: in that expansion, building matter was not subordinated but auxiliary for the representation of modern architecture, rejecting in turn the “doctrinaire and unselective” use of materials that 1930s architecture was producing.

John Leslie Martin, architect and editor of Circle, expressed similar arguments in the book when he complained about the heterogeneous attitudes producing “‘modernistic’ appeal of surface decoration” as the untimely extension of late-nineteenth century tendencies. As with abstract art, exactitude replaced the occasional and the decorative via construction and precision. Martin’s definition of constructivism was integral: “The world of appearances has given place to a world in which things related to each other in appearance are united in the completeness of a single system. In science as in art, ‘appearance’ has been jettisoned in favour of a world discovered only through the penetration of appearances.” Constructivism was presented as the style of “transition,” a style based on formal unity and complex relational identifications recording the “psychological, economic, and social needs” of the prewar period. As such, Leslie Martin reconnected with a long strain of materialist thinking considering objects as the formal reification of social relations.

Precisely because of his unapologetic pragmatism, Breuer was also concerned with issues of elongated temporality in architecture: if modern architecture was neither a style, nor a trend,

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neither a fad nor fashion, then a clarification in relation to modern architecture’s time frame was mandatory. Breuer’s response to the question was tautological: modern architecture was an “instinct” or a “tendency.” That tendency was negotiated through and by both modern and old materials, and held responsible for the mediation between the different temporalities: “Materials are […] the servants ruling our ‘tendencies’,” he would claim in the late 1940s. As such, materials occupied an intermittent space between subject, objects, style, and fashion. In order to expand the given temporality that any style entails, materials had to be situated at the very core of the discussion as the organizing social medium to secure continuity. Material evolution would later permeate Breuer’s thinking: at stake was teleological continuity and stylistic evolution that had in ornament, feminization, and fashion the place of negative exemplification.

We want to have order and continuity and I think this is only possible if we don’t jump from one fashion into the next, from one sales trick into another, and if we go back to the simplest, clearest, and most essential (truthful) elements of our surroundings. Of course, I don’t want a blind generalization. Good sense seems to me more important than dry logic, although our brain should certainly be intensively active. So I don’t advocate stripping every ornament or decoration from, for example, women’s clothing. There I think it is purposeful, and it is bound to a material which you change every year or so anyway. But I don’t want to live in a house which was in vogue twenty years ago.

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25 Typescript Undated, “Defining Modern Architecture”. Marcel Breuer Papers, Smithsonian Archives of American Art. Box 7, Reel 5718. [Frame 877] Although undated, the writing is certainly a postwar for the references he is using.


28 In consumerist culture, one does not transit from one fashion to the following one but jumps. I have expanded on that topic at the end of chapter III. Sigfried Giedion denounced that late 1950s architecture operated “as playboys treat life: jumping from one sensation to another and quickly bored with everything.” Sigfried Giedion, “Architecture of the 1960’s. Hopes and Fears.” Space, Time, and Architecture. The Growth of a New Tradition (Cambridge, MA: Harvard University Press, 1962), xxvi. Giedion had signed the preface in 1961.

Ornaments and motifs were not to be applied but used, provided already—as in fashion—by the construction industry and its modern possibilities. It was not simply about prefabricating ornaments, nor about composing new patterns but about ‘re-fabricating’ the appearance of buildings with the array of solutions available in the market. Bamboozling the reader by sprinkling his texts with references to truth and honesty, Breuer’s understanding of modernity kept relying in the opportunistic appropriation of the conditions of production as the source for “modern motifs” to reinvigorate postwar architecture. Building materials became the locus of a shared subjectivity, and the social fears of mechanization had to be domesticated in new forms of representation. The harnessing of materials through textures and patterns only granted the continuity to guarantee the survival of the style as an image: images that, as Bergson argues in their relation to memory and perception, were selected and recognized for their survival.³⁰

Amidst contributions by the crystallographer John Desmond Bernal, the Czech architectural theorist Karel Honzíg, the art historian Herbert Read, and the sociologist Lewis Mumford, the reader of Circle could find Moholy-Nagy’s proposal for the creation of an “Academy of Light,” an institution that would teach students the productive possibilities of light utilizing the new grammar that modern techniques of reproduction had brought about. [Fig.002] For Moholy-Nagy, the biological apprehension of light followed the perception of color in Goethe’s investigations as a “vitalizing and constructive” element. If modern machines were producing a new aesthetic palette thanks to the contrasting capacity of light, Moholy argued, an integrated academy including photography, film, and publicity would raise awareness and “consciousness”

about the “practical and pedagogical” possibilities in the synthesis between technics and art. In the “contrasting” integration that Breuer proposed, every technique, field, material, and theory counted.

5.2 American Breuer

It does not come as a surprise that the poster designed by Herbert Bayer to announce the first exhibition of Bauhaus work at the Museum of Modern Art in New York in 1938 did not include photography despite its contribution to the aesthetics of the former school. A dark hand incorporated in each finger one of the logos symbolizing the workshops of the mid-1920s Bauhaus: glass, metal, carpentry, sculpture, and typography, with stage, painting, and weaving in the palm. [Fig.003] Photography, film, and publicity did not appear, contrary to the emphasis on these mediums in the curriculum which Moholy-Nagy designed for the New Bauhaus in Chicago. But the visual landscape, media, and techniques of the Bauhausers by the end of the 1930s was certainly richer than the simple identification between manual labor and material practices as the generator of a new aesthetic grammar.

The arrival of Breuer in Boston the same year (1938)—when he was occasionally touted as a “prophet” of the “international style” —was carefully considered in the popular press as non-

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32 There was a first exhibition of the work of the Bauhaus in Chicago, New York, and Cambridge between 1930 and 1931, mainly identified with Mies van der Rohe directorship. See Lincoln Kirstein, Catalogue of the Exhibition from the Bauhaus, Dessau, Germany. (Chicago, The Arts Club of Chicago, 1931).
disruptive for American tastes and aesthetic beliefs.\textsuperscript{33} His work, but above all, his persona “had not to be mistaken for a prophet of revolution, anxiously trying to rebuild our work” but as an “adaptive force,” attempting to fuse vernacular trends with the newest fads, i.e. the international style.\textsuperscript{34} The article “Breuer Exhibition at Harvard Links Old and New Architecture” which appeared in a local newspaper, saluted the dissemination of Breuer’s work and depicted a conservative, non-dogmatic architecture, harmless for the culture of the United States.\textsuperscript{35} Anxieties about the permeation of disruptive political ideas in the social and cultural sphere were already present before the arrival of McCarthyism. In this circumspect atmosphere, Breuer’s “link” between past, present, and future, emerged as unspecific and uncompromising, and hardly a utopian threat, relying on surface appearance as a form of consensus rather than strenuous alien ideologies that would subvert American aesthetic values and preferences. Breuer’s approach to architecture’s epidermis, employing the use of textures as the locus of social and cultural agreement was, first and foremost, malleable.

Ascetic simplicity aroused the attention of various religious communities. Soon after the design of the first houses by Gropius, Breuer, and Hugh Stubbins, an article in the \textit{Christian Science Monitor} newspaper trumpeted “a momentous youth rebellion against conventional home design” in New England that ran against outdated popular taste and Cape Cod sentimentalism.

“Modernism is unnatural to the eye only for its unfamiliarity,” the journalist argued, and despite the removal of ornamental exterior qualities, “hood expansions” as sun visors provided both an

\textsuperscript{33} Despite being outside of the time-frame set for the publication, Marcel Breuer’s reception in the US is among the conspicuously forgotten figures in Margret Kentgens-Craig’s \textit{The Bauhaus in America. First contacts 1919-1936} (Cambridge, MA: The MIT Press), 1999.


ornamental appearance and the fulfillment of pragmatic functions. Modern architecture was described simply as a change of décor. The same author was a bit more ambivalent about the “ultra-modern” houses Harvard professors were building only six months later, where the “unusual materials” employed had the effect of changing the town of Lincoln’s landscape. By unusual materials he meant Glasstone, a solid translucent material that could be colored to the desired hue. The term “modern” was challenging but also familiar for “colonial-minded New Englanders” who could consider the new import as yet another episode in the search for autonomy and independence from European conventions. The rhetoric of cultural assimilation was very present, relating foundational narratives of the country and new accommodations:

Almost around the corner from the little village square that has changed but little in the memory of Lincoln’s oldest resident, four Harvard professors are living in an atmosphere of their own, creating a modern world set apart in the midst of antiquity. The philosophy of Thoreau who broke with convention to live in shelter of his own designing on the near-by shores of Lake Walden nearly 100 years ago is written into the unfamiliar angles of the modern homes which now house the families of Professors Walter Gropius, Marcel Breuer, James Ford and W.F. Bogner.

Cambridge was the nucleus of a new uncanny import changing the landscape of New England. But the accent was more on integration and synthesis rather than estrangement. Several professional accounts reinforced the idea of Breuer’s ductility, beginning with the exhibition of his work soon after his arrival at the Graduate School of Design. Held between June and September of 1938 at Robinson Hall at Harvard, the show presented ninety-eight images of Marcel Breuer’s work to date, accompanied by a laudatory catalogue with a flattering foreword,

a commission given by Dean Joseph Hudnut to Henry-Russell Hitchcock. [Fig.005] In it, Hitchcock had the opportunity to spread a new aesthetic agenda after the consolidation of modernism as a style in the United States. In so doing, the architecture historian denounced “an unbridgeable chasm across which the defenders of ‘tradition’ and the proponents of modern architecture could only fling irrelevant taunts.” The arrival of Breuer in Boston meant a watershed moment for the debate between modern and traditional architecture: by adapting new cultural models of construction to vernacular materials, a synthesis between tradition and innovation “in the particular form it exists in America” could open up new formal opportunities.

The word traditional as currently used in relation to architecture in America is ambiguous. It refers most properly to genuine eighteenth century vernacular building and its continuance – not its revival. It also refers, of course, to the still dominant concept of designing buildings along the lines of the past, particularly perhaps in America, the lines that are traditional in the primary sense. Finally, there is in the general use of the word a further implication, bridging the gap between the two meanings, and seeming to carry over verbally something of the values which modern architects find in the original colonial vernacular. This further implication is that the particular ways of doing things in most fields of architecture which have grown up in the last fifty years in actual association with the revived forms constitute a kind of present and living vernacular tradition. The special strength of the European visitors in relation to American architecture has been their ability to analyze more sharply than we the components of this third concept of the traditional, distinguishing the technical aspects, which are valid contemporary tools, from the revivalistic aspects, which are matters of design alone. To paraphrase Breuer upon this particular point: they believe – and as we will see Breuer has illustrated this in some of his European work in practice – that in using on occasion traditional materials, together with new ones, and at the same time transforming the spirit of the tradition, in its deepest sense, into a contemporary one, such a fusion, such a transformation should serve to develop further new forms, rather than in any way to restrict or reduce the potentialities of modern architecture.

40 Henry-Russell Hitchcock Jr., Marcel Breuer and the American Tradition in Architecture, 1938, 1. Marcel Breuer Papers, Smithsonian Archives of American Art. Box 34, Exhibition Files. Also available at Francis Loeb Library Special Collections, Graduate School of Design, Harvard University. The catalogue consists of just few typewritten pages together with a recount of all the images and objects exhibited. Nor the Houghton Library (Dean’s Papers) neither the Pusey Library (University Archives) kept images of the show. Breuer exhibition happened between two major shows on American and Soviet architecture.


The association between words and forms — “carrying over verbally” — translated into the appropriation of traditional materials. Hitchcock advocated stripping the old garb of revivalism and then substituting a new technical garb that found in material combinations the source for cultural and historical integration. Hitchcock invoked a form of modern spell or incantation combining words, matter, and formal expression to create specific traditionalist effects.

However, there was a significant difference with the mode that modern European architects, as with Erich Mendelsohn or Albert Kahn in the past, had approached the technological and aesthetic achievements of United States. The aptitudes of the “European visitors” relied on the photographic eye, an eye trained to capture and translate the cultural assumptions imprinted in the materials. European technological sight became the apparatus mediating the different traditions, validating the new representations that merged past, present, and future. Materials were depicted as subjective media, ‘raw ingredients’ in the cooking of a new mixture or potion:

> With x-ray eyes foreign architects have seen through the stylisms of surface of American wooden and other small-scale construction as easily as from the first they saw through to the skeleton of our skyscrapers and factories. Since the particular ways of using such materials as wood or brick or metal to which we are habituated as “traditional” were new to them, they have seen them, quite divorced from particular stylistic expression, as belonging among the raw ingredients with which a valid contemporary architecture could and should work as freely as with the new materials and methods with which modern architecture has been in America perhaps too exclusively associated.  

By looking with European “x-ray eyes,” the material or “raw ingredients” of building could transform the very surface of modern architecture: if the sight of modern European avant-garde was able to understand the technological and typological implications of silo constructions and skyscrapers, the prewar émigré ruminated about the surface aspects of American expression and

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the creative use of materials, rather than intrinsic qualities of space and program. The European architect called for a redesign of the building enclosure, the surface appearance of buildings, to continue the tradition of modernity. The “healthy” development of modern architecture required the participation of a “mixing” type of architect like Breuer, capable of synthesizing adaptability—not stylistically—with the quest for creativity in interwar American architecture. For that reason, Breuer was welcomed by Hitchcock for a “leadership” that was only present at that time in the “excessively personal” work of Wright. Probably, for the thirty-six year old Breuer, Hitchcock’s disproportionate comparison with the old master would have seemed flattering, intriguing, and hyperbolic in equal parts. But it also meant an opportunity to propose a different aesthetic model. Indeed, Henry-Russell Hitchcock responded to the assignment Dean Hudnut requested from him with eager partisanship.

The trope of Breuer as the mediator between different traditions and contexts got engraved in the description of his work during the 1940s, and was publicly advertised as such: in the entry on Breuer in the 1941 Almanac of Celebrities, we learn that Breuer was “particularly interested in the adaptation of modern architecture to American needs and possibilities.”

Breuer, who often had to clarify his Hungarian origins for political reasons, had a distinguishable fertile attitude for American modern architecture, distinct from the oft-rejected cold rationalism representing modern architecture. But Breuer also had to find an intellectual space for himself:

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46 Not only for political reasons and misunderstandings in relation to his German past (be it from the far right or the left side) but also to take distance from staunchned criticisms and labels such as Robert Moses’ “Beiunskis”. “A Beiunski” stated Moses, “is usually a refugee whose critical faculties outrun his gratitude to the country which has given him a home.” See Robert Moses ballistic and disrespectful, “Mr. Moses Dissects the ‘Long-Haired Planners’.”
his arrival in the United States as an *attachment* to Walter Gropius’ intellectual project or as a living demonstration of Bauhaus pedagogy jeopardized his autonomy and individuality. Thus, efforts to stand out as an architect intensified during the 1940s, following the events that lead to the personal distress and later professional separation from Gropius in 1941. This moment coincided with governmental efforts to reclaim, intensify, and mobilize the construction industry for war purposes. In this context, traditional materials such as wood or stone and modern materials such as steel or concrete began to have different symbolic and face values in relation to military agendas.

This synthesis between tradition and modernity that the popular and professional press promoted paralleled what Breuer advocated in the multiple lectures he delivered to his students at Harvard. “Modern Architecture” he stated, “is not an architecture of concrete. It uses concrete, just as well as steel, or the primitive materials, stone and wood, in a new sense.” The mixture of old and new materials and techniques lay at the base of what he defined as the “direct approach,” a pragmatic design method that provided aesthetic subjectivity to calculated engineering rigor. Criticizing style as fashion, he expanded the tools available for architects and established distance from past formulas that constrained formal solutions:

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The two architects split the office after what seems a minor incident in relation to hierarchy during a review at Harvard GSD. Breuer sent a letter to Gropius the next day asking to follow a different path to what Gropius agreed in a letter sent the following day. For the clash of egos and professional interests leading to Breuer and Gropius separation see Isabelle Heyman, *Marcel Breuer, Architect. The Career and the Buildings* (New York: Harry N. Abrams, Inc. 2001), 110-111.

47 The *Park Commissioner Prefers Common Sense to Their Revolutionary Theories*, *The New York Times Magazine* (June 25, 1944): 16-18; 38-39. Although beginning with the European influences (Eliel Saarinen, Walter Gropius and Eric Mendelsohn), Moses also included in his diatribe comments against the “outspoken revolutionary” Lewis Mumford and the “brilliant but erratic” Frank Lloyd Wright.


49 The “direct approach” was a common rhetoric expression to intertwine European expediency and American pragmatism used among others by Walter Gropius.
We all know modern buildings have flat roofs, horizontal openings, flat surfaces without ornamentation, much glass, often a lot of steel and concrete, and a dominating use of mechanical, or so called functional equipment. I believe a new architecture is there and exists even without flat roofs, glass, steel, concrete, and mechanized equipment.  

Marcel Breuer maximized new materials and techniques as generators of new forms in architecture, including also the inventiveness and adequacy of former techniques or traditional materials, for that matter. These new techniques helped to break the impervious “flat surfaces” — or the thresholds where ornament could not penetrate — providing new industrial motifs characterized by geometry and precision.

By the late 1940s, the distance from his former mentor and colleague increased in the same way that his identification with American vernacular architecture grew. Or at least it was perceived as such: for instance, the architect and historian Frederick Gutheim portrayed Blake’s first 1949 publication of MoMA’s *House in the Garden* as “The Americanization of Breuer.” For Gutheim, among all the “refugees” from political dictatorship, Marcel Breuer showed a remarkable disposition “to grow, to adapt” and “to acclimatize” to the American context. Breuer had developed a “fresh and romantic aesthetic in the new world vein,” becoming in essence an artist rather than a theorist. Fritz Gutheim had worked as Assistant Director of Information for the United States Housing Authority in Washington during the late 1930s, and Godfrey Samuel—a member of the Tecton group — had already wanted to introduce Breuer and Gutheim in 1935 when the former was still in London. Once Breuer moved to the United States, he and

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51 Frederick Gutheim, “The Americanization of Marcel Breuer.” *Architectural Record* 106: 3 (September, 1949): 28. The issue of American romanticism will remerge in his writings to qualify the multiplicity of formal responses emerging during the 1950s.

Gutheim developed a lifelong friendship. However, Gutheim’s implicit critique of the intellectual winds arriving from Europe was grounded in a strong sense for pragmatism—to which Breuer’s pragmatism would also be sympathetic—and a rejection of abstract intellectualism. If, for Peter Blake, Breuer’s work was the result of conflicting and antagonistic forces within the modern movement, resulting in an unjustified “spurious eclecticism,” for Gutheim, the middle-ground position Breuer occupied “between Frank Lloyd Wright and Le Corbusier,” belonged to the American tradition of agreement and consensus, granting Breuer a privileged position among postwar architects practicing in the United States.

5.3_ Multi-Lens Optics

Minor although significant re-conceptualizations of the materials, objects, photographs, and intellectual apparatuses that the European émigrés brought to the United States also tells us a story of transition and adaptation. The reassessment of previous works—either dismissal or appreciation—happened vis-à-vis new sensibilities towards materials that had in their media-like character the source of inspiration. For instance, among the largest images in Marcel Breuer’s 1955 monograph entitled Sun and Shadow, “Multi-Lens Window” is an intriguing array of transparent circles against a continuous black background. [Fig.007] The circles crop a repetitive urban landscape composed of a tree in the foreground and an imperial staircase to the right in a framing that changes from circle to circle. Towards the left of the image, a sculptural figure or group of figures appears in a few of the round frames. The full description of the window reads as follows: “Plate glass sheet with concave discs ground into surface. Remainder of glass was sandblasted. Window gives full light, plus privacy and offers multiplied views of outdoors.”

the information regarding the origins of the photograph has been reduced to a city, and a date: Berlin, 1929. Future publications, as well as the entries in the Breuer archives in Washington and Syracuse, associate the image with the urban house of the glass industrialist Gottfried Heinersdorff, a commission to which Breuer contributed by designing the interiors. However, Breuer introduced the object as an autonomous piece in a biographical note he wrote in 1947 for the Argentinian magazine *Nuestra Arquitectura*: “‘Multi-window glass,’ (1929) shows Breuer’s direction of industrial design, mostly approaching inventions. This glass provides complete privacy, but lets 100% light through, and allows observation from inside, even in various angles simultaneously.” The technical description of the image underscores the capacity of the object to transform the exterior into an almost cinematic experience. Reminiscent of the compound eye of certain insects, the concave discs display and transmit a view of the world in a multiplicity of frames, standing half-way between the standardized character of modern materials and their media-like properties, that is, between serial fabrication and its capacity to select and communicate discrete information. Sometimes an isolated piece of industrial design, sometimes an integrated element in the Heinersdorff house, the actual origin of the multi-lens window still remained unacknowledged in the mid 1950s. The photographic and cinematic origins of the image seem unavoidable in a moment of transition towards new mass media.

This image appeared together with the acoustic wall of the Sarah Lawrence Art Center to introduce the section on “Colors, Textures, and Materials” in Breuer’s monograph.

Even though St. John’s Abbey and the major European projects Breuer developed during the

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54 We find an example of that ongoing identification in a recent article by independent scholar Edith Tóth entitled “Breuer’s Furniture, Moholy-Nagy’s Photographic Paradigm, and Complex Gender Expressivity at the Haus am Horn”, *Grey Room* 50 (Winter 2013): 90-111.

1950s—the United States Embassy in The Hague, de Bijenkorf Department Store in Rotterdam, and the UNESCO Headquarters in Paris—were already on the drafting board, by 1955 there were not many repetitive material patterns in Breuer’s postwar architecture that could parallel the visual intensity of the multi-lens window: only the aforementioned Sarah Lawrence Art Center’s acoustic wall (plus external railing), the solar wood grille in the Thompson House in Philadelphia (1946), and the lateral façade for the Turrington factory in Oakville, Canada (1954) could match the same level of excitement in terms of the manipulation of light and shadow.  

[Fig.010-011] It is not surprising then to find some hesitations regarding the title of this section of the book after perusing the multiple drafts of Sun and Shadow in the Marcel Breuer archives. In the beginning, these pages were meant to address Patterns, Textures, and Colors, simplified later as Patterns and Textures. Eventually, the immanent category ‘material’ replaced the generic, organizational ‘pattern’ while inverting the order of the concepts in the heading.

[Fig.012] The uncertainty and ambiguity of the section on Colors, Textures, and Materials is revealing: it parallels the movable, unstable position that the multi-lens window had in relation to the rest of Marcel Breuer’s work on the one hand and to his intellectual evolution on the other. In this context, the image of the window acted as a signifier of the formal development of Breuer’s architecture, resurfacing in the postwar years once cultural appreciation towards media of reproduction became widespread.

The book Sun and Shadow relied on the addition of primary colors to illustrate Breuer’s palette—a feature that had a close precedent in Kepes’ Language of Vision. This addition was made at the expense of an overall composition that was initially meant to be just

56 There are several projects and competitions from around that time that were not included in the publication such as the proposal for the exterior of the Abraham & Straus department store in Hempstead, Long Island (1951-1952) and the Scarves by Vera Showroom stores in New York (1952-1953).
monochromatic. [Fig.013] By the mid 1950s monochrome was still customary in publications on architecture: contrast, tone, and brightness being the domain of building’s visual excitement beyond formal considerations. Accordingly, most of the pictures in the book were taken on clear sunny days to reinforce contrast between a buildings’ different parts and elements. Breuer was highly concerned about the use of color for the publication, leaving the final decision on the topic to the editor Peter Blake and the graphic designer Alexey Brodovitch after Edward Dodd, a partner at the publishing house, complained for the multiple delays that Breuer’s amendments entailed. 57 Brodovitch was a Russian émigré who had become the Art Director of Harper’s Bazaar by the mid-1930s after directing the Advertisement Design Department at the Philadelphia Museum School of Industrial Art. A former student in Saint Petersburg, he moved to Paris after the Soviet revolution, where he ended up working for the magazine *Cahiers d’Art*. His style of unexpectedly cropped views and photographs was indeed in tune with the image of the multi-lens window present in Breuer’s *oeuvre*: actually, the repetition of motifs in Brodovitch’s commercial and advertisement work gave him recognition in the prewar period with the poster for a private artist’s gathering in 1924, where masks and views intermingled with the urban experience. [Fig.014] Despite the late addition to Breuer’s book, the use of color in his architecture began to fade during the 1950s, overshadowed by the more intense use of materials and surface treatments as the source of architectural expression in façades. The motto *Sun and Shadow*, embraced during his travels around Spain by the early 1930s, records that transition in Breuer’s career.

Even more significant, though, is the addition of the term ‘materials’ to the heading of the section, particularly in relation to the prominence that Breuer’s multi-lens window gained after the Second World War. Beyond specific materials—stone, plaster, wood and concrete—Breuer’s architecture before the 1940s concentrated on the intersection between craftsmanship and new techniques in its multiple surface treatments. The target was the “visual impact” that architecture could transmit through the physical forms of textures mastered by the hand and eye of the architect. The willingness to restore texture as a surrogate for modern decorations was described by Breuer as “atavistic” in several of his lectures, a form of past regression, a throwback to forgotten formal traits. Neo-primitivism as a source of irrational creativity applied to materials would, from then on, be very present in his writings and lectures, and in tune with some of the avant-garde currents in aesthetic practices.

Before Breuer’s migrations during the 1930s, first to England and then to the United States, the multi-lens window was never ascribed to the interior decoration that he did for the house of the glass industrialist Gottfried Heinersdorff. [Fig.015] Designed by the architect Walter Wurzbach between 1928 and 1929, Breuer’s contribution to the interior of the villa consisted of a clay chimney and a series of pieces of wood and aluminum furniture—closets, writing desks, benches, cupboards, etc. His work also included the finishes of the floor surfaces and the

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58 Marcel Breuer, Sun and Shadow. The Philosophy of an Architect (Dodd, Mead & Company, 1955), 80. Interestingly enough, in biology, the presence of atavistic forms is considered as the reappearance of elements that disappeared in the evolutionary process. The suppression of the formal phenotype did not necessarily entail the removal of the traits in the DNA. Breuer’s references for texture as atavistic trait were recurrent and will resurface in many of his talks and lectures. It also indicates a different temporality informing modern architecture: the promise of subjects’ emancipation from history as a sine qua non condition for a better common future dissolves to resurrect past human feelings and instincts.

59 Peter Blake attributed the design of the window to Breuer and Gustav Hassenplug, his former student at the furniture workshop at the Bauhaus. Peter Blake, Marcel Breuer. Architect and Designer (New York: Museum of Modern Art, 1949), p.37. The catalogue of the first Bauhaus exhibition in the US at The Arts Club of Chicago in
interior walls. Gustav Hassenpflug, a former Bauhaus student, executed the final drawings for the elements designed by Breuer. [Fig.016] As these drawings show, there were notable differences between the furniture design and the aesthetic approach to horizontal and vertical claddings: if the former were done following a functional aesthetic without decorations or additions, the latter presented a gamut of regular patterns and repetitive motifs made of small colorful tiles, materials presumably provided by Herr Heinersdorff’s glass company Puhl and Waren. [Fig.017-018] The floor patterns were symptomatically described as “mosaic-carpets” in professional media, a moment of linguistic ellipsis capturing the transit between rigid materials and soft fabrics reminiscent of Semper’s principle of bekleidung via incrustation. This ellipsis was historically appropriate: the undefined position of the flooring documents the on-going transferences among objects and subjects happening between former Bauhausers. [Fig.019] The patterned floor compositions followed the work that Martha Erps, Breuer’s first wife, developed in the weaving workshop of the Bauhaus. [61] A carpet by Erps decorated the main living room in the Heinersdorff house, generating—or capturing—a formal language extending to the other horizontal surfaces of the house. [Fig.020]

Despite the success of the project and its rapid dissemination in journals and magazines, Marcel Breuer “intensely” disliked the Heinersdorff commission according to Peter Blake, the editor of
the 1949 MoMA brochure on Breuer’s work. [Fig.021] In it, we find an image of a
“multiplying window” dated 1929 and visually associated to the Heinersdorff commission and to
the moving elements employed by El Lissitzky to exhibit his work at the Hanover Gallery in
1925, underscoring therefore, the implicit transient aspects of the image, reminiscent of movie
strips, although arranged differently. [Fig.022] Despite its “obvious formality,” the inclusion in
the catalogue of the “multiplying window” illustrated, according to Blake, “certain experiments
with textures and unusual materials” that provided an entry point for understanding Breuer’s
work. [Fig.022] Despite its “obvious formality,” the inclusion in the catalogue of the “multiplying window” illustrated, according to Blake, “certain experiments with textures and unusual materials” that provided an entry point for understanding Breuer’s work. [Fig.022] Despite its “obvious formality,” the inclusion in the catalogue of the “multiplying window” illustrated, according to Blake, “certain experiments with textures and unusual materials” that provided an entry point for understanding Breuer’s work. [Fig.022] Despite its “obvious formality,” the inclusion in the catalogue of the “multiplying window” illustrated, according to Blake, “certain experiments with textures and unusual materials” that provided an entry point for understanding Breuer’s work.
Blake, a German émigré, found Breuer’s achievement in the Berlin interiors of the late
1920s remarkable: in them, Breuer managed to “teach table manners to a robot,” meaning,
Breuer overcame the suspicion of the modern German bourgeois culture of the 1920s towards
textured fabric in upholstery and furniture. Through the use of “decorative patterns” and a
“fascinating multi-lens window, that repeated the outside image in a series of circular frames,”
Blake continued, Breuer shifted upper class modernist tastes and hesitations towards machine-
produced decorations. [Fig.022] Despite its “obvious formality,” the inclusion in the catalogue of the “multiplying window” illustrated, according to Blake, “certain experiments with textures and unusual materials” that provided an entry point for understanding Breuer’s work. [Fig.022] Despite its “obvious formality,” the inclusion in the catalogue of the “multiplying window” illustrated, according to Blake, “certain experiments with textures and unusual materials” that provided an entry point for understanding Breuer’s work. [Fig.022] Despite its “obvious formality,” the inclusion in the catalogue of the “multiplying window” illustrated, according to Blake, “certain experiments with textures and unusual materials” that provided an entry point for understanding Breuer’s work.
The window was for Blake a “disciplined pattern,” flexible enough to
generate “interesting visual effects” thanks to the combination of technology and movement. His
association of technologies of reproduction and class disruptions echoed the materialist critique
that authors such as Walter Benjamin and Siegfried Kracauer had formulated by the late 1920s.
For the first time, the expression “multi-lens window” appeared associated with the object
within the specialized media in the United States.

Only a few images remain from the Heinersdorff residence—including pictures of the fireplace and entrance—all of them published in German magazines between 1929 and 1930. The image of the window as such appears in none of them which, considering the relevance it acquired during the postwar years, becomes revealing. The first time the American audience was able to witness the image of the multiplying glass window was in the exhibition of Breuer’s work right after his arrival in Cambridge in 1938. Writing in the catalogue of the show, Henry-Russell Hitchcock paid no attention whatsoever to this particular image, concentrating instead on the potential of Breuer’s capacities for aiding the development of modern architecture in the United States. Hitchcock’s indifference in relation to the image contrasted with the attention the object received in the mass media: [Fig.023] an article in Time magazine highlighted the presence in the show of a remarkable photograph, describing it as an image of “a group of small round windows, each curved like a camera lens, so that the same scene appears in a different focus, or from a different angle, in each panel.” Addressing only three pieces among the ninety-eight images of Marcel Breuer’s work, Time magazine captured the media-like essence of the object better than architectural critics or even Breuer himself did at that time. The insightful selection among the works of Breuer by Time’s editors pinpoints the visual reception that his work received upon his arrival in the United States and, contrary to Hitchcock’s expectations, speaks of the influence of the American context on Breuer’s future career. From a multiplying glass to a multi-lens window, understanding building materials as apparatuses for the production and reproduction of images became a common design practice, permeating even the language of

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65 See Henry-Russell Hitchcock, Marcel Breuer and the American Tradition, (Boston: Graduate School of Design, Harvard University, 1938). This catalogue however, consists of just a few typewritten pages. Marcel Breuer Papers, Smithsonian Archives of American Art.

architectural criticism, as Peter Blake’s account in 1949 demonstrates. The transition between the generic productive multiplication provided by glass to the reproductive character of the multi-lens window preceded Breuer’s use of patterns and textures in his major commissions during the 1950s, partaking of the logic of media transferences permeating American architecture culture. We find an example of these identifications in Arthur Drexler’s 1952 description of the “patterned, squarish, round-cornered windows” composing the Alcoa building in Pittsburgh as “several thousand television sets” that rendered the curtain wall dynamic and sculptural in equal parts. Morphologically, the multi-lens window occupies a middle ground between the moving image, and the construction of images in television sets.

*Time* magazine’s fascination with the image was not an exception: according to Cranston Jones, editor of a monograph on Breuer’s work in 1962, the multiplying window was among the most celebrated objects exhibited at the Deutscher Werkbund show held at the Grand Palais in Paris from May to July of 1930. The exhibition was organized by Gropius who enrolled Herbert Bayer, László Moholy-Nagy, and Marcel Breuer as his assistants. Gropius and Breuer designed full-scale modern spaces while Moholy-Nagy and Herbert Bayer arranged specific sections of the exhibition. Commenting on the show, the German magazine *Die Form* underscored the aesthetic celebration of mass production for a mass audience as the main difference between French and German industrial art. However, the correlation and unity between style and the economic structure of the epoch that German products deployed was achieved at the expense of purely functional aspects like the difficult relationship between

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showcases, products, and the materials used in their construction. “It is characteristic” stated critic Wilhelm Lotz in the magazine, “that the steel tube furniture has penetrated to this circle of artists, less for technical or factory-conditioned reasons than out of pure joy in the decorative handling of the material in combination with other materials.”69 Indeed, the material exuberance of the show was ubiquitous in its rhetorical play of translucencies, glittering patterns, and visual interpenetrations, thanks to the different materials employed. [Fig.025] To reinforce the material bias of the show, the spectator could witness a room devoted to new materials, presented as a composition of modern friezes or quasi-biologic metallic crystals.

Breuer followed this decorative material logic in his proposal for an apartment house for temporary occupation. [Fig.026] As if designed for a magpie, the room was a composition of sparkling and gleaming materials such as steel, aluminum, chrome, and glass. In the adjacent room, the visitor could find a model of the Bauhaus in Dessau together with images of the Bauhaus faculty houses hanging from slanting panels above the visitors following Bayer’s famous diagram. Towards the side, iterations of Breuer’s Wassily and B33 chairs were attached to the wall, suspended in an industrial but evolutionary pattern of repetition and variation from top to bottom. [Fig.027-028] In between both rooms stood Breuer’s multiplying window, a square panel supported at the jamb of the entry of room number five, right at the threshold between architecture, domesticity, and industrial design. [Fig.029] A panoramic image from the bridge of the exhibition towards the architecture section reveals the centrality of the panel amidst the multiple objects exhibited.70 This image appeared in the magazine Die Form in June 1930 and

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contrasts with future images showing further details published in different journals where the prefabricated panel is not perceived as central. For instance, the photographs that the Zentralblatt der Baueverwaltung published of the exhibition made Breuer’s object disappear from the image, concentrating only on the models, images, and furniture exhibited by Bayer.

[Fig.030] This movable, intermittent—sometimes even marginal character—of the multi-lens window becomes a metaphor of its own development, illustrating the volatility of industrial fabrication as a material medium.

The fleeting status of the object is confirmed once we take a closer look at some of the images we find among the few documents concerning the Heinersdorff House project in the Breuer Papers at the Smithsonian Archives of American Art in Washington: [Fig.031-032] in some of the photographs, the image in the multiple circles has been replaced by a different scene from that so familiar to us by know. This landscape is not the comfortable Berlin mansion of Herr Heinersdorff, as descriptions of the images in all the postwar bibliography of Breuer would make us believe. Through the circles we can see Breuer’s domestic space with the elevated bridge for visitors to the Grand Palais in the background. [Fig.033] These images inevitably bring a shade of doubt to the description of the photograph that gained renown after 1938: after looking closely again, we quickly realize that what we see in the cropping circles is not a Berlin urban landscape but an image of the north entry to the Grand Palais from Avenue du Général Eisenhower—part of the Avenue de Selves at that time. [Fig.034] Through the circles, starting on the left side of the image, begins to emerge the sculptural group entitled Le Miroir d’Eau, an allegorical composition consisting of an artificial pond surrounded by several figures that was completed in 1910 by the Art Nouveau sculptor Françoise Raoul-Larche.
It was not until Cranston Jones’ 1962 publication on Breuer’s work that we encounter a more precise reference to the “multi-lens glass” inspired by beer bottles, “sandblasted on one side” where Breuer finally disclosed the site where the image was taken. Although it is still difficult to ascertain whether the object did or did not belong to the Heinersdorff commission, the production of the object was certainly undertaken by the glass company of Mr. Gottfried Heinersdorff, Puhl and Waren, coincidentally, the same company that provided the glass for Bruno Taut’s Glass Pavilion in Cologne in 1914. The material evolution from German expressionism to modern architecture relied in the transference and evolution of material practices.  

Among the letters Marcel Breuer sent to the Deutscher Werkbund during the winter of 1930, we find a list of the manufacturers in charge of producing the different elements for the pieces to be exhibited, including a sanded glass window with incrusted loops—*glasfenster mit einschleifungen*—produced by the glass industrialist in Berlin, as described in *Sun and Shadow*. However, the images available do not show any sign of translucency in the remainder of the glass as Breuer’s description indicates. Not all the materials intended for the exhibition were meant to be of German origin: at Gropius’s recommendation, Breuer requested information from Dr. Erich Raemisch, architect and collaborator of the Deutscher Werkbund, about a glass manufacturer in Barcelona who could provide curved glass for the final design.  

Among the drawings Breuer submitted to Barcelona we find a set of eight 250 by 240 millimeter pieces of bent or curved black glass [*schwarzes glas gebogen*]. These pieces were presumably meant to produce further iterations of the original object in a different arrangement.  

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71 Letter from Marcel Breuer to Dr. Erich Raemisch, November, 30, 1929. Marcel Breuer Papers. Special Collections Research Center. Syracuse University Libraries. In the letter, Breuer highlights his eagerness to see the glasses from Barcelona in the exhibition (*sehr gern*). Round glasses or Cibas were common among Art-Noveuau architects and craftsmen by the beginning of the century in Catalunya.
window in room one of the Grand Palais shows a number of squares that could well be identified as the filters producing the multi-lens window image: a matrix of two columns and seven rows of squares of approximately two feet each run vertically, cladding the entire lateral window in Breuer’s room at the Grand Palais. In one of the images of the original installation of the exhibition, we find that only a few of these glass panels were actually made and attached to the existing window in the fashion conceived by Breuer, this location probably being the site of the original image. Together with the pattern identified as the multi-lens window, we also find in the original drawing other patterns that would come back, in one way or another, in future Breuer designs: a textural thinking engraved in his unconscious as demonstrated by a hand-drafted drawing from one of the lectures he delivered in his last year at Harvard, that nonetheless was about to become further complicated. \[Fig.038\] It emerged as part of the atavistic, unconscious formal traits of his own architecture: the echoes of German expressionism as transmitted by material evolution.

By the 1950s, the “multi-lens window” was nothing more than a prefabricated image mediating Breuer’s eagerness to get commissions in the American context. It was a “site of concentrated attention”—to use Alina Payne’s expression—for architects, designers, and possible clients alike: an optical pattern interweaving Breuer’s intellectual approach to media with postwar material possibilities that summarized the influences from his years prior to the world conflict.\[72\] \[Fig.039\] The image also represents a significant moment in Breuer’s understanding of materials: from the lenses of photographic and movie cameras to the starkness of modern materials, the multi-lens window records a fruitful competition between building materials and new

techniques of production and reproduction for communication. It also underscores the impact that these new media had in the development of architecture, as well as the increasing demand for visual performance in building materials once technological means of production were mastered and domesticated. From 1929 to 1962, the year of the publication of the Cranston Jones monograph on Breuer, the intermittent history of the Heinersdorff glass window describes a history of detachment and assimilation between image and material. It also records the channels and influences that modern architecture followed in its path towards institutionalization: the multiplication of myths, metaphors, and misunderstandings travelled together with the visual excitement that the biased selection of images explaining the arrival of a new aesthetic provided. Not even in Giulio Carlo Argan’s 1957 book on Breuer did a reference to the actual origins of the multi-lens glass appear, where it still circulated as part of the interior decoration of the Berlin villa, a house not demolished until 1972. The Heinersdorff window acted as a postwar rhetorical apparatus, an ersatz of an original that never existed: a surrogate stemming from the intimate collaboration between different media and architecture. As such, the glass panel was born and disseminated as a reproduction without a proper original—it was never an acting window—selectively circulating in black and white copies in the United States through publications and exhibitions. Its presentation in Sun and Shadow was an unacknowledged tribute to the intersection between movement and light: the twenty-four circles correspond with the exact number of frames per second adopted in film projectors to allow sound continuity by the late 1920s. [Fig.040] Eventually, we find the material performing, literally, as the visual narrator documenting a historical development in the complex relationships between objects, media, and architecture. The fetish of the image dissolves as soon as the history of its

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materialization begins to play: the image of the multi-lens window became an “actant” to use Bruno Latour’s terminology—or more specifically, a “thing-power” in Jane Bennett’s—a recalcitrant object invoking the past to resonate with contemporary and future expressions in postwar American architecture.  

The insistence of the object on reemerging in different contexts is the aspect that deserves our attention in the relation between building materials and transient complex shared subjectivities, vibrating in different venues to trumpet the totemic position that the understanding of materials as a form of media had in postwar architecture.

5.4_Plastic Matters, Quasi-Surfaces.

After the publication of Von Material zu Architektur, Moholy-Nagy recommended Breuer as the architect for the future expansion of the Solomon Guggenheim Museum, a suggestion that was dismissed by Hilla von Rebay, director of the institution and abstract artist herself. During their English exile, Moholy-Nagy and Breuer collaborated on a proposal for an exhibition of fashion shows and cinema performances. [Fig.041] Also, Moholy-Nagy contacted Breuer in January 1936 to be the architect of a small bachelor apartment for Alexander Simpson’s menswear firm. Moholy-Nagy, as design advisor for the company, suggested that he, Marcel Breuer, and Simpson would together select “the necessary lighting, fittings, soft furnishings, and other decorative materials” to showcase the company’s argument for the seamless continuity between man’s textiles and his domestic environment. 

If decoration had disappeared from the modern vocabulary, it certainly had not from the sphere of business, and the collaboration of the

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two friends was ready to exploit that opportunity. Their efforts did not yield results, and the relationship between them became distant once they arrived in the United States. However, right before Moholy-Nagy’s untimely death, contacts between the two old friends intensified. As late as October 1946, two months before Moholy-Nagy’s death, both men were still making plans for teaching opportunities and lectures. The interchange of missives during that period went beyond academic interests: in November of 1946, at Breuer’s request, Moholy-Nagy sent some images and plastic sculptures to Breuer to illustrate his latest work, making him the owner of one of the few plastic-modulators that Moholy-Nagy made in the United States. Four years later, on May 2, 1950, Joan Daves, the editor of Art Books at Harper & Brothers Publishers contacted Breuer to request images of the plastic-modulator for a book project summarizing Moholy-Nagy’s biography. The book was Sibyl Moholy-Nagy’s Experiment in Totality. To promote the publication, the company organized a modest exhibition in a department store in NY showcasing Moholy-Nagy’s work. Sibyl Moholy-Nagy, who thought the show was short of the kind of plastic sculptures of the last period of Moholy-Nagy’s career, suggested that the publishers ask Breuer to lend the sculpture that Moholy-Nagy had given him. Breuer accepted under the condition that the piece of Plexiglas be acknowledged as part of his own private collection. In the catalogue of the exhibition Albers and Moholy-Nagy: From the Bauhaus to the New World that took place at the Tate Modern in London in 2006, a plastic object appears that was lent by Constance Breuer for the exhibition. However, the object, pictorially oriented, does not fully correspond with the description in the letters between the two friends. [Fig.042] The

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79 Marcel Breuer Papers. Special Collections Research Center. Syracuse University Libraries. Box 7, Correspondence. Folder 68.
episode of the plastic-modulator, allows us to ascertain that Breuer was fully aware of the plastic experiments of his former colleague and their relevance during the last years of Moholy-Nagy’s work. 80

Breuer’s interest in plastics was explicit during World War II. Together with Herbert Bayer, he planned a Laboratory for Plastic Design that, despite the scientific nature that the title might suggest, was conceived in a competitive commercial format. The aim was to shield their designs for industrial production from streamliners with higher “publicity value” such as Raymond Loewy or Henry Dreyfuss. 81 [Fig.043] The idea was to mobilize Breuer’s design capacity and Bayer’s publicity agency of publicity to provide design solutions for the predicted decimation of the plastics industry after the full-employment period that the war represented. As in the case of aluminum and plywood, specific materials were just the excuse to begin a company based in mass production and standardization. Framing the initiative among the actions to be taken in advance of peace, Breuer prepared an ‘exposé’ setting the goals and ambitions, including the “preparation, design and manufacturing” of prefabricated construction elements such as windows, doors, screen walls, sliding panels, and grilles together with all sorts of furniture for the modern household. 82 Breuer planned to devote all his time to this enterprise, except for the compulsory Harvard afternoons, and to prepare the required drawings, models, and photographs to enter into production as soon as required. Interestingly, as in the case of Le

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80 I thank Oliver Bottar for indicating the catalogue as a possible source. However, the sculptures that Moholy-Nagy sent to Breuer still remain a mystery.

81 Letter from Herbert Bayer to Marcel Breuer, November 5, 1942. Marcel Breuer Papers. Special Collections Research Center. Syracuse University Libraries. Correspondence. Box 11. The Laboratory was referred also as a Design Laboratory for Plastics in some of the letters they exchanged between September 1942 and January 1943.

82 Letter from Marcel Breuer to Herbert Bayer, September, 1942. Marcel Breuer Papers. Special Collections Research Center. Syracuse University Libraries. Correspondence. Box 11. The Laboratory was referred also as a Design Laboratory for Plastics in some of the letters they exchanged between September 1942 and January 1943.
Corbusier’s Maison Dom-Ino, an economic model followed a material achievement. But unlike Le Corbusier, Breuer did not proceed to systematize the aesthetic inklings of plastics as a treatise but just as another exercise in prefabrication design to gain economic profits after he set up his own practice.

Breuer’s reputation and investment in plastic prefabrication was notable, expanding during the war years in the United States with his experiments in plastics and plywood for domestic applications such as the Yankee Portables structures (1942) and the Plas-to-Point systems of prefabricated houses (1943). [Fig.044] Breuer’s interests found correspondence with the interests of the professional media, ideologically aligned with the economic problems the nation faced: the preparation of the issue of Architectural Forum on “The Small House of 194x” during the Summer of 1942 forecast the transition from war to peace as a problem of design anxiety towards new buildings materials:

In the opinion of THE FORUM’s editors, there has never been a better time than now to carry this approach still further. It is everywhere recognized that the end of the war, when it comes, will bring about vast changes in our everyday lives. These changes will affect habits of consumption and methods of production, and inevitably will be reflected in the physical form of the world in which we live—and which it is the business of designers to mold. New materials, such as the various plastics, metal alloys, new forms of glass, etc., will be on the market. Older materials like aluminum will be available in hitherto undreamed-of quantities.  

The array of new products and materials—from synthetic products to the addition of performative aspects to old ones—was a common leitmotif in architectural magazines and disciplinary venues.  

And Breuer’s expertise on these matters was often required: on May 5, 1945, an American-Soviet conference gathered together engineers, architects, and planners to

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83 Letter of Managing Director to Marcel Breuer, July 1, 1942, Marcel Breuer Papers. Special Collections Research Center. Syracuse University Libraries.  
discuss issues of prefabrication, standardization, and mass production. Organized by the Technical Committee of the New York AIA chapter and the Architects Committee of the National Council of American-Soviet Friendship, the event consisted in four different panels — Building Industry and Organization, Prefabrication, Industrial Buildings, and Mechanical Systems and Utilities for the Small House. Morris Sanders, Chairman of the Technical Committee invited Marcel Breuer to speak on the panel on prefabrication, urging him to specifically contribute to the debate by answering the question “What new experimental types of prefabricated houses are in the process of development?” For that purpose, Breuer requested information and details of the systems developed recently by three of his colleagues and friends: Konrad Wachsman, Josep Lluís Sert, and Robert Davison. The first one responding to Breuer’s call was Konrad Wachsman, who described the system developed at General Panel Corp., the industrial company recently created by him and Walter Gropius. Despite the conspicuous uniformity in the images presented, the system, based on a cubical module of 3 feet 4 inches on each side, was presented in magazines as a system far more performative and adaptable than it really was: according to the editors of New Pencil Points, Wachsman’s system had “a virtue which many others lack: it is possible to build with it any type, or shape, or style of building desired.” The rhetoric of dissemination surpassed the facts of the system. By contrast, Josep Lluís Sert sent an article on the “Ratio Structures,” a prefabricated construction system developed together with Paul Lester Wiener and Paul Schulz consisting in the radical separation

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between structure and curtain walls for the sake of flexibility and design. As shown in one of the few colored pages in the issue, the system incorporated “spots of color [to] provide welcome relief,” together with a wooden frame structure and a curved roof. If Wachsman’s system was about paneled modules, Sert’s was about structural contextualism, developed from the indigenous balloon-frame construction systems. The architect Robert L. Davison proposed a completely different epistemological approach. Davison had recently contributed a paper to the aforementioned symposium organized by Paul Zucker—also a German émigré although less enthusiastic about modern architecture, who became professor of history at the Cooper Union and a member of the New School for Social Research—where Davison defended the use of scientifically discovered materials to enhance architecture’s capacities. Davison denounced current prefabrication philosophy as “an attempt to do the old job better, not to do a new job”, a task that would only be achieved once the properties and fantasies of new materials had been fully explored. Quoting the physicist and crystallographer John Desmond Bernal—“What molecular structure would make an ideal exterior wall?”—Davison pointed at new materials such as the ones used in refrigerators—aerogels, cellular glass, and foam—to improve the performance of walls in domestic construction through the creation of a double skin: one to provide isolation, the other to prevent losses from radiation. Davison’s faith in new materials for the building industry stemmed from his own research at the Pierce Foundation in New


88 Paul Zucker became interested in theatrical decoration in historical periods as well as in Italian Renaissance architecture during his years in Germany.


Haven where he was working on a material called *microporite*, a combination of very finely pulverized silica and lime with small amounts of other materials for insulation purposes.

Davison’s research and ideological position was better illustrated in the second article he sent to Breuer entitled “New Materials will Supplant the So-Called Pre-Fabrication”, published in 1945—probably in *Transactions, Journal of the American Association of Mechanical Engineers*.91 In the midst of the battle between honesty, craftsmanship, industry, and affects, he introduced a new material named *Weldtex*, a honeycombed insulating material.

An outstanding example of a material which gives the “homey” feeling of hand craftsmanship and of antique weathered wood without in any way trying to imitate antique wood. There is a warm quality about this irregular textured surface which is completely lacking in many modern materials. It is completely acceptable to both traditionalists and modernists because it suggests craftsmanship but it is not imitation of hand-rived shingles or hand-hewn beams. Also, “it grows old gracefully” which is an important quality to strive for. Modern materials can be given a homey quality which will be preferable to many of slick machine finishes that are more suggestive of hospitals than of homes.92

The image and description of the material would certainly have appealed to Breuer, given his preferences for hexagonal planning and its formal derivations. To witness this continuous organizational pattern of materials as the optimization of their surfaces had unquestionably symbolic value, merging biologic and scientific references at once. Increasingly, textural matter became the locus where modernists and traditionalists could find agreement for postwar reconstruction. Modern materials such as polished steel were criticized for their unsuitability to the domestic environment. In this intellectual and cultural context, Davison tried to come to terms with the impending modernization of the built environment within a resisting culture with disdain towards aesthetic progress: the result was a weathering texture achieving

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91 The reference in the original is unclear.
92 Marcel Breuer Papers. Smithsonian Archives of American Art. Correspondence: March-April, 1945, Frame 380, Box 2, Reel 5710.
traditionalism without imitation. His response to the aesthetic stress which modernism was subject to in American society was the re-appreciation and recalibration of modern materials. Weldtex emerged as a “quasi-object,” a fabricated social material equipped with scientific, positive knowledge altering the appraisal of modern domesticity. A material located at the intersection between the social sciences, aesthetics, and industry, unraveling a continuous complex discourse that had at its center the relation between nature and culture. To advocate for Weldtex was to advocate for a materialism that took the form of a quasi-surface where common subjectivity could be portrayed halfway between the ideal and the real.

It was perhaps Konrad Wachsman who better illustrated the continuum between machine, standardization, polychromies, and national traditions in a sketch drawing produced with a typewriter. The sketch, entitled in the margin “Hungarian embroidery”, belongs to the Marcel Breuer Papers held at the Library of Syracuse University and, despite being undated, it seems plausible to situate the drawing at the time both architects collaborated right after the Second World War. The drawing is a serial repetition of typewriter characters—numbers, letters, capital letters, signs, punctuation marks, etc.—in red and black ink, superimposed until they become almost unrecognizable as individual characters, instead reading as a continuous textile pattern, full of standard motifs. The assemblage of characters has the shape of a building, with an elongated base supporting a taller structure. Nonetheless, the first impression is deceptive: perhaps as an after thought, the sketch incorporates two moving legs—

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93 For a discussion on the quasi-object see Bruno Latour, We Have Never Been Modern, translated by Catherine Porter (Cambridge; MA: Harvard University Press, 1993).
94 Former Bauhausers such as Hajo Rose had already made some steps in the same direction during the early 1930s.
95 Wachsmann, recommended Breuer as consultant and ambassador of his General Panel Corporation to initiate production in Europe in February 1947 which he accepted. The success and continuity of Breuer’s contribution remains unknown.
perhaps feminine dancing boots—supporting the overall construction. Movement and stagnancy, mechanization and craftsmanship, fashion and serial standardization, anthropomorphism and abstraction: these would be the poles between which matter would operate during the following years. In so doing, building matter would acquire vibrancy halfway between inert materialism and vitalism, reinvigorating modern architectural language through the creative use of modern and old materials.

5.5_Hexagon Fever

Despite previous failures, Moholy-Nagy kept recommending Marcel Breuer. That Moholy-Nagy endorsed Breuer as his successor to Walter Paecke, the patron of the Institute of Design In Chicago and impresario of the American Container Corporation, once health had become an obstacle for Moholy-Nagy’s daily activities during the mid-1940s, speaks to the high esteem he had for Breuer’s career and talent.96 By then, Marcel Breuer had in mind to withdraw from his academic commitments to boost his independent practice. From 1946 on, the year he enjoyed a temporary leave from Harvard, Breuer distanced himself from the routines of scholarly life to concentrate on the commissions he was getting for a flourishing and expanding practice.97 However, offers to resume teaching continued, and not only from Harvard, where students organized several campaigns to bring him back. In January 1954, the director of the school of architecture at Princeton University, Robert W. McLaughlin, offered Breuer a tenured professorship which he declined. Breuer began to visit Princeton regularly in 1953, when plans

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96 He was the first one in the list, together with the Europeans Josep Lluís Sert, Richard Neutra, Knud Loemberg—Holm, György Kepes, and the Americans Charles Eames and Ralph Rapson. Letter from Moholy-Nagy to the Committee of The Institute of Design in Chicago, TLS, July 31, 1946, University of Illinois at Chicago, Richard J. Dadley Library, Special Collections, Institute of Design Papers, MSDes72. See also Lloyd C. Engelbrecht, Moholy-Nagy. Mentor to Modernism, 2 Vols. (Cincinnati, Flying Trapeze Press, 2009), 631.

97 Breuer never came back to Harvard as a Professor from his leave of absence despite efforts by Joseph Hudnut to make Breuer change his mind.
for building housing for the members of the Institute for Advanced Study were being made. In addition, a new library was also designed and drafted in 1956 although, unlike the residences, it never got built. [Fig.048-049] The Institute, directed by the physicist J. Robert Oppenheimer, was by the early 1950s a place where aesthetic and scientific thought often intertwined in a renovated form of humanism after the disasters of the war. An example of the intermingling between “the two cultures” at the Institute—the scientific and the humanistic—was the work of German mathematician Herman Weyl. [Fig.050] A year before Breuer’s arrival, in 1952, Weyl—already retired after eighteen years at the Institute—published his book on Symmetry, a personal attempt to “display the great variety of applications of the principle of symmetry in the arts” as well as to clarify the “philosophic-mathematical significance” of the concept. The book extended a previous homonymous article Weyl had published in the Journal of Washington in 1938. [Fig.051] A renewed interest in issues of symmetry, order, and postwar humanism found continuity in the monographic issue that the German magazine Studium Generale published in 1947. In addition, a series of papers on symmetry appeared in 1949 in the same journal as precedents to Weyl’s investigation. [Fig.052] In them, symmetry was the background used to address issues of beauty, art, mathematics, and the natural sciences. The principle of symmetry—unfolded through what Weyl called the “mathematical philosophy of left and right”—had for him an intriguing ethical component bound to its geometrical definition, conveying a


101 See Symmetry, Studium Generale, 4-5 (Spring, 1949). The magazine founded in Berlin in 1947 specialized in monographic issues dealing with questions such as Rhythm, Functionalism, or Humanism from a scientific, ethic, and philosophic point of view.
sense of balance and measure—*Ebenmass* and *Ausgewogenheit*—leading in turn to greater ideas of beauty, order, and harmony.\(^{102}\) His neoplatonic, idealist view of art and nature, very much in tune with Herbert Read’s, led him to consider asymmetries in nature as being of a “second order,” happening in the shadow of higher universal principles. The mathematical philosophy of left and right and the systematic and mathematic study of symmetry provided Weyl with the abstraction necessary to link particular and general issues, the mundane and the universal. The implicit continuity between the general and the particular diminished the “emotional appeal” in favor of intellectual unity and accuracy.\(^{103}\) As such, mathematic symmetry represented a desirable synthesis between the rational and the experiential or sensitive world. Weyl’s interpretation of symmetry as “the invariance of a configuration of elements under a group of automorphic transformations”—that is in the repetition of objects or motifs in a plane following a specific rule or process—signified the mathematical translation of Worringer’s *Gesetzmäßigkeit* that nonetheless incorporated agency and movement through its multiple iterations.\(^{104}\) Following Leibniz, and counteracting Wölflin’s differentiation between left and right in art, Weyl described a notion of symmetry that was ideal and monist, a generalization that had in the configuration of crystals its perfect materialization. \(^{104}\) To illustrate the book, Weyl included numerous images of buildings and artworks coming from canonic art history sources (such as Owen Jones’ *Grammar of Ornament* and Ernst Kühnel’s *Maurische Kunst*); the natural sciences, biology, mathematics, and crystallographic studies (such as Andreas

\(^{102}\) Hermann Weyl, *Symmetry* (Princeton: Princeton University Press, 1952), 16. Italicization in the original. Weyl, following Leibniz, stated that the distinction between left and right is arbitrary and indiscernible according to the structure of space. Weyl, who attended a lecture in Zurich by Heinrich Wölflin on the different *Stimmungsver* or sentimental value of right and left in paintings, rejected that view, supporting a neo-platonic version of nature as well as art.


Speiser’s *Theorie der Gruppen von endlicher Ordnung*, D’Arcy Thompson’s *On Growth and Form*, and Ernst Hackel’s *Kunstformen der Natur*); and, more importantly, images stemming from the popular mass media and the advertising industry (such as *Vogue* magazine). Departing from abstract and interdisciplinary epistemological models, the accommodation of lowbrow and worldly representations of everyday life helped Weyl to reconnect his scientific work to postwar affluence and its sophisticated forms of production.

Predictably, the application of the concept of symmetry in the arts became developed in the chapter on “Ornamental Symmetry,” illustrated by the surface structures of beehives, fashion textiles, and architectural motifs. If crystallographic symmetry stood for the three-dimensional, spatial identification of the concept, surface ornamentation responded to bi-dimensional geometric symmetry. In it, a multiplicity of combinations and movements—bilateral, translatory, rotational, or a combination thereof—produce a full taxonomy of *motifs*. Weyl showed with mathematic models that “among all the divisions of the plane into parts of equal area”, the hexagonal pattern was “the one for which the net of contours has minimum length.”

The pragmatic, functional aspect of hexagonal organization corresponded with nature’s economy. The maximization of surface with the minimum length had important consequences in the field of postwar wireless telecommunications studies for instance, when mobile phone calls where tested in 1946 based on hexagonal grids of transmitters to avoid interferences. From the hexagonal division of space stemmed seventeen “essentially different kinds of symmetry possible for a two-dimensional ornament with double infinite rapport.”

The words Weyl used to describe surface ornaments—“infinite rapport”—reproduced verbatim the exact

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105 It is significant to note that the issue of symmetry triggered in Weyl hypothesis in relation to the ontogenesis and phylogenesis of living organisms. He seems to be inclined to rebut biological evolution based on the asymmetric contingencies of natural phenomena supporting theories of the unique, singular event giving birth to life.
expression Alois Riegl used in his Stilfragen—“Unendlich Rapport”—to explain the tectonic continuity achieved by the repetition of vegetal tendrils in Sarracen ornamentation.\textsuperscript{106} Riegl’s influence on Weyl’s work, however came indirectly: Weyl relied on Andreas Speiser’s previous bibliography, which in the 1927 enlarged edition shifted the scope of the sixth chapter from “Kristallographische Gruppen” to “Symmetrien der Ornamenten,”—the only addition of a chapter in the book, entailing the reorganization of the previous one. The new chapter included subchapters on Flächenornamente—surface ornament—and Streifenornamente—striated or striped ornament.\textsuperscript{107} [Fig.057] Departing from Owen Jones’ Grammar of Ornament, Speiser relied on mathematical principles and formulas to explain the geometry of Die ebenen Gitter or continuous lattice, using images and diagrams that were later incorporated in Weyl’s work. Interestingly, Speiser used the same illustrations that had appeared in the first edition of Riegl’s Stilfragen, making it the ultimate source of an aesthetic evolution and accommodating Riegl’s work to a scientific mind. The first American edition of Speiser’s work appeared in 1943.

Weyl’s investigation linked beauty and subjectivity behind geometric ornaments. But there was a historical continuity in the use of images that related the work of Owen Jones, Alois Riegl, Andreas Speiser, and Hermann Weyl: from the palmettos in Persian and Greek mosaics, vases, and reliefs, to the arabesques of Isis Temple in Egypt, to the idealization of natural forms in nature such as the ones present in shells (Turritella duplicata), or Haeckel’s radiolarians, these books represented an attempt to deal with mathematical and geometrical order that found in ornaments and architectural matter an anachronistic departure. In Riegl’s opinion, arabesques,


\textsuperscript{107} Andreas Speiser, Die Theorie Der Gruppen von Endlicher Ordnung (Berlin: Verlag von Julius Springer, 1923). See also the 1927 edition where the chapter on the Symmetries of Ornament was included. Also see the first American edition, Die Theorie Der Gruppen von Endlicher Ordnung (New York: Dover Publications, 1943).
despite their mechanical repetition and lack of variety, were never boring, contrary to
ornamental forms where figural mimesis (as in Romanesque) was culturally required. Similarly,
“[t]he art of ornament” stated Weyl, “contains in implicit form the oldest piece of higher
mathematics known to us.” As such, the continuity between matter, science, and mathematics
could open up new possibilities for ornamental interpretations. But also, this continuity allowed
ornamental forms in their more universal form to become global. Postwar geometrical motifs
achieved the capacity to combat boredom with energy and determination while reconciling an
industrially-oriented society with atavistic extemporal references, a form of material idealism
reconnecting man’s production with abstract science and transcendental cosmology that
nonetheless often circulated in postwar bibliographies. It is not surprising then to see Andreas
Speiser contributing to György Kepes’s edition of Daedalus, the journal of the American
Academy of Arts and Sciences with an article on symmetry where he identified the potentials of
mathematics exemplified by the ornamental figures derived from Felix Klein’s studies in non-
Euclidean geometry and infinity.\footnote{Andreas Speiser, “Symmetry in Science and Art,” Daedalus, Journal of the American Academy of Arts and Sciences (Winter 1960), 191-198.} The function of the mathematician was simply to
“draw the attention” of the modern artist, architect, and even the town planner to these
possibilities.

And so they did. These concerns with a scientifically oriented geometric ornament resonated in
the field of architecture. Herman Weyl’s Symmetry and Speiser’s Theorie der Gruppen von endlicher
Ordnung had a significant influence on architectural thinking by the mid 1950s. Looking back, in
1957, Sigfried Giedion celebrated how, since the 1920s, mathematicians such as Andreas

\footnote{Hermann Weyl, Symmetry (Princeton: Princeton University Press, 1952), 103.}
Speiser had faced issues of ornamentation as the only “object of precise investigations” about the nature of art. Sigfried Giedion understood Herman Weyl’s “chase for ornamentation” as a legitimate ground for aesthetic consideration, far from the “filigree-like classification” of his contemporaries. Ironically, both appeared in Giedion’s narrative linked to an Egyptian emphasis on surfaces treatments and reliefs, and the urge to improve that aspect in its modern use. Weyl and Speiser’s writings were compulsory in the seminar for advanced students that Eduard Sekler and Giedion had co-taught at Harvard since the fall of 1957, a class attended by several future distinguished students such as Michael Graves and Christopher Alexander.

In it, Weyl’s symmetry became instrumental in explaining for example, Brancusi’s “Endless Column”, a form expressing “infinity” or endless continuity. Giedion’s intention was to “examine those aspects of bygone periods which still live buried in our consciousness” in order to “get information about the standards of the so-called past”. To do so, Weyl’s book was “the best guide” to tackle issues of proportion and symmetry, and the students were assigned a thorough abstract of the book. The problem underlying Giedion’s discussions with the students was that the increasing industrialization of modern societies was already producing standard buildings that allowed a “weakening of the personal and individualistic element of our


112 The relationship between Sekler and Giedion was not unproblematic: they were both competing for the directorship of the Carpenter Center after Giedion complained for him not having enjoyed a stable position at the Graduate School of Design during the postwar years. I would like to thank Ines Zalduendo from the GSD archives for the remark.


environment” and therefore prevented the harnessing of aesthetic freedom. According to Giedion, “[a]s long as architecture exists, some details will not be industrialized,” introducing the “irrational factor” that he found paramount for the development of architecture by the mid 1950s. This irrational factor had a visual precedent in Egyptian architecture and resonated with Breuer’s emphasis on atavistic traits for modern architecture.

A good example of the infinity and continuity of material work in relation to mathematic intuition was the work of the Austrian émigré Erwin Hauer who arrived in the United States during the late 1940s. His sculptures produced by the middle of the century synthesized the “geometric inventiveness” that Weyl proposed with the quest for continuity in modern architecture that Giedion promoted. His work integrated craftsmanship, material knowledge, and geometrical accuracy by combining concave and convex surfaces in the form of a saddle. Inspired by Henry Moore’s biomorphic forms, Hauer investigated the formal properties of continuous surfaces to challenge the limits between shape, materials, and objects: once Hauer made a prototype, he discovered that, by addition, the open-ended properties of the unit would translate endlessly to the next one, forming an infinite rapport composed by the serial aggregation of modules. He called this series of experiments Continua, a group of works done during his transition from Austria to the United States between 1948 and 1956. Building matter played a significant role in the success of Heuer’s lattices: originally conceived as


117 Breuer kept referring to atavistic needs in mankind in his lectures and papers as a form of past recuperation. On Breuer’s atavism during his student years see Maria Stavrinaki, “The African Chair or the Charismatic Object,” Grey Room 41 (Fall 2010): 88-110.

118 Interview with Erwin Heuer in his studio at Amity Road in Bethany, Connecticut, June 21, 2010.
sculptural works, several improvements in consistency and scale translated his work for architectural use in light diffusion beginning in 1954. Strength tests done at the Technische Hochschule in Vienna and the addition of fiberglass to the plaster mass gave the prototypes the optimal stability for use in interior designs. The incorporation of Hydrostone to ease the fabrication of metal castings and molds was also an important feature in achieving these formal results. The morphological complexity of the works resulted in a Fulbright grant that facilitated his arrival in the United States and introduced him to MoMA circles, where Arthur Drexler and Edgar Kaufmann Jr. put him in contact with architects such as Philip Johnson, Max Abramovitz, and Marcel Breuer and manufacturing companies such as Knoll for which he produced several screens for interiors in New York and Miami. However, the greatest impact in professional media was made with the inclusion of the concrete block version of Design 5 in the facades of Chicago Hall at Vassar College in Poughkeepsie, New York in the late 1950s, designed by the architects Schweikher and Elting, coinciding with Giedion and Sekler’s class at Harvard.

[Fig.061] The contribution of Hauer’s “complexity of light and shade” in the decorative block screen provided another touch to an already cacophonous campus where Marcel Breuer and Eero Saarinen had designed the most recent buildings.¹¹⁹ [Fig.062] The inclusion of Hauer’s work in Sun Control and Shading Devices by the Olgyay brothers, friends and close collaborators of Marcel Beuer in several projects, arrived before his appointment at Yale to teach under Josef Albers deanship.¹²⁰ In that book, Hauer’s work appeared as an example of the “rich play of light and shadow” together with Breuer’s acoustic wall for the Sarah Lawrence College Auditorium and some examples of Brazilian architecture—the sun shading devices of Alfonso Eduardo Reidy,

the studio Marcelo, Milton and Maurício Roberto, and Oscar Niemeyer in São Paulo and Rio de Janeiro. By presenting an array of patterns, the Olgyay brothers opened up the possibilities of sun protection in relation to visual qualities of “rhythm, light, color, and texture.” It was Marcel Breuer who suggested the identification of sun-shading exterior devices as the new “Doric Column” for modern architecture: language as a simile precluding historical revivalism. [Fig.063] Breuer had witnessed the visual eloquence of solar control patterns in the Brazilian pavilion for the 1939 New York World Fair, where he designed the Pennsylvania pavilion in partnership with Gropius. [Fig.064] The Brazilian pavilion by Lucio Costa and Oscar Niemeyer—in collaboration with Paul Lester Wiener, also a German émigré in the United States who had previously worked for Le Corbusier and would later collaborate with Josep Lluís Sert—was celebrated in the American press for the attachment of its “cellular panel” to the main façade for sun protection. But, if the solutions in the original Brazilian context created a space between the environmental element or brise-soleil and the final construction, in the case of New York, the terracotta pattern was situated right in front of the glass. Knowledge and dissemination of Brazilian architecture in the United States context expanded with the

controversial exhibition *Brazil Builds* held at MoMA in 1943 whose section on “new architecture” triggered opposing views in relation to style.  

New and traditional materials provided new opportunities in relation to sun-shading devices intermingling aesthetic trends and economic interests. In the mid 1950s, Peter Blake prepared an outline for a promotional booklet for the Aluminum Association of America. The publication was for the “educated layman”, who had to be convinced of the use of aluminum over the use of masonry as the natural apex in the evolution of construction. “The best way of selling an educated layman” stated the memorandum “is to let [aluminum] sell himself. [sic]”  

The problem with achieving this goal lay not so much with the practical and economic arguments for aluminum—lightness, malleability, durability, etc.—but in the “emotional attachment to traditional building materials” that the audience of the publication felt.  

With the aid of images and words, Blake proposed a teleological journey to demonstrate that modern aluminum walls were not monotonous but simple, robust, and aesthetically pleasant curtains, a contemporary “veil” protecting the buildings from external environmental contingencies such as the sun. The multiplicity of finishes that aluminum allowed were meant to be “an eye-opener” from the fear of commercialism and a counterpoint to dull repetition and material homogeneity. Finally, aluminum provided some of the “finest examples” of sun devices “showing the door by which

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decoration is coming back into modern architecture. Actually, the argument was not new, since, as I argued in chapter three, an infatuation with multiple sun shading devices was already taking place in American architecture.

Just when sun-shading devices were becoming celebrated in modern international architecture, the work of Hauer triggered the interest of NASA researcher and mathematician Alan H. Schoen who was fascinated by the geometrical complexity that Hauer’s objects presented. Disappointingly, by looking at the earlier experiments with hollow forms that Hauer had conducted in Austria, we find that there was not that much technological thinking in Hauer’s work but rather a technological use of new materials to reinforce the idea of artisanship. He was not acquainted with the theoretical work of his fellow countryman Alois Riegl either, nor with the publications of Weyl or Speiser. However, Hauer’s complex geometrical work provided a visually enticing form to new materials and products. His continuous patterns, as portrayed in popular media and advertising brought a renewed excitement to the material possibilities of modern surfaces in combination with light. The architectural wall reemerged as a distracted “hot media” half-way between the billboard and the film screen knitting together mathematical scientific knowledge, material improvements, and traditional craftsmanship.

5.6 Postwar Forums: Jumping to The Other Side of the Modern Fence

After Douglas Haskell assumed control of the editorial direction of the Architectural Forum in 1949, the magazine geared itself towards a European-based aesthetic, including a reappraisal of the figures who had arrived during the late 1930s. However, this reappraisal found some

obstacles that required a recalibrated aesthetic. For instance, Douglas Haskell’s efforts to heal the “breach between Breuer and The Forum,” were meant to compensate for the “invidious comparisons” that had demeaned Gropius and Breuer’s work in the past. Not everyone in Time Corporation had the same taste in relation to modern architecture. Perry I. Prentice, the publisher of Time and friend of founder Henry Luce since their student days at Yale, recognized the magazine’s preference for the “other side of the modern fence” when it came to residences, and wished that The Forum had deployed the same kind of enthusiasm for houses of “non-Teutonic inspiration” that Peter Blake had deployed in writing about Gropius and Breuer’s work. With the exception of Mies, the “other side” that Prentice referred to was a domesticated, regional version of American modernism, aligned with the Lewis Mumford article that had triggered MoMA’s 1948 symposium.

By the beginning of the 1950s, the magazine considered dedicating a large issue to Breuer’s work, equal in relevance to the one the magazine had devoted to Frank Lloyd Wright’s architecture. Peter Blake proposed a memo for a twenty page piece that would concentrate on the houses Breuer had built in the United States: the Clark House in New Haven, Breuer’s own New Canaan House, The Scott House and Breuer’s own Cottage in Cape Cod, the Thompson House in Ligonier near Pittsburgh, The Stillman House in Litchfield, and the Peck House in Scarsdale among others. The reason beneath Blake’s enthusiasm for Breuer’s residential work was that he was an “architect’s architect,” whose former students—including Paul Rudolph, Philip Johnson, Landis Core, John Johansen, Eliot Noyes, Ulrich Franzen, I.M. Pei, Ed Barnes,

etc.—shared a “fanatical pre-occupation with refined details, and great respect for the characteristics of materials.”

The decision to publish yet another issue on Breuer’s work was not shared by every member of the editorial committee: there were several problems in publishing Breuer’s houses again, the recent 1949 MoMA small publication being the least of them. Despite the eagerness to compensate for the lack of the presence of Breuer’s work in the pages of The Forum, a strong reaction against his domestic architecture appeared, mixing aesthetic nationalism, commercial instincts, and a critique of the cold, abstract representation with which modern European architects were associated. In the background there was a ubiquitous preference towards an organic architecture aligned with the tastes and preferences of large sectors of the population:

I submit that one of the biggest reasons the average man does not care for Breuer architecture is that he looks for qualities in Breuer’s architecture which are not there and when he fails to find what he is looking for he turns away disappointed without appreciating the good things in Breuer [...] it seems reasonable to me to expect that anyone who looked for superlatives in Botticelli would be very much disappointed. Anyone who looked for character study in the faces of Botticelli’s stupid virgins would be very much disappointed. Anyone who looked for good landscape in Botticelli would be very much disappointed and I suspect that anyone who looked for good perspective in Botticelli would be disappointed. Why then the excitement over Botticelli? My understanding is that Botticelli owes his eminence to his mastery of the flowing line. The best way to make a novice appreciate Botticelli is to explain to him right away quick that Botticelli is not much good at color, no good at landscape, not much good at the third dimension, never heard of chiaroscuro and had no idea of intensity, but that no painter before or since has been as good with the flowing line [...] If you can first get our readers to stop looking in Breuer houses for the things Breuer does not offer, then it seems to me you will have your readers much more willing to look in Breuer for things which Breuer is a master at. ¹³²

For Prentice, the images of Breuer’s houses published in the Forum were as “peopleless as the ruins of Pompei”, missing the quintessential quality of space which was to “envelope” human
beings. Breuer’s houses were for Prentice a “taste” he hoped to acquire while he deemed his non-residential architecture as a “quick sale” for the average American reader. The divide between specific and customizable domestic architecture and the generic modernisms of institutional and commercial buildings documents the aesthetic gap between domestic and public architecture. Aligned with Prentice’s objections and against Blake’s inflationist eagerness, Douglas Haskell rejected getting into the “third-coming-of-Christ mood with which Mies was presented” in the pages of the Forum in October 1951 in order to disseminate Breuer’s architecture. Haskell considered that the influence of Breuer’s houses on American architecture “had reached its peak and was going on beyond it,” finding it unfair to provide the same amount of space that the magazine had devoted to the work of Ed Durrell Stone or Harwell Harris—architects without a published monograph by then—as for Breuer. In addition, Haskell found some of the works of Breuer in the early 1950s “flatulently over estimated” and “clumsy,” works whose publication would have compromised the reputation of the Forum and originated a slide towards “an adolescent school girl magazine.” Surprisingly, right when Breuer’s architecture was about to reach its peak of success with larger public and private commissions, his presence at the magazine was diminished. The jump in scale and relevance of his buildings, as well as the mastery of matter for the sake of representation would bring Breuer’s work back to circulation.

5.7_Showcasing Faith, Enlightening Hexagons.

We grew especially fond of the wall around the top deck, wide, sturdy and honeycombed with terra-cotta. We asked Dr. Breuer how it was done, and he calmly told us that it was made of small drain pipes stacked and set in concrete. An idea conceived in 1938, but not used until now. 136

With these words Anita Zolner Brooks, an alumna of Sarah Lawrence College, described the construction of the new Students Arts Center designed by Breuer for this liberal arts institution in New York. [Fig.065] The idea that Breuer mentioned during the inauguration of the building as having originated in 1938 followed the transformation of the multiplying window into the multi-lens window after his arrival in Boston. The round terracotta pipes were encapsulated in a hexagonal concrete block and painted white for the sake of uniformity. Inside, the acoustic wall made out of protruding concrete blocks presents a different pattern. “As one opens the wide glass entrance” Anita Zolner continued, “[t]here is […] the feeling that an incredible kind of magic has been achieved. […] Walking up wide steps to the door of the auditorium, one is quietly aware of predominant grays and whites brought alive by areas of sudden, clear color and by a decisive juxtaposition of rough and smooth textured walls. […] One is gratefully aware, walking through an interrupted atmosphere of gay simplicity, that this sort of continuous designing makes for a complete picture.” 137

The environmental description of the building follows the dynamic aspect of materials such as the acoustic walls in the auditorium and the rounded exterior railings. At the time of the inauguration, Breuer was already working on the projects for UNESCO, and he was preparing the documentation to compete for the design and construction of the St. Johns Abbey and University Church at Collegeville in Minnesota. An

eager partisan audience at Sarah Lawrence College urged him to expand the material features of Sarah Lawrence’s Auditorium into his future commissions.

The quest for material excitement permeated many strata of postwar society. When Abbot Baldwin Dworschak began the process of selecting the architect for the design and planning of the comprehensive architectural extension of the Benedictine St. John’s Abbey in Collegeville, Minnesota, in 1953, he emphasized the intimate connection between faith, materials, and modern architecture: “The Benedictine tradition at its best” he stated, “challenges us to think boldly and to cast our ideals in forms […] shaping them with all the genius of present-day materials and techniques.” [Fig.066] The task of the selection committee was to identify the right modern architect to provide the honest use of materials that could produce a truly “Catholic work.”

The original mission, founded in 1856, evolved into a religious complex and university a year later, growing steadily to become one of the largest Benedictine communities in the world by the mid twentieth century. The programmatic requests included monastic housing for the aged priors, and several extensions, as well as a library, offices, and classroom spaces. But the construction of a new church that could materialize the changes introduced by the liturgical revival emerging after the 1920s, soon entered the conversations between the Senior Council and the community. Liturgical revivalism called for a realistic interpretation of Christian worship as well as the participation of laities in religious ceremonies following the Benedictine tradition of submission to the Rule and accommodation of social changes. To do so,
a new space for spiritual congregation had to be designed where the relation between the order and society could be intimate. The initial selection of architects to face the challenge included Pietro Belluschi, Walter Gropius, Eero Saarinen, Richard Neutra, Barry Byrne, and Joseph D. Murphy from the United States, Thomas Sharp from England, Rudolph Schwartz and A. Bosslet from Germany, and finally Herman Baur and Robert Kramreiter from Switzerland. From these, only Gropius, Neutra, Breuer, Murphy, and Byrne were invited to travel to Collegeville and present their previous work under the supervision of the committee’s chairman, Father John Eidenschink. Marcel Breuer was finally selected on April 23, 1953, remarkably thanks to his humble character and his “subtle skill in instrumenting the discordant range of modern materials.” Breuer’s ability to combine “calculated crude against calculated perfect finishes” convinced most of the brothers in the order. Breuer’s talent for the job lay in his agreeable, pleasant, and imaginative use of matter in the service of a full gamut of architectural solutions.

Breuer designed a comprehensive master plan for the expansion of the community. At the same time, a building committee from St. Johns’ Abbey was formed to propose, supervise, and define the functional requirements of the order, including several professors from the University and the architecturally-trained Father Cloud Meinberg. The committee, with several modifications and expansions, continued throughout the entire design process, enjoying direct access to Breuer’s office—via Hamilton Smith, Breuer’s partner-in-charge for the commission and Robert Gatje—to provide information about the functional and programmatic needs of the

140 “A Benedictine Monastery by Marcel Breuer”, Architectural Forum, 101: 1 (January, 1954): 149. In the minutes of the community we can read “Breuer is a man of recognized ability, unassuming, direct, easy to work with and yet not afraid to tell you if he thinks you are wrong. His quiet and humble manner, and his willingness to tell exactly what he thinks are the characteristics most in his favor.” Whitney Stoddard, Adventure in Architecture. Building the New Saint John’s (New York: Longmans, Green, and Company, 1958), 26.
Benedictine community.\(^{141}\) The impact of the brotherhood on the final design was noteworthy, being responsible for many of the design decisions, particularly those involving functional organization as well as material aesthetic expression. The final architectural result became a truly communal effort, or at least it was perceived this way by the members of the Abbey, whose expansion plan became increasingly ambitious, including a minor seminary, a school center and a high school in addition to the main monastery to amount to a total of nineteen different buildings by the time Breuer presented his first design on January 28, 1954.\(^{142}\) [Fig.067] There was also a political agreement with the chapters of the brotherhood who were “down on modern architecture” as the adequate building form for religious worship, an opinion also held by some higher ecclesiastical authorities who dismissed modern architects for their refusal to build in past styles.\(^{143}\) In addition, the non-Catholic faith of Breuer engendered some doubts about his adequacy for the job. To counter the conservative view of modern architecture and architects, Father Cloud had travelled to Europe to study ecclesiastical art and architecture, including Le Corbusier’s Ronchamp.

In this first iteration of the master plan, Breuer proposed a system of “shadow planning,” that is, a system of development in which new buildings were erected right next to existing structures, which would then be demolished after completion of the new buildings. Breuer understood that in this gradual way, the continuity of the different functions in the community was maintained. Breuer’s “shadow planning” found a correspondence in the transient material techniques


\(^{143}\) Among them we have Cardinale Giacomo Lercaro—*papabile* in the last years of Pius XII—who was quoted in the conversations on Breuer design. See Hilary Thimmesh, *Marcel Breuer and a Committee of Twelve Plan a Church* (Collegeville; MN: Saint Johns’ University Press, 2011).
appearing on the very surfaces of the drawings he submitted during the earlier stages of the master plan design. The drawings prepared by Hamilton Smith and Robert Gatje during the second half of 1953 for the expansion of the Abbey included a drafting technique combining plastics and geometric patterns: Breuer’s office employed *dry transfers*, a modern version of decalcomania to decorate surfaces through pressure-sensitive vinyl covering large surfaces of the base paper. [Fig.068] In so doing, the drawings underscored relevant aspects of the functional program in the Abbey and its subsequent evolution in time. [Fig.069] The use of dry transfers constitutes one of the first examples in modern architecture of the use of that representational technique in public presentations. This technique however was already popular in academic circles: some of the exercises for the Theatre and Music Center in Cambridge that Marcel Breuer and Hugh Stubbins assigned to their Harvard Students in the Fall of 1945 already show dry transfers utilized to cover the large surfaces of shadows in elevations or to signal material transitions. [Fig.070] These were not final drawings but originals to be later reproduced through photographic means and blue prints. The inclusion of patterned matter in the form of transferred ink in the drafting process indicated a disrupted relation between copy and original, where the latter became only instrumental in acquiring the former. The visual appeal of the presentation of the comprehensive ‘shadow planning’ system was both convincing and eloquent in demonstrating Breuer’s capacities: only four months later, in May 1954, the construction of the monastic wing began under on-site supervision by local architects Traynor and Hermanson.

The Benedictine culture of austerity and physical labor impacted the construction contract that the order signed with Wahl Construction Company of St. Cloud for the monastic wing: the cost of labor was reduced by twenty percent due to the work and materials supplied by the
community. Emulating historic guild and craftsman organizations, the monks contributed to the preparation of the lumber for the concrete forms. [Fig.071] Tasks involving the wood flooring—provision of the wood, cutting, preparation, and placement—were almost exclusively executed by the clerics. The community acted as an organism, contributing to the actual construction, including programmatic guidance, participative labor, and insightful design. In addition, fathers teaching at the University in a variety of different disciplines such as mathematics and biology contributed with their expertise. Wood grilles and pieces of furniture were manufactured in the carpentry shop of the monastery and soon, new arrangements with local stonemasons brought new expressive possibilities. Breuer’s admiration of the local stone found compensation in the development of a new granite block by the Cold Spring Granite Company: the decline in the use of granite slabs in favor of concrete—particularly in windows and openings—brought a surplus of the material for the company that, thanks to a recently purchased brick-manufacturing press, allowed granite slabs to be transformed into granite blocks that could compete in price with cheaper materials. [Fig.072] After several mock-ups and tests, the final palette of block, selected by the monks and Breuer, included two dark and light gray blocks, the former sandblasted. The result was a highly glittering façade thanks to the reflection of the sun in the quartz crystals. Further textural efforts where conducted through bush-hammering of the façades of the dormitories, the walkway of the sacristy, the reception room, and the lobby, surfaces constituting the prophetic tactile chart of the future Abbey monastic church: repetitions, perforations, patterns, screens, grilles, etc.,

145 The involvement of the order in the construction process was by no means exceptional during postwar times.
engaged in a play of light and shadow that provided the human scale Breuer was seeking while accommodating the “impulse to decorate” building elements by the members of the order. Expressive materials became the media comforting the relation between soul and spirit, between the immanent and transcendent, a form of reconciliation between the subject in its multiple living conditions hereafter. [Fig.073] Building materials, selected, transformed, and manipulated multiple times represented the kind of agreement between the community and the designers to link the local with the generic, the deeply contextual with the macrocosmic ideology of religion.

Completed in the fall of 1955, the monastery wing constituted a testing ground for Breuer in the new expressive possibilities of matter thanks to local collaboration, labor organization, and spiritual values. The building also triggered a renewed interest in the professional media for Marcel Breuer’s work, now associated with the new trends in fashion happening in society: a “modern mood”, as described by the editors of the Architectural Forum, domesticating the use of “heavy” materials thanks to the incorporation of “precise” details and “rich” textures. The multiple manipulations of building materials made American readers identify Breuer’s work with the craftsmanship of Medieval times, and the “laboriousness” of the treatments of the materials, became a signifier of an idealized stylistic past. The relation between modern architecture and past styles kept reemerging around religious construction: in 1956, the Architectural Record dedicated an issue to analyzing religious buildings, beginning with the

147 Among the most remarkable aspects is the use of cantilevered granite in the configuration of the stair’s steps, a feature that will later repeat in the Whitney Museum.
148 During the 1950s, Marcel Breuer appeared in American magazines mostly related to the project for the UNESCO in Paris, a highly institutional and bureaucratic building far from the aesthetic interests of editors. The causes for this silence are multiple, but they have been addressed in a previous section of this chapter.
recently completed “box of jewels” Kneses Tifereth Synagogue in Port Chester, NY by Philip Johnson.\textsuperscript{150} Marvin Halverson, Executive Director at the Department of Worship and the Arts for the National Council of Churches, disapproved of the “baleful legacy of misunderstanding, romanticism, and ignorance” in relation to the architectural ideals embodied by many new churches:

The hiatus between architecture for the church and architecture for other institutions and groups in society exposes the shallowness of our understanding of the Gospel and its relevance to all areas of our common life and all realms of society. The continuing penchant among many churches for the Gothic and Renaissance denies their assertion that Christianity has significance for all aspects of man’s life. It is an architectural denial of the meaning of the Incarnation and the belief that God continues to speak his Word in the language of a new age. […] Despite the peril of appearing chauvinistic, I believe there is an American tradition in architecture from which the church can learn about its failure in the past and its present opportunity. […] the New England frame meeting house, were forms which in their honest treatment of materials and their direct relation to purpose were things of beauty. […] The best architectural talent is available for the churches. But Protestant churches for the most part have not faced as yet the fundamental task of freeing the architect from the fetter of style (whether it be Gothic, Renaissance, or modern) and giving the architect instead the ingredients for a sound exercise of his profession.\textsuperscript{151}

The prescriptive article was far less progressive than one might suspect as the use of capital letters testifies. Eclecticism, traditionalism, local culture and social sciences intermingled to make materials “Incarnate” the new “language” for the contemporary religious man. Faith, gospel, word, and meaning were relocated to the very use of building materials. And modern architecture, “with its orientation towards functionalism” was in charge of supplying them.\textsuperscript{152}

\textsuperscript{150} “A Place of Worship is a Place of Light,” \textit{Architectural Record} 41 (December 1956): 123-129. “This is a monumental building and its patterns and penetrations […] are all arranged to make it so.”


\textsuperscript{152} “The Planning of St. John’s Abbey,” \textit{Church Property Administration} 19: 1 (January-February, 1955): 145. The statement was made by Abbot Baldwin Dworschak and appeared repeated in several publications. However, there is an economic quality in the understanding of “functionalism” in relation to materials that matched the Benedictine austere tradition. In describing the use of materials for a larger audience preoccupied with religious matters, the publication emphasized the identification between “structure” and “enclosure” in the lateral walls that extended to the “tapestry of textured glass with varying degrees of transparency” that the enclosing North Wall provided. To enjoy such a detailed description of materials in a religious magazine (“fireproof concrete ‘shell’”; “texture of the foamwork; “glass and unpolished granite”; paved waxed bricks, etc.), dealing with prefabricated churches in aluminum speaks about the permeability of modernism in religious buildings.
The active manipulation of matter brought about the spiritual contextualism that accommodated modern faith to the actual needs and visual landscape of society.

The material narrative continued as the design of the religious complex evolved. The first sketches for the construction of the St. John’s Church were ready by the beginning of July 1953, while Breuer was still in Paris. [Fig.074] Unsatisfied with a rectangular design that allowed the monks to face each other but hid them from direct view by the public, Breuer made amendments towards a trapezoidal plan. Pier Luigi Nervi provided technical consultations concerning the structural system—a continuous serrated or accordion-like shell as a ‘hood’ for the liturgy—while collaborating on the UNESCO project. 153 A key aspect of Breuer’s design was the success of the sequence of expansion towards the south, as least disruptive to the compulsory silence of the order. The design also relied on the symbolism of the north façade, an unexpected orientation for the harsh weather of Minnesota that required the use of Breuer’s best rhetorical skills to convince the brotherhood. Breuer proposed a sculptural pierced wall followed by a vertical, cantilevered banner-tower as a campanile that included the electrically operated bells. [Fig.075] The north façade was composed of a set of uneven, large, rectangular concrete slabs and columns filled with transparent glass. The phenomenal transparency that the original proposal acquired was soon altered in the evolution of the banner, an element than not only acted as a support but also as a *photographic screen* reflecting back the “most dramatic light” of the sun onto the north wall. 154 [Fig.076] The influence of photographic models

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153 The structural engineers for the commission were Farkas, Barron and Partners. In 1957, after what Breuer esteemed as lack of commitment, the engineers were substituted by the company Weisenfeld and Hayward. When the first cracks began in the roof of the Abbey appeared in 1960, Breuer asked his friend and structural engineer Paul Weidlinger to revise the construction drawings and the structural system adopted. See correspondence in Marcel Breuer Papers. Special Collections Research Center. Syracuse University Libraries.

provided a new reading for the interplay of matter and light. And this aspect was recognized at the time: writing in 1957 based on the models presented, the art historian Whitney Stoddard prophetically remarked the continuity between structure, light, and texture taking place in the interior of the proposed church.\footnote{The initial emotional appeal of the building as designed will be experienced through the play of light on the modulated shell. The sensitive use of materials, textures, and color will reinforce and heighten this appeal. […] The concrete wall and ceiling will preserve the textures of the formwork and are to be painted: the side walls white and the ceiling gold. The beauty of the ceiling will be enhanced by reflected light, principally the light from the north and south sides of the church.” Although some of the features he described were already in the models, Stoddard add a good deal of subjectivity towards the future completion. Whitney Stoddard, *Adventure in Architecture. Building the New Saint John’s* (New York: Longmans, Green, and Company, 1958), 96.}

Once the first plan was available for the public at large, the compatibility between traditional religious architecture and modern materials was celebrated.\footnote{“Ancient Religious Ideas and Modern Materials Found Compatible in New Abbey for St. Johns,” *Northwest Architect. Official Publication Minnesota Society of Architects* 18: 5 (May, 1954): 34, 36.} Besides the overall organization of the religious complex, emphasis was placed on the vertical cantilevered concrete slab that Breuer adopted for the “bell-wall”, a feature symbolizing and summarizing his “philosophical” position in relation to modern architecture. The banner substituted the historical double tower type for the continuous slab as the index of contemporary times, although the design went through some minor formal modifications and additions in relation to the placement of the bells within the large concrete surface.\footnote{Concerns in relation to the commercial and decorative character of the banner were raised by the members of the committee. Hilary Thimmesh, *Marcel Breuer and a Committee of Twelve Plan a Church* (Collegeville; MN: Saint Johns’ University Press, 2011), 18-19.} The slab became a wall, a symbol with new functionalities. [Fig.077] But the replication of the trapezoidal plan of the church—a formal feature also shared with the baptistery—remained. However, there were concerns as to the appropriateness of the original design. In October 1956, Abbot Baldwin Dworschak sent a letter to Breuer informing
him of the creation of an enlarged committee to oversee the final design of the monastery.\(^{158}\) The committee was meant to incorporate new members of the community to gather as much consent as possible. After a few meetings, the Abbot summarized the questions that the chapter had in relation to the “sacred character” of the design, particularly about the “banner, the interior walls, the exterior walls, the use of transparent glass windows, […] and] the ‘untraditional’ design.” \(^{159}\) [Fig.078] The most poignant preoccupations lay in the surface aspects of the representation once functional requirements were secured. In the original design, the multiplicity of patterns for the North façade made out of concrete slabs and terracotta tiles already composed the ideal ‘stained glass window’ formed by a multiplicity of lights and shadows.\(^{160}\) However, modifications and amendments continued during 1957 as the correspondence between Hamilton Smith and the Office of the Abbot shows. Between March 27 and May 8 of 1957, several issues were discussed, including the mechanical or electrical operation or the bells and the granite patterns. Breuer recommended building a series of mock-ups at the construction site to determine the final claddings of the façades and anticipate any problems in building the glass wall. [Fig.079-081] Not fully convinced, the members of the committee expressed their concern about the possibility of drafts and condensation in the north glass façade that would presumably require a double-glazed solution. By September 23rd, the office had already submitted new drawings with a modified version of the north façade based on

\(^{158}\) For a description of the members in the committee, their different backgrounds and the discussions that took place in the several meetings see Hilary Thimmesh, *Marcel Breuer and a Committee of Twelve Plan a Church* (Collegeville; MN: Saint Johns’ University Press, 2011). Thimmesh was the youngest member in the committee and he was the father in charge of compiling the notes of the different meetings. The book, is a recollection of his own private notes and memories.

\(^{159}\) Correspondence between Abbot Baldwin Dworschak and Marcel Breuer, December 17, 1956. Marcel Breuer Papers. Special Collections Research Center. Syracuse University Libraries.

\(^{160}\) Whitney Stoddard relates the unusual solution of the perforated banner to the photographs Breuer took during his trips to Spain, Greece and Morocco in the early 1930s. There is no evidence of such a connection in the archives.
precast hexagonal patterns of concrete filled with an array of vitreous polygons. [Fig.082] This new generic solution provided “limitless possibilities” for design within the overall pattern.¹⁶¹

The final design of the hexagonal pattern was developed at Breuer’s office between the spring and the summer of 1957, once drawings for other major commissions in Europe such as De Bijenkorf and the Embassy of the United States in The Hague were submitted. The original patchwork solution made out of terracotta and concrete was abandoned in favor of an abstract homogeneous pattern sustaining a stained glass wall. [Fig.083] The drawings with the honeycombed façade constituted the basis for starting the bidding process in October. The arrival of fall coincided with Breuer’s nomination as a Fellow of the American Institute of Architects, an honor sponsored by Morris Ketchum, Philip Johnson, Max Abramovitz, William Lescaze, and others based on Breuer’s “deeply expressive” work in terms of “form, structure, and materials.”¹⁶²

Nonetheless, in November 16, 1957, the Abbot announced a vote by the Chapter that halted the planning due to increasing granite prices which affected the overall cost of the construction. While the plans were not abandoned, the Abbot urged Breuer to reconsider the expenditures on the cross of the campanile, the north window, and the artwork.¹⁶³ Major concerns and discrepancies in relation to the aesthetic capacities of Breuer to furnish the religious facility emerged, and the committee nominated Frank Kacmarcik, an art professor at Saint John’s

¹⁶¹ Hilary Thimmesh, Marcel Breuer and a Committee of Twelve Plan a Church (Collegeville; MN: Saint Johns’ University Press, 2011).26-29. Thimmesh indicates that the generic hexagonal solution of the North façade was noted by Hamilton Smith in series of meetings that took place during March 1957. See also Victoria M. Young, Saint John’s Abbey Church. Marcel Breuer and the Creation of a Modern Space (University of Minnesota Press, 2014).


University who had expressed previous reservations about Breuer’s design for the monastic wing, to investigate religious art that accommodated Breuer’s modernism. Thorough research in the art works of Europe and the Americas was undertaken by Kacmarcik in order to commission the right artists for the multiple art pieces of the Abbey. Breuer averted his attention from “devotional ornamentation” by concentrating on the glass screen wall. Construction of the Abbey began in spring of 1958, once financial issues relative to the increase in the cost of the building could be solved through fund raising, design modifications, and inventive construction solutions. Control of the temperature was achieved through a highly discussed solution of a radiant heat floor, which allowed the glass to be single pane. The pattern infill responded to the interior organization, reducing the accumulation of matter in the façade. If there was a document where the contrast between past and present was most evident, it was in the Fall 1957 issue of *Arts in America*: an article by Edgar Kaufmann Jr. presenting three unbuilt designs by Frank Lloyd Wright was followed by Breuer’s models for the monastery, showing the design after the pierced concrete white slab—“an architectural statement”—and the North Wall had been modified. The “simplicity” and “humility” of Breuer’s conceptions and their strategic use of patterns contrasted with the overelaborated renderings of Wright, despite Kaufmann having deemed them as “modestly seized” and “joyous and austere”.

In July 1958, the design of the glass for the north façade finally received serious attention. Breuer had proposed Alfred Manessier—whom he had met in Paris during the construction of...
the UNESCO headquarters—and Josef Albers to design the glass of the north façade, but the
order was reluctant to commissioning the latter such a significant representative element of the
abbey. Manessier rejected the commission based on the presence of the banner in front of the
glass façade as well as constraints imposed by the hexagonal architectural solution. For Breuer,
the design of the North Wall was as important as the experience of the church itself. Bronislaw
Bak, a young Polish glass artist, had been recently appointed professor at Saint John’s
University, and members of the committee asked him for a sketch of the wall without Breuer’s
approval. Breuer objected to Bak’s first proposal as fragmentary, symbolically dated, and
romantic, expressing a preference for geometric rather than organic or undulating motifs for the
glass façade. Bak’s design was neither abstract nor representational and therefore occupied a
middle, undetermined position at odds with Breuer design. [Fig.084] Concerns about the
adequacy of Bak for the job emerged within the committee. The artist William Saltzman and the
art critic Malcolm Lein served as external consultants. In a meeting held in August 1959, Bak
provided sketches of the overall composition and individual full-scale mockups of the hexagons.
The discussion soon moved to the decorative capacities of Bak’s design: for Breuer, Bak’s
sketched proposals and mockups showed a lack of “unity” and “integrity” with the overall
composition, dominated by the idea of the hexagon. Breuer defended an overall decorative
pattern as opposed to a religious representation. But the first sketches of Bak’s stained glass

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167 Bronislaw (Bruno) Bak was of Polish origin and spent five years in a concentration camp during World War II. After that, he decided to stay in Germany where he learned art and stained glass techniques. He migrated to Chicago in the 1950s and received an appointment at Saint John’s University in the summer of 1958, at the age of thirty-seven. The theme for his design was based on the Tree of God Fruits.

168 Malcolm Lein was the director of the Walker Art Center in Minneapolis. James Johnson Sweeney was also considered to join the conversations.

169 “I would prefer an overall decorative pattern to a composition which tends to be a religious expression and does not succeed.” Quoted from Hilary Thimmesh, *Marcel Breuer and a Committee of Twelve Plan a Church* (Collegeville; MN: Saint Johns’ University Press, 2011), 79.
window had already circulated within the monastic community, gaining wide acceptance and sympathy.

However, the committee, decided to ask Joseph Albers for a proposal. Albers had previously designed the glass wall of the Abbot Chapel in the Monastic Wing in 1955, an abstract composition of rectangles in “photographic grey” with a crucified figure of Christ in the middle of an extended white cross. For the North Wall, Albers presented a warm colorful composition (yellows, oranges, and reds) on November 12, 1959 that followed the lines of the hexagons along the entire wall. Some of the lines had texture to favor the play of light and add “extra sparkle.” Albers excluded blues, greens, and greys and placed a symbolic cross in the center as a reference to emanating light. Albers had stated in a letter that “[i]n times when most people could not read it was natural to present a pictorial content. In times when all can read it seems as natural to present a story or a message directly in text.” The text he choose was the Sanctus of Christian liturgy, but the shift towards explicit signs and texts was not well received considering the abstractness of the overall proposal. At that point, Bak’s contested figure had gained momentum and his designs had improved accordingly. After close consideration, the committee decided by secret ballot to continue with Bak’s design—despite the criticism his design had faced from external critics—and reject Albers proposal. Even though Breuer offered to fabricate the glass wall in the workshop, Albers’ final involvement in

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170 Thimmesh refers to Albers composition as “photographic” although it is unclear what he is referring to in his description of the work. Hilary Thimmesh, *Marcel Breuer and a Committee of Twelve Plan a Church* (Collegeville; MN: Saint Johns’ University Press, 2011), 50.


172 Concerns about Albers non-Christian beliefs, as in the case with Breuer, were voiced, although his Jewish ascendancy did not affect the final decision.
the design was gently discarded to please the monastic community which demonstrated sympathy for Bak’s background and persona.

Breuer did not digest the final decision easily. But the strategies that he followed to back the Albers design and dismiss Bak’s work proved ineffective. Breuer assumed that after all the meetings and external appraisals, the religious community had understood that Bak’s sketches did not fulfill the organizational and aesthetic principles of the church. In a harsh letter to Abbot Baldwin Dworschak, Breuer underscored the importance and meaning of the North Wall for the church, above the “Apse Screen, the altars, and any other elements combined.” This statement infuriated the community that understood the glass wall as an auxiliary element for liturgy. From a decorative point of view, Albers’ design was preferable; from a religious, symbolic and meaningful one, Bak had taken the lead in the view of the clerics. Breuer’s sentence was taken as an offense to the chapter and proved to the committee that they had made the right decision. Furthermore, fundraising was conducted based on Bak’s design, making the final vote irreversible.

The final solution for the North Wall incorporated an on-site system of metal work for concrete filled with four hundred and eighty-six stained glass pieces. Breuer, who regretted the statement, collaborated with Bak on the final design. The manufacturing took place between

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173 Marcel Breuer to Abbot Baldwin Dworschak, December 9, 1959, Marcel Breuer Papers, Syracuse University Libraries, Box 105, Folder 2.

174 Hamilton Smith wrote a letter to Abbot Baldwin to express Breuer’s feelings on the final decision. This letter arrived two days after another letter by Breuer in a more personal tone expressing his strong disagreement with the vote. See Hamilton Smith TLS to Abbot Baldwin Dworschak, December 9, 1959. Marcel Breuer Papers, Syracuse University Libraries, Box 105, Folder 2. For a full recollection of the events leading to Bak’s appointment as the designer for the stained glass see Hilary Thimmesh, Marcel Breuer and a Committee of Twelve Plan a Church (Collegeville; MN: Saint John’s University Press, 2011), 106-114. Victoria M. Young, Saint John’s Abbey Church. Marcel Breuer and the Creation of a Modern Space (University of Minnesota Press, 2014), 126-135.
1960 and 1961, and it involved thorough work on glass craftsmanship done by Bruno Bak, young monks, and local workers. St. John’s Abbey was dedicated on August 24, 1961 and enjoyed great success in the religious, popular, and architectural press. But the statement made by the design for St. John’s in the combination of the white cantilevered slab and the multiple hexagons represented a further step in the consideration of architectural representation. Marcel Breuer had envisaged a façade that could accommodate many designs, a combination of light, materials, and patterns functioning as a complex television set. The North Wall was meant to be a form of architectural-technological media, combining reflections, projections, and translucencies: a myriad of pixelated hexagons creating the apt billboard for the celebration of mass. But the final discussion proved that not just any image could have been included in the overall composition. Both designs, Albers’ and Bak’s, entertained the idea of symbolic form, but the latter was more explicit and metaphorical. Bak had created a colorful repertoire to represent the liturgical season emanating from a symbolic centered eye of God: Advent, Christmas, Easter, and Ascension.

5.8_**Incrusted Hexagons, Infinite Rapport.**

The hexagonal solution for the North Wall of Saint John’s Abbey ran in parallel to another commission that began, as with the former, in 1953: the design for the new De Bijenkorf store—*The Beehive*—in Rotterdam. The retail company planned a new building by the late 1940s following the destruction during the Second World War of the previously existing premises—designed by the modernist architect Willem Dudok of the Amsterdam school in 1930. The Dutch architect Abraham Elzas was in charge of defining the functional program for the future retail company and was afterwards incorporated into the design team as the local
architect. By March 1954, the full team—consisting of Marcel Breuer and Abraham Elzas, with Daniel Schwartzman as interior architect—was ready to begin designing the adjacent parking structure in collaboration with the engineers G.C. Leene.

Urban regulations for the new plot in Rotterdam required an undulating façade, necessitating from the beginning a representational, contextual role for the elevations facing Coorsingle Boulevard. Breuer’s first reaction to the proposal was to situate a transparent billboard made of hexagons attached to the façade. [Fig.091-093] Symbolism, personal preferences, and material possibilities came together to revamp the retail big box.\(^{175}\) The grilled hexagonal billboard was empty, halfway between a gigantic announcement and a brand logo iterating the image of the company: one can imagine the pattern imprinting its shadows in the mornings onto the façade. This solution soon evolved towards new forms. In the following iteration, Breuer proposed a rectangular volume that responded to planning requirements through a sculptural attachment to the façade by the artist Naum Gabo: the bulge was meant to reinstate the virtual regulatory line of the original urban planning. [Fig.094] The first and second versions were rejected but not the following one, an autonomous double penetrating sculpture that later became further modified. [Fig.095] The selection of the constructivist Gabo responded to the absence of solid volumes in his work, reducing form to a group of wires and lines that would not interfere with Breuer’s own design.\(^{176}\) But further expressive efforts soon came to the fore, transmitting the hexagonal intensity of the first proposal onto the lateral façades. [Fig.096] The final proposal consisted in a

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\(^{175}\) Breuer had previously showed a clear leaning towards hexagonal forms and its derivations in multiple master plans and designs like the Garden City of the Future and its “honeycomb” cells for the individual shops designed in partnership with F.R.S. Yorke in 1936, Stuyvesant Six proposal in 1942 or the South Boston Redevelopment plan in 1943, none of them built.

\(^{176}\) Abraham Elzas, interviewed by Rufus Stillman and Constance Breuer, Massachusetts, August 29, 1983, Smithsonian Archives of American Art, Box 7, audiocassettes.
hexagonal abstract grid, materialized by reliefs between pieces of travertine. In addition, a frantic array of textures in three directions appeared on every single surface of the cladding. [Fig.097] Furthermore, a rectangular pattern of vertical windows provided limited natural light for the commercial interiors that was meant to break the ‘Americanness’ of the proposal, that is, the big box as the global type for commercial megastores. The Architectural Record reported the façade’s closeness in the upper floors as part of the American understanding of commercialism that combined classicism in its “striated Italian travertine” for the hexagonal pattern with the vertical rectangular “spaced” lights providing the “symbolic” expression in tune with other commercial centers in the United States’ context. 177 The expressive motif to solve the commission became conspicuous from the very beginning, although the solutions varied from façade to façade: the hexagonal pattern configured the abstract grid ruling the entire composition. In one of the corners, the Naum Gabo sculpture would extend from “show-window soffit to parapet.” 178 Half way between massing as a form of accumulation and the regulatory grid, the textile quality of the composition is only structural and organizational. The textile pattern was further enhanced by an intermittent light and shadow effect that takes place in the individualization of the tectonic piece: the reliefs in the façade were meant to provide a continuous tissue of lines that alternate natural light and tectonic projective shadow. Time and weather were also incorporated as an aesthetic component through the process of aging. 179

177 “Netherland Department Stores Rebuilds,” Architectural Record, 117: 5 (May 1955): 206-207. The article concentrated in four different stores recently completed by architects Victor Gruen (Store for Carson, Pirie Scott & Co in Hammond, Indiana); William T. Snaith and Raymond Loewy (Bloomingsdale Brothers, Stamford, Connecticut), and Abbott, Merkt & Co and Daniel Schwatzman (The Hecht Co Store in Baltimore, Maryland) in addition of Marcel Breuer’s De Bijenkorf. All of them had material textures and decorations in the forms of letterings and signs, being De Bijenkorf the most sophisticated one.


However, these reliefs between the pieces of travertine were not executed, remaining an unfulfilled formal aspiration. Only the serendipitous textures as signifiers of the industrial origin within the hexagonal parts remained as the expression for the elevation. The original drawings promised a triple deployment of ornamental forms negotiating between universal symbolism and phenomenological freedom, an agenda that Breuer had already expressed in *Sun and Shadow*:

> ...the atavistic, physical sensation, the touch aspect of the natural materials gives us something—perhaps confidence. An architectural composition needs all these elements—materials, patterns, textures, colors—it needs the freedom to use all this in a lasting way. For we don’t change our buildings the way we change our neckties.  

Tactile concerns were not just rhetorical in commercial and institutional buildings. As he would acknowledge years later, the experience was visual as well as physical. But it was also political and aesthetic. The Italian magazine *Zodiac*, sponsored by the impresario and cultural patron Adriano Olivetti, included Breuer’s department store in its first issue as an “international-style monument” for the city of Rotterdam, whose sculptural treatment paralleled the sculptures of Ossip Zadkine, Mario Marini, and Mari Andriessen, all of them memorializing or symbolizing the horrors of the war. To avoid the impoverishment of the architectural language, the relation between the architect and his community had to be reestablished by reconciling the spiritual and material world so “the city of man can finally begin to evolve toward the City of God.” That spiritualism, however, had significant commercial leanings. Breuer provided the architecture for “day and night” thanks to the striated travertine hexagons that “dramatically”

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reversed themselves by night when the rectangular windows appeared as a lit pattern.¹⁸⁴ The light at night resembled a “flag” for international observers, punctuating the façade in equal intervals to celebrate restless global consumerism.¹⁸⁵

A critical article that appeared in 1960 addressed the three buildings that Breuer constructed in the Netherlands: De Bijenkorf, the American Embassy, and the Van Leer Offices in Amsterdam. Written by A. van Rooy for the Katholick Beowblad, the text underscores many of the aspects in play in Breuer’s architecture at that time and the transition to postmodernism. For the author, Breuer’s projects in the Netherlands distanced themselves from the actual functions of the buildings, abusing purely incidental features and signaling a divide between interior design, the purpose of the building, and architecture as a container.¹⁸⁶ [Fig.098-099] De Bijenkorf became identified as a modern “Doge’s Palace,” assuming the same popular nickname that the citizens of The Hague had given to the American Embassy: the steenklop or “lump of stone” due to its constant denial of daylight, a trait identified with American retail types.¹⁸⁷ By acquiring autonomy from the interior, the exterior skin could restore forgotten expressions in architecture resembling more a “ballet than a building.” For the author, Breuer’s “mathematical play of lines and surfaces” was most evident in the Bijenkorf, bringing back details and the “the

¹⁸⁵ “Un grande magazzino a Rotterdam”, Domus 334 (September 1957): 2.
lyrical spirit” that was “cast out by the puritanical reformers of the style.”\textsuperscript{188} This article resonates with the notes Breuer’s made for a lecture in the late 1940s. The divisions between skeleton (construction in the sense of structure), muscle and ligaments (the building’s functions), and finally the inner organizations of its different parts (the “skin,” the “blood,” the “hair,” and the “vitality”) summarized the triad that constituted his ‘direct approach’ to design, that is a flexible combination of parts and functions that had a marked pragmatic, non-utopian character. \textsuperscript{189} Breuer’s “philosophy” was an uncompromised one that internalized contrasts and agreements as part of the logic of production. [Fig.100] This modern triad also translated into three formal gestures or “instincts” from which the rest could be derived: the slab, the cantilever, and the screen wall. Illustrated with numerous hand drawings, the lecture deployed space as a background for life and contrasting walls as an optimal form for slab constructions. In Breuer’s architecture it meant a further emphasis in the use of textures and contrasts, representing in the surface of materials the on-going integration between hand and image, that is, between the technological eye and the traces of manual labor that the tactile suggests. From the biological metaphor to the materialization of geometries and patterns, the vitalism of Breuer followed the same path Moholy-Nagy took almost twenty years earlier, when he decided to change the name of his book from \textit{Von Kunst zu Leben (From Art to Life)} to \textit{Von Material zu Architektur (From Material to Architecture)}. Material was the very medium embodying modern architecture’s expectations and progress, whether in religious, commercial, or bureaucratic buildings.


A set of photographs illustrates the intimate relation between hand, image, media, materials, and ornament, in postwar architecture. In 1925, Moholy-Nagy took a photograph of Marcel Breuer [Fig. 101] with his hands raised and palms up and facing the lens of the apparatus as if he were asking the photographer to hold back, to restrain himself from advancing towards a mass in the background: architecture. Breuer’s hands, extended and open towards the observer, stand as a subjective counter-measure to the mechanism facing him. Breuer’s Luddite pose seems at odds with Moholy-Nagy’s interest in modern means of reproduction in the mid 1920s. Is Breuer here warning us of the rapid changes being introduced by this apparatus? Moholy-Nagy’s image of Breuer is a visual statement and premonition of architectures to come. The most economic gesture—the click of the shutter activated by the photographer’s finger—produces the most expressive effects frozen on the flat surface of film.

That same year—1925—Moholy-Nagy made a photomontage in gelatin silver entitled *The Law of Series* (Das Gesetz der Serie). [Fig. 102] The motif of the composition was the photograph of Breuer, though this time excised from its urban context. Moholy-Nagy reproduced, mirrored, and arranged it in a composition of different gray-scales, creating continuity through overlap. Emerging from a circle—perhaps a visual reminder of the photographic lens responsible for the sequence—two curved lines converge towards the right side of the composition, crossing Breuer’s iterations and indicating a path or a direction to follow. The prescriptive or normative character of the photomontage arises from the multiple simultaneous use of the same element—variation and repetition—for the sake of the overall composition.
Das Gesetz der Serie poses a riddle: in the mid-1920s what presumed legal status did Moholy-Nagy assign to the series in the field of aesthetics in relation to new means of reproduction? It definitely conveyed a particular idea of modernity and subjectivity. Warning against ornamental practices in 1929, he stated that “repetition” [Wiederholung] was the locus in which “modern man recognizes” the aesthetic capacities of technical progress. In the 1932 English edition of Von Material zu Architektur, he added “series” parenthetically to clarify what kind of repetition he meant. For Moholy-Nagy, serial repetition was not related to earlier abstract ornamentation, i.e. banal forms of subjectivity but was instead the formal result of new modalities of technical production juxtaposed with the modern subject. The recognition of a series was mediated and conducted by the capacities of the photographic process. For Moholy-Nagy, photography was “a new instrument of vision” that allowed a “patterned interplay of light” to be captured and that urged the modern subject to explore the wealth of the visual environment for aesthetic

190 In 1908, the art historian Wilhelm Worringer advocated for geometric ornamentation in his epoch-making Abstraktion und Einfühlung. Following Theodor Lipps and arguing against Heinrich Wölfflin, Worringer distinguished between ornamental regularity [Regelmäßigkeit] and lawfulness [Gesetzmäßigkeit], associating the former with the principle of empathy and the latter with the principle of abstraction. Accordingly, the appreciation of regularity was subjective whereas lawfulness went beyond the individual, indicating tight relations with the external natural world. Lawfulness was a universal value, reconvening with the original sense of the word cosmos, that is, order. Worringer echoed Gottfried Semper, whose classification of ornament (as pendant, ring, and directional) symbolically and formally related it to universal rules that underlay cosmic organization. The English edition translated by Michael Bullock in 1953 translates Regelmäßigkeit as “uniformity” and Gesetzmäßigkeit as “regularity”. In a footnote, Bullock clarifies the difficulty of text, since both could be translated as “regularity”. But while the former stems from rule, the latter stems from law. In the case of Gesetzmäßigkeit, it refers to cosmic, universal law. However, for him, Gesetzmäßigkeit, was a priori unexpressive precisely because of the overarching value that it promises. Thus, the geometric style in ornament to which Worringer referred was the kind present in patterns, spirals, linking lines, etc., that is, once an expressive value had been assigned. In these, he found the appropriate combination of abstraction and empathy announced in the practical section of his book. This kind of ornament incorporates a dead line to make geometry “organic,” infusing new life in a decaying trace. Moholy-Nagy frequently used hands, flowers and spirals in his photograms as organic counterpoints to the new media.

191 László Moholy-Nagy, Von Material zu Architektur (München: A Langen, 1929), 70.

192 In later English editions, Moholy-Nagy substituted the word "technology" for “technique.” [technik]
reasons. It was, in other words, a formative device whose results make us sharper in distinguishing difference within homogeneity. Moholy-Nagy’s new vision was not filtered simply by lenses but also by the properties of film and the process of photographic development. It was a way of looking as well as a method of generating new materials with which to construct that vision. The mechanical camera was simply a tool in the process—as an easel and brushes were for painters—that triggered new views of the environment, unveiling “the whole gamut of splendid details of structure, texture and ‘factor’” in a given context. Photographic series, had the power to relate mechanical rigor and human subjectivity organically in the construction of an image:

There is no more surprising, yet, in its naturalness and organic sequence, simpler form than the photographic series. This is the logical culmination of photography. The series is no longer a “picture”, and none of the canons of pictorial esthetics can be applied to it. Here the separate picture loses its identity as such and becomes a detail of assembly, an essential structural element of the whole which is the thing itself. In this concatenation of its separate but inseparable parts a photographic series inspired by definite purpose can become at once the most potent weapon and the tenderest lyric.

Photographic series provide continuity and structure simultaneously, generating a constructive grammar based on the integration of individual parts. In series, images are treated as building blocks in the construction of a larger reality. In so doing, they represent both mechanical

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production and organic assembly. The individual image becomes structural after abandoning, albeit temporally, its own identity.

Moholy-Nagy continued using Breuer’s image in new photomontages. [Fig. 103] Among these is *The Transformation*, in which Breuer’s figure forms a short frieze with slight variations. In the iteration on the right, Breuer’s eyes are replaced by the seductive gaze of the actress Gloria Swanson, already associated with the discussion on faktur in Moholy-Nagy’s *Malerei, Photographie, Film*. Neither the productive feminization of vision nor the inversion of Swanson’s eyes on Breuer’s face here can be overlooked. Yet another variation with Breuer’s image falls into a different framework: the rhetoric of seduction for commercial purposes. [Fig. 104] In 1927 Moholy-Nagy produced a new photomontage for the Schocken Company with the following caption “Stop! You are already at the Schocken Department Store”—*Halt! Waren Sie Schon im Kaufhaus Schocken.* Eventually, the law of series that Moholy-Nagy announced served as the basis of a Reklame disseminated in interwar Germany, a commercialism that re-claimed past aesthetic forms as effective. Remarkably, unlike other images of Breuer’s persona, the photograph used in all these photomontages and collages was indeed significant to the biography of the architect, who repeated the gesture for a photograph fifty years later. [Fig. 105] Here the gesture conveys the wariness with which he treated materials as a designer, his hands always mediating the aesthetic correspondence between his work and industry.  

Two other photographs may better illustrate the formal transition from modern avant-gardes to postwar modern architecture, and particularly from Moholy-Nagy’s work to Breuer’s

architecture. The first image, now at the Smithsonian Archives of American Art, is among documents related to Breuer’s design and the development, and construction of the U.S. Embassy in the Netherlands. [Fig. 106] Though unattributed, similar black-and-white photos suggest the authorship of Dutch photographer Jan Versnel, who, in the 1950s, focused on modern architecture.197 Alongside elevations, renderings, and miscellaneous images, this photograph helps us understand the look the overall building had once inaugurated. Taken from the second floor of the Dutch National Theater, the image captures the southeast elevation of the building, that is, the administrative and Intelligence Services area facing Korte Voorhout. [Fig. 107] In the photograph, we can appreciate the organized pattern of light and shadow created by the hexagonal formation of glass and polished granite lintels, slightly recessed from the continuous, trapezoidal limestone cladding, a compositional strategy that the architect had already applied in the De Bijenkorf retail building, as we saw in the previous chapter. The choice of polished granite reinforces the continuity of reflection within the distorted supra-hexagon—also encompassing the panes of glass—and materializes the vitreous, crystalline quality that the renderings produced by Breuer’s office intended. However, there is a puzzling aspect in the picture; the pristine modern volumes of the Embassy contrast with the heavily ornamented balcony from which the image was shot.

The juxtaposition of the wrought-iron pattern of the handrail with the modern city reminds us of an image taken by Moholy-Nagy in Marseilles three decades earlier, in 1928. [Fig. 108] Hidden behind its technological apparatus, Moholy-Nagy placed the camera behind a pattern of similar formal and material elements that recall the fascination with vegetal tendrils that

197 On the work of Jan Versnel, see Solange de Boer and Maarten Klose, *Monografien van Nederlandse Fotografen, Jan Versnel, onder redactie van Flip Boel*, (Amsterdam: Uitgeverij, 1997).
permeated the photography of the 1920s, more precisely, the work of Karl Blossfeldt. In addition to any biological parallels, Moholy-Nagy’s image pinpoints the influence of photography on architecture. Moholy-Nagy described the railing in the image as an element necessary “to separate the scene into individual cells through which their spatial quality is more emphasized.” For Moholy-Nagy, patterns were frames responsible for the spatial quality that plain surfaces could not achieve. Breuer had a different interpretation of the relationship between ground and figure that counteracted modernist tropes; for him the idea of “transparency” served as an aesthetic contrast to the idea of “solidity,” forming an organizational dialectic that constructed the image of postwar modern architecture. By the 1950s, the interpenetration of motifs, lights, and spaces was already present in the materials used for postwar façades, materializing the filter that Moholy-Nagy had demanded in his photographs. The façades of Breuer’s buildings were already acting in the way that Moholy-Nagy’s photographs had anticipated. The material Aufbau of industry followed the manipulation of building materials that Breuer’s office so adamantly worked on. The image misses many of the formal nuances and textures that Breuer wanted to achieve in these materials. [Fig. 109-110] Vertical, diagonal, and horizontal lines populate the façade’s limestone as signifiers of machine production—a mechanical hand gesture anticipating the automatisms of industry. The seemingly natural differences in color of the individual pieces of limestone is emphasized and further exaggerated

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198 I would like to thank Professor Spyros Papapetros for this reference. Scholar Alla Vronskaya has problematized the relationship between Blossfeldt’s *Urformen der Kunst* (1928) and nature, associating the volume to the work of Blossfeldt’s former master and colleague Moritz Meurer and tracing his influences back to ornamental treatises such as Owen Jones’ *The Grammar of Ornament* (1856).


200 “The idea of transparency in a building is within our reach. […] To my mind [this idea] does not represent progress. It is not much more than an idea, a style, to be replaced by another style. It is without universality, without ‘sun and shadow’ […] transparency needs also solidity. And not only for aesthetic reasons—but also because total transparency leaves out such considerations as privacy, reflecting surfaces, transition from disorder to order, furnishings, a background for you, for your everyday life.” *Sun and Shadow* Marcel Breuer, *Sun and Shadow, The Philosophy of an Architect*. (New York: Dodd, Mead & Company), 3.
by the play of light and shadow in the textured material. The mechanical results are designed and anticipated by the hand of the draftsman with no regard for the building’s formal organization. The material is manually scratched in advance to construct the image of the building. The continuous pattern of the limestone canvas cannot remain blank as it constitutes a surplus of design labor and fabrication that is facilitated by the maximization of the mode of production. Details of the drawing reveal the accurate geometry of the pieces, with measurements and locations of the various parts in relation to the final construction of the façade. The surface is manually and mechanically scarified. The abstract, ornamental quality of the hand-made drawing—a combination of geometric pattern and texture—ascertains and foresees the machine’s capacity to produce it. As Adolf Loos underscored, the drafting board encourages the production of ornament, turning the architect into a graphic artist, a decorator who undertakes a process of superficial laceration; the atavistic instinct on which Breuer insisted signified the metamorphosis in modern anthropological terms of the modern designer, once he was familiarized with mechanical, repetitive forms. The identification between hand-made drawing and an ornament is no coincidence. Despite the English tradition of Arts & Crafts, we find the architect’s overwhelming graphic capacity among the main charges against ornamental architects as formulated by Adolf Loos. In his elaborated article “Architektur,” Loos identified the decline in turn-of-the-century architecture with the tradition of the architect as draftsman. Only those trades in which the relationship between the producer and the user had been unmediated by books, uprooted by twentieth-century developments due to the “ordinariness” of their craft—shoemakers, makers of bags and saddles, carriages and instruments—remained functional and safe from the photographic seduction of the bidimensional drawing. See Adolf Loos, “Architecture,” in On Architecture, trans. by Michael Mitchell from the 1995 German edition, ed. by Adolf Opel, (Riverside, CA: Ariadne Press, 2002), 78. Originally in Der Sturm, (December 15, 1910).
Epilogue

Saul Steinberg, American cartoonist, *New Yorker* illustrator of Romanian origin, and friend of Moholy-Nagy’s family, made a significant drawing in 1957. The vignette describes a convoluted dialogue between two cartoonish characters, a man and a woman. [Fig. 001] On the left, the man speaks a very particular language consisting of a set of straight lines that intersect to create geometric figures, triangles, and acute angles. The result is a broken, abstract figure, a complex tissue of intersecting lines that recalls statistical and economic charts. On the right side, a woman *pronounces* words in a very different way. She speaks a language reminiscent of turn-of-the-century Art Nouveau in its flowing and meandering lines of various thickness. Emerging from one of these is a budding flower, as if offered to the stark contrast of the mesh of lines before her. The flower appears after the dialogue has taken place: a gift constructed according to the conversation offered by the organic line. The lack of effective communication between the two characters—perhaps the result of genders—eventually generates a biological element that is alien to both forms of speech. The drawing illustrates a synthesis between formal abstraction and organic empathy that permeated the postwar era. Building materials were among the privileged *loci* in which this synthesis can be traced. In them, we can identify a renewed formal and material rhetoric that took place vis-à-vis discussions on the ornamental and the subordinate in modern architecture. As suggested by Robin Evans’ epigram in the introduction to this dissertation, attention to the expressive qualities of materials inaugurated a different way of designing and looking at modern architecture, which, in turn, paved the way for postmodernism.
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Rhetoric Matters
Image, Textures, and the Discussion around Modern Ornamentation (1932-1961)

Volume II

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