

Architecture as Artform: Drawing, Painting, Collage, and Architecture 1945–1965

by

Eric K. Lum

B.A. (University of British Columbia) 1981

M.Arch. (University of California) 1988

MDesS (Harvard University) 1990

SUBMITTED TO THE DEPARTMENT OF ARCHITECTURE
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF

DOCTOR OF PHILOSOPHY
IN ARCHITECTURE, ART, AND ENVIRONMENTAL STUDIES
AT THE
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

JUNE 1999

© 1999 Eric K. Lum
All Rights Reserved

The author hereby grants to MIT permission to reproduce and to
distribute publicly paper and electronic copies of this thesis document in whole or in part.

Signature of Author: _____

Department of Architecture
January 8, 1999

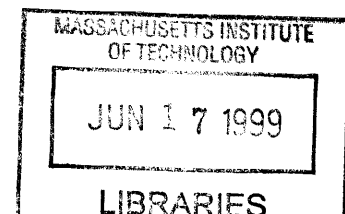
Certified by: _____

Mark Jarzombek
Associate Professor of History and Architecture
Thesis Supervisor

Accepted by: _____

Stanford Anderson
Professor of History and Architecture
Head, Department of Architecture

ROTCH



ADDITIONAL READERS

K. Michael Hays

Professor of Architectural History and Theory

Harvard Graduate School of Design

Michael Leja

Associate Professor of Art

Massachusetts Institute of Technology

**Architecture as Artform:
Drawing, Painting, Collage, and Architecture
1945–1965**

by

Eric K. Lum

Submitted to the Department of Architecture
on January 8, 1999 in Partial Fulfillment of the
Requirements for the Degree of Doctor of Philosophy
in Architecture, Art, and Environmental Studies

ABSTRACT

The development of an American architectural avant-garde after the Second World War is examined in relation to the formal properties and institutionalized cultural authority of modern art. Rather than looking to the artwork of their American artistic contemporaries, architects and critics appropriated the early European avant-garde as typological precedents, guided by a pedagogical approach steeped in Bauhaus teaching methods. Drawing became the common conduit between the abstract work of art and its transformation into modern architecture. Architecture was seen as a problem that could be studied diagrammatically, and consequently also thought of as a fundamentally conceptual, immaterial artifact. At the same time that architecture was moving towards a flattened artistic condition, however, abstract expressionist painting began to take on the material and dimensional properties of the architectural object, demarcating volume and structure. Modernist collage techniques were also introduced into post-war architectural design, but again the material aspects of the medium were suppressed in favor of its purely visual qualities.

Thesis Supervisor: Mark Jarzombek
Title: Associate Professor of History and Architecture

Table of Contents

Abstract	5
Acknowledgements	9

Introduction

Introduction	13
<i>Architectural Practice at Mid-Century</i>	22
<i>How Architecture became Progressive</i>	27

Drawing and Architecture

Reading the Modern	37
<i>Wölfflin and the Legacy of German Formalism</i>	37
Rudolf Wittkower	40
Colin Rowe	42
Reyner Banham	45
Peter Eisenman	48
Point and Line to Plane	57
<i>The Vorkurs in America</i>	57
Kandinsky: Point and Line to Plane	59
Albers at Harvard	61
George LeBoutillier	65
Gyorgy Kepes	71
Richard Filipowski	74
Robert Preusser	75
Robert Slutzky: Art, Education, and Gestalt	77

Painting and Architecture

Architecture Towards Painting	83
<i>Greenberg's Crisis</i>	84
<i>Between the Easel and the Mural</i>	91
<i>Philip Johnson and the Museum of Modern Art</i>	97
<i>Painting and Sculpture in Architecture</i>	102
<i>What is Happening to Modern Architecture?</i>	108
<i>Painting Towards Architecture</i>	111
<i>Architecture Towards Painting</i>	119
Painting into Architecture	125
<i>"Unframed Space"</i>	125

<i>The Muralist and the Modern Architect</i>	132
<i>'How to combine architecture, painting, and sculpture'</i>	135
<i>Painting / Architecture: Mark Rothko</i>	142
<i>Loss and Redemption</i>	151
<i>An Architecture of Abstract Expressionism, Part I: The Smithsons</i>	155
<i>Abstract Expressionism, Part II: The Tony Smith Church Project</i>	161
The Plane as Generator	167
<i>The Plane as Generator</i>	167
<i>The Painted Wall</i>	177
Working the Archework	185

Collage and Architecture

Introduction	201
<i>Collage as Social Critique</i>	205
<i>Surrealism, Dada</i>	210
<i>Kurt Schwitters and the Postwar Reception of the Fragment</i>	212
<i>Bauhaus Collage and After: from Facture to Visuality</i>	216
<i>The Art of Color: Johannes Itten</i>	217
<i>The New Vision: Laszlo Moholy-Nagy</i>	219
<i>The Language of Vision: Gyorgy Kepes</i>	222
<i>The Interaction of Color: Josef Albers</i>	224
Collage Architecture	227
<i>The Collage Metaphor</i>	227
<i>Mies van der Rohe and the Architecture of Collage</i>	228
<i>Mies as Bricoleur</i>	231
<i>Teaching Collage at IIT</i>	239
<i>Transparency and Collage</i>	247
<i>Painting/Collage/Architecture</i>	255
<i>From Collage to Architecture</i>	258
<i>Cardboard Architecture</i>	262
Collage City Redux	275
<i>The City as Collage</i>	275
<i>Collage as City</i>	278
<i>Collage as Metaphor</i>	284
Postscript(s)	293
<i>The Autonomy Myth</i>	293
Appendices	301
Bibliography	319
List of Illustrations	331

Acknowledgements

Due in no small part to the long gestation period of this work, there are many people who must be acknowledged here. Many of the topics explored here were initially broached in graduate seminars by George Wagner and Stan Allen at Harvard on postwar architecture, and Benjamin Buchloh at MIT on postwar art. The latter has been an especially important influence in my intellectual development, and helped in the formation of my dissertation topic. Roy Landau supplied the impetus and that particular English sense of inquisition and insouciance in reopening up the postwar arena. Similarly, the late Robin Evans had been an invaluable example to me of critical thinking and lively exposition. Stanford Anderson provided academic guidance; Francesco Passanti supplied intellectual and moral support. Of my dissertation committee, my committee chair Mark Jarzombek has aided me considerably in coming through at a late stage and providing valuable insights and direction; Michael Leja has helped to provide his expertise on Abstract Expressionism and on modern art in general. K. Michael Hays has been a continual intellectual influence and valuable point of reference to me during my studies at Harvard and MIT, and continues to be so. Many thanks are owed to Mary Daniels, librarian of the Special Collections at the Harvard Graduate School of Design; Kimberly Shilland, curator of the MIT Museum Archives; the Yale University Archives; Pierre Adler, curator of the Mies van der Rohe archives in the Architecture Department at the Museum of Modern Art; the archives of the Museum of Modern Art; the Architectural League of New York; and Helen Harrison, director of the Krasner-Pollock Study Center. Those individuals generous enough in their time to allow me to interview them include Peter Bicknell, Peter Blake, Peter Eisenman, Richard Filipowski, Helen Harrison, Michael McKinnell, and Robert Slutzky. My graduate studies have been supported through a Canadian Mortgage and Housing Corporation fellowship, two MIT Travel Grants, and a Social Sciences and Humanities Research Council fellowship. Finally, I would like to acknowledge Jackson, Fauve, my parents, and my wife Linda, all who have supported my studies with great patience and humor; for this I dedicate this work to them.

Introduction

Introduction

There are two related tasks in this study: to reconsider the standard interpretations of post-WWII American architectural history, and to do so by looking specifically at architecture's attempts to align itself with modern art. While much critical effort has been expended on architecture's modernist origins and current status, that middle ground which lies at mid-century lies relatively undisturbed, distinctly so in regards to the American context. During this period the myth of autonomous architectural form gains credence, as if modern architecture could somehow disengage itself from its own history, and proceed towards the holy grail of pure form. It is towards these lacunae which this project seeks to address.

One of the most overlooked aspects of modern architectural history has concerned its recent past, which has been a sort of intellectual blind spot for historians of architecture—too recent to attempt to recast, and too far from the present to include within a contemporary critique. This situation has held especially true for studies concerning the two decades from the end of the Second World War to the mid 1960s in the United States: while many scholars have extensively examined the development and influence of the Modern Movement from the end of the nineteenth through first half of the twentieth century, the period between 1945 and 1965 has either been summarily passed over, or considered merely as the maturing and institutionalization of the International Style, without perhaps much noteworthy happening formally or didactically. Brutalism, the only postwar movement to receive any significant notice, was considered primarily an offshoot of Le Corbusier's primitivist tendencies. With the 1966 publication of Venturi's *Complexity and Contradiction in Architecture*,¹ the following two or so decades, later dubbed as Post-Modernism (and all its attendant variant spellings and rhetorical nuances), ushered in an ostensible break from the modernist academy, without a hint of the degree to which the past influenced the path to the present (in itself a modernist avant-garde trait).

The canonical historical surveys of modernism, as presented through Giedion, Hitchcock, or Scully,² typically presented American architecture after the war as a progressive teleology, as a series of innovative functional-cum-aesthetic solutions to the particular technological and urban problems of the period. In responding to the economic and infrastructural expansion of the city, modernist history maintained the myth of the heroic architect. This age was understood as one where the early modern Euro-

-
1. Robert Venturi, *Complexity and Contradiction in Architecture* (New York: Museum of Modern Art, 1966).
 2. Sigfried Giedion, *Space, Time and Architecture*, 5th ed. (Cambridge, Mass.: Harvard University Press, 1967); Henry-Russell Hitchcock, *Architecture: Nineteenth and Twentieth Centuries*, (Harmondsworth: Penguin, 1958); and Vincent Scully, *Modern Architecture*, rev. ed. (New York: Braziller, 1989).

pean masters, now for the most part transplanted to America, reached the zenith of their careers in their adopted country. Accordingly, American architects adopted the new precedents, now modernist rather than Beaux-Arts, and incorporated them on a widespread institutional scale. The cultural politics of democracy and speculative real estate merged with the architecture of urban renewal to form the political and rhetorical victory of a uniform and Americanized modernist aesthetic, where a laissez-faire economy and a neutralized, industrialized architectural process became intertwined.³ In recounting the social forces underlying American design, Philip Will, Jr., the president of the AIA in 1961, cautioned that “[w]e can either build a new nation of social purpose, riches, and beauty to outshine the glories of Greece and Rome, or we can erect the most chaotic and wasteful urban civilization which man’s innate capacity for folly can devise.”⁴ In this model, progressive architecture and politics merge as part of a common cause.

Here, the portrayal of American architecture during the fifties is represented primarily by an institutionalized International Style aesthetic, the heroic masterworks of Mies, Wright, and Kahn, and the picturesque regionalism of the Bay Area and Southern California. It is an historical reconstruction that relies on the model of the individual monograph or the general chronological survey, and that either does not address a wider social-historical context, or conversely, ignores the discipline’s attempts at relating its work to the other visual arts. The German historian Jürgen Joedicke’s account of the period, for instance, characterizes the immediate years after the war as a period of ‘transition’, with the late forties and fifties as an era of ‘technical excellence’, and from the late fifties onwards as dominated by Brutalism and Formalism (the latter by which he refers to the sculptural tendencies of Rudolph, Saarinen, and Breuer).⁵ Similarly, John Jacobus constructed his chronology of the postwar years in terms of the continuation of the work of the great masters (Mies, Wright, Gropius, Le Corbusier), their stylistic variations, and the ‘crisis’ of form caused by the move away from a strict ‘form follows function’ ethos. He identified two characteristic phrases popularized by the journals: the ‘new empiricist’ regionalist modifications of the International Style, and the organicist tendencies stemming from Wright’s influence. Rather than any radical break from the past, Jacobus saw the post-1945 period as “a continuation of the atmosphere prevailing just before the war. It was not a moment of revolution, a break with the past, such as occurred after the armistice in 1918.”⁶ In both instances, architectural forms change according to the for-

-
3. I am referring here to Irving Sandler’s *The Triumph of American Painting* (New York: Praeger, 1970), with its emphasis on the formal types, problems and issues of American non-objective painting during the forties and fifties, in relation to its critical and ideological dominance on the international scene.
 4. Philip Will, Jr., foreword, *Mid-Century Architecture*, ed. Wolf von Eckardt (Baltimore, Johns Hopkins Press, 1961), 5.
 5. Jürgen Joedicke, *Architecture Since 1945* (New York: Praeger, 1969).

mal and technical dictates of the discipline, rather than through any immediate influence outside of the profession. Indeed, Jacobus went on to argue how contemporary abstract painting had little relevance for modern architecture:

The situation bears a certain resemblance to that which pertained through much of the nineteenth century, when the radical movements in painting, notably Romanticism and Impressionism, had little to offer in the way of technique or style that could have been even remotely suitable to the needs of architectural design. Painting today, with its emphasis upon the immediate expressive primacy of media, and upon certain shock techniques either with respect to the media itself or to certain unexpected elements of content, is too bound up with its own introverted preoccupations to provide any general themes susceptible of architectural adaptation.⁷

Such narratives leave out the polemical attempts on the part of architects and educators to resituate the role of the visual arts in relation to architectural design. The bureaucratization of form during the fifties reintroduced the critical role of design schools and teachers in a manner that attempted to reposition and relegitimize their status in respect to architectural mass production. By re-examining their beliefs about art and applied visual design, we can begin to see the development of a hermetic, autonomous design tendency during the fifties, in reaction to the dominant image of a triumphant technocratic modernism.

One of the first postwar attempts to critically address the central influence of the visual arts was Reyner Banham's *Theory and Design in the First Machine Age*.⁸ Though his study exclusively concerned the work of the early European modernist avant-garde, its publication in 1963 returned attention to the relationship between the visual arts and architecture. Because of its narrow focus, however, it did not discuss either contemporary work (of which he played a significant part) in postwar Britain, nor of the dominant influence of American painting in the mid-fifties. The unintentional upshot of this reading implied that the connection between the arts was only possible within the paradigm of the early modernist canon.

Peter Collins was another historian who examined the influence of painting and sculpture in modern architecture, but also somewhat predictably limited its effects to the influence of the European avant-garde, particularly cubism and neoplasticism. Collins does, however, present Clive Bell's notion of 'significant form', introducing the possibility of the universal applicability of visual primitives:

6. John Jacobus, *Twentieth Century Architecture: The Middle Years 1940-65* (New York: Frederick A. Praeger, 1966).

7. Jacobus, 102.

8. Reyner Banham, *Theory and Design in the First Machine Age* (London: Architectural Press, 1960).

According to Clive Bell, the leading exponent of this [purely aesthetic] view, ‘significant form’ meant ‘a combination of lines and colors which moves aesthetically’, and any such deliberate combination which would lead the observer to a state of euphoristic detachment from the concerns of life was therefore art. Hence art was said to have nothing intrinsically to do with the natural world or with functional criteria, so that the emotion transmitted by an artist could be expressed in any sort of form—‘in pictures, sculpture, buildings, pots, textiles, and so on’. It will be seen then that not only did the new theory of abstract art lead to a wider interpretation of Muthesius’s ideal of ‘pure form’ (as discussed in the last chapter), and to the complete interchangeability of artistic disciplines; it also inevitably suggested that the Vitruvian qualities of usefulness and stability were artistically of little importance as compared with the abstract aesthetic value which every building potentially possessed.⁹

The interesting part to this argument is that it moves away from the type of historical *Gesamtkunstwerk* which depends upon an ideal synthesis between the arts, and instead towards that ambiguous, shifting, gestalt reading accorded to the postwar interpretation of visual forms. Though Collins does read this new condition as part of a modernist paradigm, he does not seem to fully grasp the conceptual shift, nor does he acknowledge the central role of this change in emerging design practices; instead, he collapses their differences to a common art historical interpretation.

In contrast to formalist historiographies, Marxist interpretations, such as those presented by Benevolo or Tafuri and Dal Co,¹⁰ created a monolithic model of postwar modernism primarily under the influence of the social and material conditions of state capitalism. In doing so, they tended to gloss over the formal and artistic influences which contributed to the construction of a revised avant-garde position in American architecture. Tafuri sees this group, for instance, in terms of a superficial attempt to align itself with the logical-technocratic forces of rationalized production.¹¹ In limiting himself here to the semiotic and systems theory research of the sixties, however, his description fails to account for the conditions in, and the subsequent development of, a postwar avant-garde during the previous decade that attempted to align itself to modern art and its supporting artistic institutions.

9. Peter Collins, *Changing Ideals in Modern Architecture 1750–1950* (London: Faber and Faber, 1965), 272.

10. Leonardo Benevolo, *History of Modern Architecture*, 2 vols. (Cambridge, Mass.: MIT Press, 1971); Manfredo Tafuri and Francesco Dal Co, *Modern Architecture*, 2 vols., trans. Robert Erich Wolf (New York: Harry N. Abrams, 1979).

11. “From the utopian model, the aim of which is the prefiguration of a ‘total’ resolution of the technological universe, avant-garde art is reduced to an appendage of that universe in the course of that latter’s realization. The experimental character of the neo-avant-garde fools no one as to its real intentions.” From *Architecture and Utopia*, trans. Barbara Luigia La Penta (Cambridge, Mass.: MIT Press, 1976), 160.

When he does address the issue of the contemporary American avant-garde, for instance in *The Sphere and the Labyrinth*,¹² he does so in terms of the historical European artistic avant-garde, rather than understanding their relationship to more recent American work. In so doing, he perpetrates the myth initiated by the architects themselves, that there is indeed a valid or at least plausible formal connection between the work of the modern artist and that of the architect. Terms such as ‘collage,’ ‘assemblage,’ ‘formal autonomy,’ and so forth, are inserted without questioning the validity of the relation between separate and visually disjunctive disciplines. Instead, Tafuri prefers to gloss over these visual issues in order to reiterate the superstructural argument that such procedures are merely “‘parallel actions,’ bent on building an uncontaminated limbo that floats above (or below) the real conflicts in the social formation of which it only picks up a distant echo.”¹³

Instead, much of the critical revision of the postwar avant-garde during the fifties has primarily come from art historical scholarship, in analyzing how the cultural reception of American postwar painting was intrinsically tied to the ideologies of rationality, progress, and domestic cold war politics.¹⁴ While Tafuri and Frampton¹⁵ both examine this issue in architecture to some degree, neither discuss the significant impact that the institutions of high culture—design schools, galleries, museums, and publications—had on the development of a neo-avant-garde position, nor why indeed such an attitude arose in its particular social, political, and historical context. Finally, there remains the unanswered question here of why and how this particular version of an ostensible twenties revivalism was taken up with such fervor and ideological intensity in America, in the midst of the seemingly unquestionable triumph of the International Style on Sixth Avenue, transformed to represent a purified and idealized version of the modernist project. Their discussion fails to explain the seeming gap between the ubiquity of a Miesian/TAC architectural syntax that dominated the mid-fifties, and the ‘sudden’ reappearance of Purism on Long Island during the mid to late sixties; clearly, there is a formal and critical process that has been overlooked in favour of the canonical narrative of American modernism.

12. Manfredo Tafuri, *The Sphere and the Labyrinth*, trans. Pellegrino d’Acierno and Robert Connolly (Cambridge, Mass. MIT Press, 1987); originally published as *La sfera e il labirinto: Avanguardie e architettura da Piranesi agli anni ’70* (Turin: Giulio Einaudi editore, 1980). See especially the two essays “‘L’architecture dans le boudoir,’” 267-290, and “‘The Ashes of Jefferson,’” 291-303.

13. *Ibid.*, 289.

14. Serge Guilbaut, *How New York Stole the Idea of Modern Art: Abstract Expressionism, Freedom, and the Cold War*, trans. Arthur Goldhammer (Chicago: University of Chicago, 1983).

15. Kenneth Frampton, *Modern Architecture* (London: Thames and Hudson, 1980). While Frampton deals with this group more extensively than most of the other authors, he also misses their institutional context in part because of his personal involvement with many of these architects and critics.

It is therefore in the middle ground, between the small scale heroic monographs and the large scale materialist explanations of modernism, that this study proposes to examine the development of a revised American architectural avant-garde and its problematic and complex relationships with its supporting institutions, where the politics of culture merged with the polemics of architectural form. The mistranslations between drawing, painting, collage, and the architectural object, are particularly critical here in discerning the fine edge between a formal or disciplinary affiliation, and the concurrent desire towards an autonomous discipline. It is at this junction that the postwar avant-garde begin to assert their claim to architecture as a form of art-making during the mid-fifties, caught between a scientific-formal autonomy and cultural legitimation.

I do not wish to imply that there has been little or no revisionist work done on the period in question; indeed, many of the issues brought forth here have been introduced as a result of a number of other authors beginning to broach the uniform morass of architectural criticism regarding postwar architecture. Klaus Herdeg's *The Decorated Diagram*,¹⁶ for instance, was one of the first significant early studies to discuss the relationship between the schematic paucity of American design in the seventies and early eighties, and its origins in Gropius' team oriented functionalism propagated at the Harvard Graduate School of Design, from the late thirties through (at least) the mid-sixties. The idea of a flattened, two-dimensional aspect to postwar architecture, on which Herdeg's argument is based, is here expanded upon not so much in terms of the lack of teaching ability in traditional architectural skills, but rather the rejection of same, and the deliberate invocation of precedents in modern art as an alternative to the existing architectural academy. While the focus of Herdeg's study was on the critical influence of the functionalist design diagram, he did allude to (though did not expand upon) the relation of these diagrams to the contemporary visual arts.

Similarly, Roy Landau has written on a number of postwar topics such as CIAM, the Smithsons, and the central influence of Giedion's *Space, Time and Architecture* on architectural history and design; and in addition he has presented a case for a serious revisionist reading of the postwar period in both Britain and the United States.¹⁷ The standard portrayal of mid-century British modernism, he argues,

16. Klaus Herdeg, *The Decorated Diagram: Harvard Architecture and the Failure of the Bauhaus Legacy* (Cambridge, Mass.: MIT Press, 1983).

17. Roy Landau, "British architecture, the culture of architecture: the historiography of the current discourse," *UIA international architect / International Union of Architects* 5 (1984): 6-9; "The end of CIAM and the role of the British." *Rassegna* 14 (December 1992): 40-47; "Architectural discourse and Giedion," *Journal of architecture* 1 (Spring 1996): 59-73; "The history of modern architecture that still needs to be written," *AA files* 21 (Spring 1991): 49-54.

presents a monolithic, heroic reading of the period centered around three principal themes: the Scandinavian inspired movement termed ‘New Empiricism’, the technological-industrial model of architecture as technical innovation, and the British interpretation of Continental Modernism through the MARS group. Left out in this picture is the design and rhetoric of Banham and the Smithsons’ critique of an heroic modernism, along with the various alternatives that followed. It is a history that is not merely linearly simplistic but indeed fails to address Modernism’s internal contradictions. Landau thus argues here that

...the architecture produced in this setting and in this period could nearly all be understood as having engaged with Modernism in some sense, although, as I have tried to show, not with a one-line-of-thought Modernism, which was a construct invented by historians and polemicists, but which was never analytically rich enough to describe what actually happened. So we slowly come to realize that the Modern Movement has for too long been accounted for by a simplistic set of categories which came about more from polemical necessity than from the need to try to disentangle the complications within the elaborate world of Modernist thought and practice.¹⁸

Though Landau’s focus in this particular article concerned the British scene, a similar lack of distinction can be seen in terms of American mid-century architectural work outside of the heroic modernist canon, as propounded by Giedion and Hitchcock. In regards to some of Landau’s criticism, there has been a fair amount of recent revisionist analysis done on the central role of CIAM, Team X, and the Independent Group (all of which, not incidentally, included the presence of Alison and Peter Smithson), though again, the influence of these groups were relatively limited to the Continent.

More recently, Alexander Caragonne has exhaustively detailed the design exercises, teaching methods, and departmental politics behind the seminal architectural studio program conducted by the mythical ‘Texas Rangers’ (principally, Colin Rowe, Robert Slutzky, John Hejduk, and Bernhard Hoesli) at the University of Texas, Austin, in the mid-fifties.¹⁹ As well laid out as his narrative is (or perhaps because of it), Caragonne’s text gives the impression that the Rangers’ ideas were radically innovative and without precedent. While not discounting the central contribution of their work, this study in part aims to dispel that originary thesis, and attempts to demonstrate how in fact their design exercises and methodologies were not only part of a general movement towards abstract form in architectural studies, but indeed their design concepts have a direct lineage in the *Vorkurs* (Preliminary Course) program of the original German Bauhaus. That the Rangers’ work was in part designed as a critical reaction against

18. Landau, “The history of modern architecture that still needs to be written,” 54.

19. Alexander Caragonne, *The Texas Rangers: notes from an architectural underground* (Cambridge, Mass.: MIT Press, 1995).

Gropius' teaching methods thus seems doubly ironic, and it is this contradiction that underlies the post-war myth of autonomous form.

There is also the central question of translation between disciplines, which marks the general attempt to align the modern project with a wider cultural agenda: to what natural, cultural or institutional elements does the architectural vocabulary of postwar modernism refer; why and how does this transformation between discrete disciplines occur? How are forms or concepts in these other practices translated to architectural production?; how did certain graphic elements or modes of representation become associated with an autonomous architectural language? What is left out? I am interested in tracing this deliberate misreading and transference of concepts in the visual arts, towards the agenda of the postwar architectural avant-garde.

This study has been an archeological process of sorts; I began with the intention of looking at the the autonomy myth in architecture, by studying the polemical designs and manifestoes of the group known as the New York Five (Peter Eisenman, Michael Graves, Charles Gwathmey, John Hejduk, Richard Meier), who had reached their greatest influence in the mid-seventies to early eighties. but found the evolution of their ideas based upon precedents and concepts two to three decades earlier. The archeological metaphor in this reconstruction is apt, I believe, because of the uncovering here of a 'missing link': that is, the standard reading of the Five's work (and as reinforced by Frampton, Drexler, and Rowe's essays in *Five Architects*²⁰) which assumes the transparency of the formal relationship between the earlier European modernist avant-garde and the later American work, in fact can be shown here to have left out major conceptual links stemming from the forties and fifties in educational and cultural discourse that made the relationship between these two periods possible. The archeological metaphor is also apt because this study does not aim to provide for a comprehensive revisionist interpretation of the middle years of the twentieth century; rather, I am focussing here upon the relationship between selected aspects of the visual arts of the period—drawing, painting, and collage—as a means of understanding the evolution of the decorated diagram in architectural discourse, and its consequences in the flattened, immaterial and unbuilt architecture characterizing the conceptual movement in contemporary architecture.

The chronological scope of this study will focus on the years from 1945 to 1965, marking the incipient decades in the evolution of the American architectural avant-garde, and corresponding roughly to the period between the end of the Second World War on the one hand, and the publication of Venturi's *Complexity and Contradiction* on the other. However, there is also a more general chronology ranging

20. Peter Eisenman, et al., *Five Architects* (New York: Wittenborn, 1972).

from (at least) 1939, when Hitchcock argued for a common affiliation between non-objective art and modern architecture,²¹ to 1978, with the publication of Rowe and Koetter's *Collage City*.²² Their texts mark the trajectory of various attempts to insert the visual paradigms of modern art with architectural design; noticeably, not the work of their American contemporaries, but rather the historical precedents laid by the early European modernists.

This study is organized around three principal visual themes—drawing, painting, and collage—as they relate to architectural design and pedagogy. Drawing here concerns not only drafting methods and formal precedents, but also the means of reading the architect's sketch or analytic diagram, and transforming it conceptually or literally into built form. The introductory section outlines some of the principal intellectual and academic precedents adopted in the formation of the contemporary architectural avant-garde, and examines how selected critical formal strategies and modes of representation were adopted as axiomatic conditions of an autonomous architecture. The postwar construction of the idea of a 'progressive' architecture, the changing role of professional practice, and the institutionalized legacy of the European avant-garde, are all integral aspects in the development of postwar architectural design and pedagogy.

In the following section, the flattened condition of contemporary architecture is the underlying theme in looking at abstract painting's relationship to the architectural design process. Far from Herdeg's criticism of a potentially reductivist reading of the architectural object, what we see instead is the deliberate invocation of abstract painting as a means to focus and distill the essence of the architectural parti towards a pure, autonomous condition, in the same manner as contemporary painting. Ironically, at the same time architecture was heading towards the two-dimensional realm, abstract expressionist painting seemed ostensibly to be heading in the other direction, that is, towards the heroic, architectonic dimension of the large scale mural. In both cases, neither did architecture become absolutely diagrammatic, nor did painting ever fully encompass its architectural possibilities; as such, their inability to do so not only pointed out the limitations of their respective metaphors, but also outlined the particular economies defining the postwar art market.

While collage seems ostensibly to be merely an extension of modern painting's formal metaphors, its architectural application drew out unique properties that expanded upon both the two and three dimensional aspects of the architectural object; on the one hand, collage appeared as the three dimensional instantiation of abstract painting (most noticeably in its synthetic cubist phase), emphasizing its

21. Hitchcock, *Painting Toward Architecture*.

22. Colin Rowe and Fred Koetter, *Collage City* (Cambridge, Mass.: MIT Press, 1983).

material and volumetric specificity. On the other, collage—especially in its postwar, photographic incarnation—ironically and deliberately flattened its objects of representation, as the art critic Clement Greenberg claimed was the defining characteristic of modernist visuality. The incorporation of the collage metaphor in architecture had a number of significant consequences: not only did it reassert the use of materials as a visual and therefore formal element in architectural construction, but it also introduced bricolage as a pluralist break from the rigid autonomy of cubist form, and ushered in the use of historical quotation and fragmentary allusion. This plurality in the end proved to be little more than pictorial (not surprisingly), returning architecture back towards the realm of the avant-garde art object. It is a tendency that applied as much to the rarefied compositions of Richard Meier, as to Venturi's disingenuous populism, or Rowe's 'democracy' of historical fragments. As Schwitters discovered a half-century before, collage had the remarkable effect of disengaging common place artifacts and turning them into formal abstractions; the American postwar revival of collage practices reinstated, in an almost nostalgic fashion, the belief in the simultaneous possibility of mass and high culture, politically catholic and culturally elite, in the architectural object.

Finally, in revisiting the question of a contemporary avant-garde, its relationship to the visual arts, cultural politics, and its role within current architectural practice, one is reminded of the interior antimony between its attempts to break from the modernist academy and its desire to reengage with same; the modernist utopia of form *qua* achronological form which is fundamentally, historically conditioned; the related belief in the absolute sovereignty of the architectural object and its absolute dependence upon its various legitimating institutions—all these contradictions underscore how American avant-garde architectural practices were not interested in art as social protest or political discourse, but rather were intricately linked to the role of postwar cultural production through the assimilation and continuation of the European avant-garde as typological precedent.

Architectural Practice at Mid-Century

The Second World War marked an economic, technological and ideological watershed in the adoption of modern architecture in America, revealing not only the widespread industrialization of the building process, but also initiating a crucial transformation in the perception of modern architecture as a symbolic metaphor for international political strength and cultural influence. While several architectural historians have discussed the significant influence of the immigration of European intellectuals for American architecture,²³ there was also a fundamental shift in the production and role of modern architecture as a culturally progressive, economically capitalist, and uniquely American activity. These

changes occurred both within the corporate aesthetic of commercial buildings, and also at the more fundamental level of residential housing. The transformation of military wartime plants to domestic industry introduced new materials and methods of building construction, as well as a heightened acceptance of a domesticated modern (versus a strict International Style) architectural aesthetic geared to the needs of large scale housing.

The war had the beneficial effect of not only jumpstarting the domestic economy out of the depression and developing an industrial economy, but in the process, also laid the foundations for the commodity economy of the postwar leisure society. “The house and all that went into it”, according to historian John Blum, “symbolized of all things material a brave new world of worldly goods.”²⁴ At the end of the war, the GI Bill, and the Veteran's Emergency Housing Program were implemented to address the needs of veterans returning from Europe, as well as those who were already occupying temporary dwelling units. President Truman's goal was to build 1.2 million new homes in 1946, and the plan was to follow a similar wartime emergency pattern of building, by a quickly set up mode of mass production housing; pre-fabrication techniques played an invaluable role in not merely increasing the process of construction, but also transforming a traditionalist typology, by appropriating selected aspects of the modernist idiom—the ribbon window, the open corner, industrial materials, and factory made parts—into both small and large scale building. Along with this modernization of the domestic sphere also came the increased acceptance of modern design in large part introduced through a new interior design aesthetic, along with the introduction of a consumer art market geared towards an emergent upper middle class.

On the one hand, the idea of technical progress and industrial innovation was important to the ideology of American political, economic and industrial superiority; on the other, this polemical liberalism also had to respond to American middle-class values. It was precisely this dichotomy that George Henry and Nelson Wright, the postwar editors of *Architectural Forum*, took into account in their promotion of a modern aesthetic when they stated, “We are in favour of modern houses, not because they are modern, but because they are traditional;”²⁵ that is, traditional in the sense of carrying on a historically sanctioned American sensibility for innovation. In similar terms, the 1945 catalogue to “Built in U.S.A.: 1932-

23. One of the best and most succinct accounts of the European influence is told in William Jordy's essay, “The Aftermath of the Bauhaus in America: Gropius, Mies, and Breuer,” published in Donald Fleming and Bernard Bailyn, eds., *The Intellectual Migration: Europe and America, 1930-1960* (Cambridge, Mass.: Harvard University Press, 1969), 485-543.

24. John Morton Blum, *V was for Victory: Politics and American Culture During World War II* (New York: Harcourt Brace Jovanovich, 1976), 102.

25. George Henry and Nelson Wright, *Tomorrow's House* (New York: Simon and Schuster, 1945).

1944,” the Museum of Modern Art exhibit stated how domestic architecture “looked again at the stone and wood barns of Pennsylvania, the white clapboard walls of New England, the low, rambling ranch houses of the West...”²⁶ Most strongly stated by Marcel Breuer in the east, and William Wurster on the west coast, the Americanized version of the International Style came to characterize the popular notion of domestic modernism during the 1940s. The modern came to signify not a wholly alien, imported aesthetic, but rather a formal sensibility based upon the twin poles of historical tradition and industrial progress. Behind this subtle integration of a modernist aesthetic and historical type, lies a clue to understanding the contradictions underlying the ambiguous relationship between architecture and the contemporary visual arts in America.

American architecture attained the de facto cultural leadership after the Second World War, but for somewhat different reasons than those outlined by Serge Gilbault’s case for the supremacy of post-war American abstraction over its counterparts in Europe. While modern art became a metaphor for political freedom and the struggle against totalitarian ideological forces on the other side of the Atlantic, ironically American architectural design (with the notable and strident exception of Frank Lloyd Wright) continued to be dependent upon the typological precedents of the European modernists for their cultural legitimacy. Unlike the deliberate distance from Paris posed by the New York School of abstract expressionist painting, the adoption of the International Style in America depended in great part upon the immigration of the major Bauhaus masters to the United States. While Gropius and Mies were greeted with great acclaim upon their arrival in the thirties, the ‘Americanization’ of their reputations transformed the International Style into a palatable native order; adoption rather than revolution became the order of the day.

The European masters thus acted as the critical linchpin in bridging the distance between the existing American academy (itself a product of the French Beaux-Arts system) and the modernist aesthetic at mid-century. In his foreword to *Built in USA*, MoMA trustee Philip Goodwin noted how the issue of the relationship between past and present was central to the success of the new architecture: “As Alfred Barr has said, ‘The *battle* of modern architecture in this country is won’ but there are other problems with which the Department has concerned itself. Housing is one of them: another is the revaluation of the American past; and still another the development of a modern American architecture from the mingling of traditional American techniques and materials with the forms of Wright and the Europeans.”²⁷ In the 1952 revision to *Built in USA*, Hitchcock and Drexler detected a maturation of the youth-

26. Elizabeth Mock, ed., *Built in USA: Since 1932* (New York: Museum of Modern Art, 1945).

27. *Ibid.*, 8.

ful experimentation of the early avant-garde in American mid-century work, asserting that their “cheerful innocence is rapidly passing, and that fact has rebounded to the advantage of our mid-century architecture; we are, I think, grown somewhat more sober now.”²⁸ Rather than the Dionysian fervor of the early European avant-garde, the Americanized modernist project was to have entered a more mature, academic phase. In the preface, Philip Johnson repeated Drexler’s original pronouncement (although without acknowledging its source), arguing that the role of the Museum was to aid in judging and promoting modern architecture for the masses: “The battle of modern architecture has long been won. Twenty years ago the Museum was in the thick of the fight, but now our exhibitions and catalogues take part in that unending campaign described by Alfred Barr as ‘simply the continuous, conscientious, resolute distinction of quality from mediocrity—the discovery and proclamation of excellence.’”²⁹

All this was a distant cry from the contentious currents underwriting the internal politics and political beliefs of those involved in postwar abstract art; in distinction to the political sympathies which underscored the New York art scene, architectural practices at mid-century were if anything, more interested in the literal reconstruction of the state rather than its critical investigation. While the intellectual left in the art world became eventually swept over towards a formally and politically neutralized center, the blank, neutralized walls of the modernist architectural palette became identified with the commercial and political fiat of the quickly emerging industrial state. Modern architecture, finally, attained a level of respectability that was equated with cultural progress, political influence, and market capitalism. This condition was summed up in the 1954 Report of the Commission for the Survey of Education and Registration of the American Institute of Architects, which stated how

Today, at mid-century, we, the people of the United States, can well take stock of our own architectural achievement and weigh its implications with respect to our own cultural progress. Blessed with a bountiful land, we have by vigorous enterprise attained an extraordinary level of material prosperity. We have evolved a social system which cultivates the integrity of individuals and the realization of their potentialities. In recent years destiny has brought us preeminent physical strength and political influence, and, because we seek only the opportunity to pursue the arts of peace, free men throughout the world, sharing this desire, look to us for leadership. Thus the quality of all aspects of American life, including its architectural setting and expression, assumes unprecedented significance.”³⁰

28. Henry-Russell Hitchcock and Arthur Drexler, eds., *Built in USA: Post-War Architecture* (New York: Simon & Schuster, 1952), 19.

29. *Ibid.*, 8.

30. Turpin C. Bannister, ed., *The Architect at Mid-Century: Evolution and Achievement* (New York: Reinhold, 1954), 3-4.

In this manner, by way of military fiat, American professional practice assumed a leadership role in the modernist project, remaking the International Style into a patriotic enterprise. This wholesale transformation was demonstrated at the centennial convention of the AIA in 1957, when Henry Luce, the editor in chief of *Time* magazine, gave a keynote speech entitled “The Architecture of a Democracy,” in which he stated (again paraphrasing Barr) how “the twentieth century revolution in architecture has been accomplished. And it has been accomplished mainly in America—no matter how great our debt to European genius. The founding fathers of the revolution in architecture, the great and the colleagues of the great—many of them are in this room tonight.”³¹ Luce claimed that modernism was part of “the American revolution in architecture,”³² at once claiming architecture as the site of past and present political and cultural victories. Luce believed that a progressive, democratic politics instantiated a corollary in superior architectural form, stating how “Good architecture is good government....”³³ Continuing, Luce argued for an economic rationale in the modernist aesthetic, claiming that a market economy embodied the minimalist virtues of the new architecture. Far from the overwrought excesses of the decorated past, the International Style, with its emphasis upon functional forms, reflected the needs and ideals of the capitalist marketplace:

Good architecture is good economics...Modern architecture, or at least a large part of it, grew up in response to the people’s needs. They were badly housed: Let us build good, clean, economical housing. That is only one example of the fact that modern architecture is not the servant of imperial luxury or of aristocratic vanity; it has to meet an economic test and its chance for freshness and vitality was in making use of the vast wealth of material and the wealth of technology produced in a profit-and-loss economy.³⁴

American political and military strength, combined with free market principles and the inherited legacy of the European moderns now brought to native soil, thereby also implied cultural leadership. Modern architecture, Luce asserted, revealed “the determination to build a great civilization. We must say the old and the new in new language—your own language, the architectural language of the 20th Century.”³⁵ Luce’s last comment here underscored the critical relationship between cultural influence

31. Henry Luce, “The Architecture of a Democracy,” *AIA Journal*, June 1957, 149.

32. *Ibid.*, 150.

33. *Ibid.*, 152.

34. *Ibid.*

35. *Ibid.*, 153.

and the development of a native architectural language, emphasizing America's pivotal role in the guiding leadership of the new grammar.

Unlike American abstract painting, however, modern architecture was not a domestic invention (for that matter, neither was abstract expressionism, though that was the overriding myth behind its propagation), but indeed relied upon the visual precedents of the vaguely suspicious International Style. With the influx of Bauhaus emigres to the United States, however, the *avant-garde* was now remade into a domestic product, part of an American legacy rather than a foreign import. Between Frank Lloyd Wright's invocation of the architect-as-hero (perhaps the closest architectural corollary to Jackson Pollock) and Walter Gropius' vision of design as organization, the architectural establishment opted for the ultimately safer, more conservative route of the latter's vision of team design, even as they belatedly lauded Wright's contributions to American architecture. Postwar professional practice instead began to incorporate the emerging economies of scale in the postwar, white collar work environment, in an ironic, if unacknowledged, transformation of CIAM ideals to American business practices. In this manner the new economy coopted modern architecture—and specifically, the glass skyscraper—as a symbol of political and economic progress.

Similarly, the development of the American postwar architectural *avant-garde* was also dependent upon the institutionalized legacy of the European moderns, though in this case it was due as much to the central roles of the emigres in architectural education, as to the general influence of their work as visual precedents. Rather than the rote replication of past forms, however, these (mostly Bauhaus) educators were interested in the idea of form as the result of visual experimentation. Abstraction thus gained a secondary meaning beyond its modernist roots, as it became understood as research, as a means of understanding and creating new form. In this manner, abstraction was also coopted as formal research in the service of progressive design.

How Architecture became Progressive

The notion of architecture, and specifically *modern* architecture, as part of America's postwar economic boom, was closely tied to the idea of cultural and social progress in its domestic affairs. Architectural form followed—or at least attempted to reflect—the new functional requirements of the emerging consumer class, while concomitantly social functions were believed in some ways able to be prescribed through progressive (re: modern) architectural forms. One of the most telling instances of this shift in professional practice, from the traditional atelier to the modern design firm, from the idea of architecture as a representation of the past to the belief that architecture could promote if not guide future social dis-

course, was mirrored in the transformation of the architectural publication *Pencil Points* to the new title of *Progressive Architecture*, conducted over a seven year span in the mid-forties. This sea change revealed not only the changing fortunes of modern architecture in America, but also the growing belief in the prescriptive social role of the architect.

As early as 1942, rumors of the end of the war prompted the editors of *Pencil Points* to seize the impending event as an opportunity to revise the editorial direction of the magazine, and by extension, to promote the increased social dimension of the architectural establishment. The May 1942 issue laid out the foundation of their stance in a broad ranging article entitled a “New Beginning,”³⁶ in which they attempted to relate the ideals of a progressive democracy with that of modern architectural form:

A magazine suited to the needs of the prodigal Twenties or the crushed Thirties has no vital place in the forward-looking Forties. Such a magazine now has no more to contribute to the development of architecture than has the timid or myopic architect who clings too fondly to accumulated habits of outworn decades. Those in the profession who do not shrink from contemplation of the unpredictable, perhaps frightening, post-war problems of America must attain *better understanding* of the economic, political, and technical aspects of the architect’s job if they are to practice authoritatively. It is *essential that we have principles and aims*, if a new, vital democracy is to be created.³⁷

At several points, the article alluded to the battle overseas as an analogy to the struggles facing the modern architect, stating how “*The architectural profession must fight too,*” and that “*To carry on these battles the profession must have leaders—leaders who are not victims of the disease of appeasement, leaders who are not hamstrung by diffidence, leaders of undeniable maleness who are bold and forthright and stoutly aggressive.*”³⁸ If the aggressive tone of these statements simultaneously recalls Marinetti’s Futurist pronouncements as well as Barnett Newman’s sexist reading of the abstract expressionist canvas, it is to underscore the intricate relationship between the Second World War and the battle for a modernist aesthetic in America; modernism was a formal and aesthetic war that needed to be won as part of the battle for democracy. Accordingly, the editors set down a series of guiding principles under the banner of “We Believe”:

We believe that a finer civilization lies ahead if plans are made as courageous as they are feasible, as strong as they are beautiful.

We believe Architecture to be an essential Service to human society and regard the true Architect as one dedicated to that Service.

36. “New Beginning,” *Pencil Points*, May 1942, 242-3.

37. *Ibid.*, 242.

38. *Ibid.*

We believe that in whatever social and economic frame the Architect of Tomorrow will apply his distinctive talents, he will find both opportunity and appreciation.

We believe it the Architect's responsibility to keep *at least* abreast of reality by regular conscientious study of technical advances and social and economic changes.

We believe the time has come when the Architect must stop waiting amiably for others to bid him perform and become more than ever the vital initiating force.

We believe that FITNESS, STRENGTH, AND BEAUTY are eternally essential ingredients of Architecture.³⁹

In spite of their bold pronouncements and idealistic aims, the practical aspects of enabling any changes in real terms for the journal's direction proved far more difficult. An integral part of this new direction for the editors involved both the graphic layout of the magazine, as well as a new title signaling its more proactive, socially engaged position. The titling of the magazine proved to be especially contentious, at times entirely changing the title and graphic style from issue to issue, revealing the internal indecision as well as caution with which they approached their task.

The traditional cover format of *Pencil Points* through the beginning of the forties consisted of a dark monochrome cover with 'Pencil Points' inscribed in serif caps. Though the editorial 'manifesto' was published in the May 1942 issue, it was not until the June issue that any kind of noticeable change appeared—modestly—with the appended appellation of *The New Pencil Points*. Even this proved too much, as it reverted back to the old 'Pencil Points' moniker in the January 1944 issue, although now it was appended with the somewhat laconic and redundant subtitle of 'The Magazine of Architecture'; the subtitle appeared both on the cover and the table of contents in the May 1944 issue.

The June 1944 issue [fig. 1] proved a somewhat bolder attempt at revising the graphic as well as editorial aspects of the magazine; while still named *Pencil Points*, the main title appeared in a more modern and modest sans serif face, while 'THE MAGAZINE OF ARCHITECTURE' appeared below in small caps. The inside table of contents, rather than repeating the subtitle, however, instead substituted the slogan 'progressive architecture' in lower case, faintly recalling the Bauhaus penchant for lower case forms. The cover itself depicted a photograph of an old tenement structure, torn apart and then pasted over with an image of a war bond (along with the caption 'Buy War Bonds' above it), and a new suburban plan, signalling the dual and related efforts of military victory and architectural reconstruction.

39. Ibid., 243.

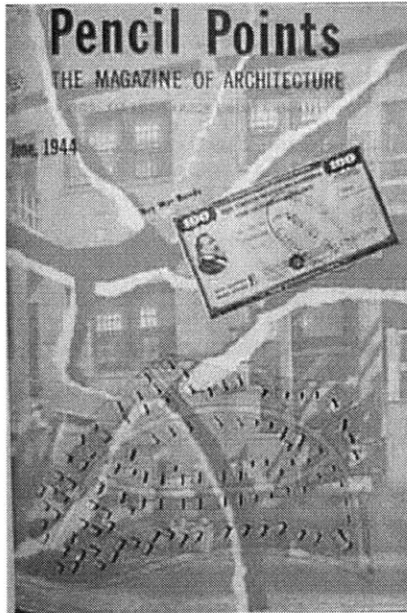


Figure 1: *Pencil Points*, June 1944

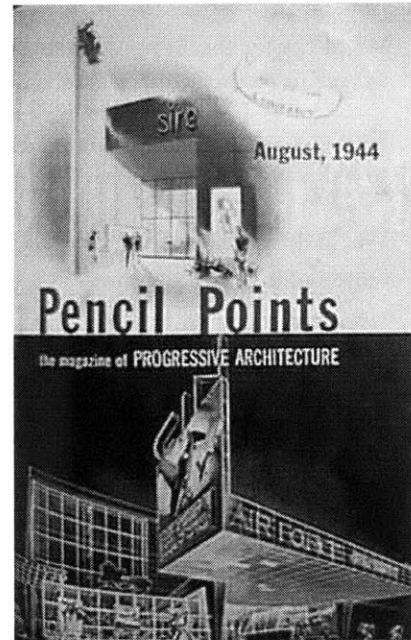


Figure 2: *Pencil Points*, August 1944

The issue also contained a revised editorial stand, tempering their earlier, more idealistic stance with a somewhat more moderated tone, reflecting the practical realities facing a postwar era. The article, “On Minding Our Own Business.....Progressive Architecture,” did not focus on an ethical or moral battle against a faceless enemy, but rather attempted to identify specific areas in which the architectural profession could improve the general social condition: “With this issue of PENCIL POINTS, we re-dedicate ourselves to the vigorous promotion of what we believe to be good architecture and to the active encouragement of all—whether they be architects or no—who work honestly at improving the human environment.”⁴⁰ The concept of the ‘good’ was not merely an aesthetic judgment, but rather extended from the planning of an individual unit to tending the world at large, forecasting America’s postwar role as a world superpower: “Good: The approach that starts out with careful analysis of the human activities and requirements involved and makes a sincere effort to meet these needs, resulting in a plan which is a rounded organization of the various essential parts and which promotes a good community pattern that improves as time goes on.”⁴¹ It was a position that explicitly set itself in opposition to the destructive

40. “On Minding Our Own Business.....Progressive Architecture,” *Pencil Points*, June 1944, 40.

41. *Ibid.*, 42.

horror of war, presenting architecture as its constructive antithesis: "The world at war is a hideous revelation of what selfish, anti-social powers for evil can bring to mankind. Insofar as we plan ahead, we are already in the postwar world; eventually we shall be able to give actual expression, instead of the lip service we now give so generously, to building a better world founded on honest concern for human freedom from tyrannies, large or small."⁴² In this sense, modern architecture became intrinsically related to several intertwined concepts related to the idea of progress: postwar reconstruction, social amelioration, military strength, political freedom, cultural leadership, and economic development.

In a related article in the same issue, entitled "Progressive Architecture Implies Creation of Elements of an Improved Environment,"⁴³ photographs and captions from MOMA's *Built in U.S.A., 1932-44*, were reprinted, demonstrating examples of what the editors had in mind for the concept of a progressive modernism: rather than a canonical International Style aesthetic, their vision of progressive modernism was closer to the emerging regionalism championed by Hitchcock and Mumford, focusing largely on federal housing projects and other small to medium scale domestic works.

To signal their more assertive stance, the August 1944 issue [fig. 2] inserted the 'progressive' tag to the magazine's subtitle, making it 'the magazine of PROGRESSIVE ARCHITECTURE'; the September issue divided the byline into two parts, setting 'Progressive Architecture' as an independent element. The October issue removed the now extraneous 'the magazine of', simply making it *Pencil Points* and *Progressive Architecture* below, in slightly smaller sans serif type. From this point on there seems to have been a steady shift towards the new title, as revealed by the shifting order and point size of the respective labels: the January 1945 issue continued with the existing order, though *Pencil Points* was now reduced to the smaller type, while *Progressive Architecture*, though still below the other, was now twice the former's size and set in the more modern Futura typeface. In October [fig. 3] the order was transposed, so that *Progressive Architecture* resided over the now diminished *Pencil Points*, with nary an editorial comment.

With the end of the war, the January 1946 issue [fig. 4] attempted to recount some of the major architectural events during the war years, in Thomas H. Creighton's article "Pearl Harbor to Nagasaki: A Review of Architectural Progress During the War Years."⁴⁴ Creighton here expounded on the notion

42. Ibid., 43.

43. "Progressive Architecture Implies Creation of Elements of an Improved Environment," *Pencil Points*, June 1944, 56-65.

44. Thomas H. Creighton, "Pearl Harbor to Nagasaki: A Review of Architectural Progress During the War Years." *Progressive Architecture*, January 1946, 42-81.

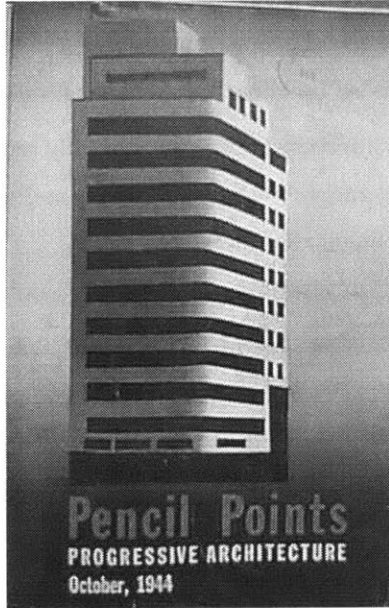


Figure 3: *Pencil Points*, October 1944

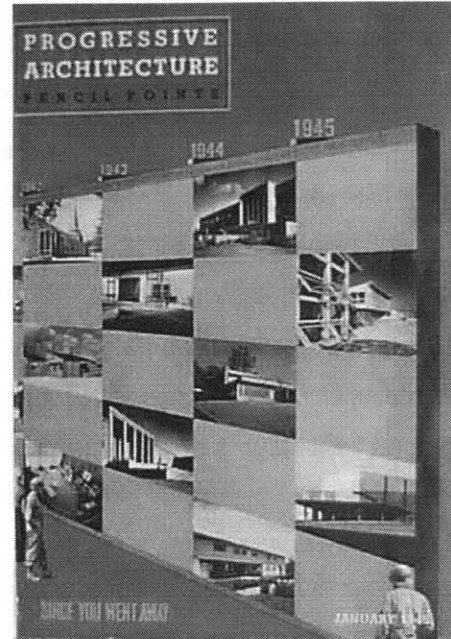


Figure 4: *Progressive Architecture*, January 1946

of ‘architectural progress’, stating that “It would seem best to choose the simple, commonly accepted standards for good architecture: fitness, strength, beauty, purpose.”⁴⁵ If this were no more than a repetition of classical Vitruvian values, it would perhaps be of little notice, but Creighton added the notion of ‘purpose’ to the mix, intimating that the architectural object needed a greater social function beyond its purely artistic properties in order to be considered a worthy architectural statement. Modern architecture, if it was to be truly ‘progressive’, needed to invigorate and propel the values of a progressive, democratic society.

Towards this end, the magazine announced the beginning of its Progressive Architecture award program in the May 1946 issue, with two awards to be given, one for a private residence, the other for a public project. It hoped to not only bring to light significant architectural works by younger or less known architects, but also attempt to bring to the forefront new progressive trends in American architecture.

The graphic modifications continued to alter the magazine layout: with the January 1947 issue, the secondary line of ‘Pencil Points’ was finally banished from the cover, remaining only in the table of con-

45. Ibid., 52.

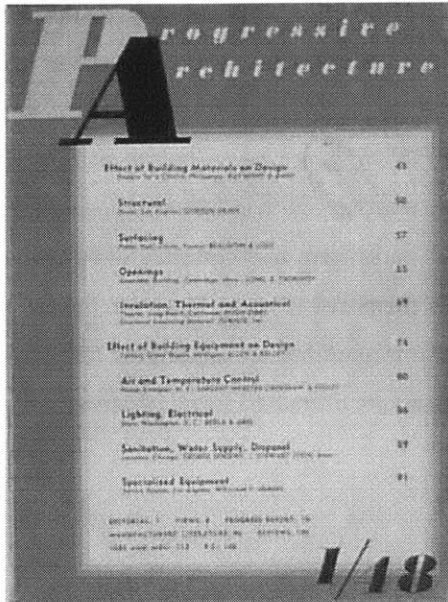


Figure 5: *Progressive Architecture*, January 1948

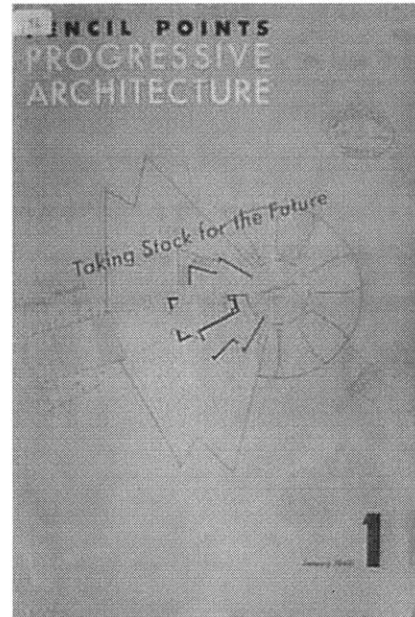


Figure 6: *Progressive Architecture*, January 1949

tents; the following issue qualified that demotion by placing the old title in brackets. This was the formal order of events, with minor typographic and graphic experiments, until the January 1948 issue, [fig. 5] in which a new cover graphic was introduced, a large case 'P' and 'A' placed together to form the new 'P/A' logo. In the April 1949 issue, the bracketed 'Pencil Points' finally disappeared from its marginalized position in the table of contents; aside from some miscellaneous reappearances, the old title had been finally put aside, in favor of the new logo and title.

The long gestation period towards a 'Progressive Architecture' underscored the contentious difficulties facing the editors of the period: how to simultaneously move towards a modernist aesthetic of foreign origins and yet be supportive of domestic causes? The answer lay in the catchword of 'progress': here architecture would be neither traditional nor modern, nor of one particular nationalistic style or another; rather, the new architecture embodied those abstract qualities of social, political, urban, and formal progress that would guide America in the postwar era. *Progressive Architecture* thus stood for both a set of social ideals, hand in hand with artistic innovation—that their own awards program eventually would become a contest of aesthetic individualism decades later points out perhaps not the degradation of the ideals of the 'progressive' society the editors envisioned (or perhaps what constituted such), but rather a failure to distinguish between formal innovation and social progress. A 'progressive' archi-

ecture also implied technical advances in the building process, aided by wartime innovations in industrial materials and manufacturing. Indeed, this association of progress with innovative form would prove to mark not only the eventual direction represented in the journal, but also the direction taken in architectural education.

Ironically, the return of a more aggressive social and ethical stance taken by the editors in 1993 coincided with the folding of the publication three years later; whether one is to take this as proof of their mutual incompatibility may be questionable, though by that point form had certainly overtaken social aspects as the principal criterion for architectural progress. In the postwar years, however, the social idealism that accompanied the investigation into architectural form remained an underlying force in architectural practice and pedagogy, at a time when modern architecture intimated social progress.

Drawing and Architecture

Reading the Modern

There were two crucial and interrelated movements in the postwar development of modern architecture: on the one hand, the historiographic interpretation of architecture as an object of aesthetic concern, and on the other, the notion of the architectural object as the three-dimensional result of a two-dimensional diagram. In this first section, the critical role of art history scholarship is discussed, in the way in which modern architecture was able to be understood through not only the same formal tools and aesthetic terms as classical or humanist architecture, but in terms of its visual relationships with modern art as well. The following section ('Point and Line to Plane') examines how these formal precedents were consequently utilized in the service of architectural education.

The art historical interpretation of modernism was both descriptive as well as prescriptive: firstly, by reading through the lens of typological precedent, modern architecture could be understood within a continuous visual legacy of western art; secondly, that foundation could be subsequently applied to the design of modernist buildings. Far from Gropius' ostensible recalcitrance towards historical type, his teaching methodology in fact implicitly relied upon the incorporation of modernist forms and techniques; thus, while the examples differed, the methods continued the pre-modern notion of design as a process built upon historical, technological, and geographic contexts. What was unique in the case of the new atelier, however, was the degree to which modernism looked not to the typological precedents of architectural forms, but rather towards the formal structure and methods demonstrated in abstract painting. In this, the application of the analytical techniques of humanist art scholarship to twentieth century art thereby inserted specific critical visual tools in the understanding and production of the modernist object.

Wölfflin and the Legacy of German Formalism

While the bulk of the significant design educators in America were of Germanic—and specifically Bauhaus—origins, the other major pedagogical influence in the development of a formalist approach in American architecture stemmed from England—that is, from the art historical scholarship of the Warburg and Courtauld Institutes. Of course, their methods were primarily founded upon German aesthetic theory (the Warburg itself having been transplanted as a result of Nazi occupation), looking to the transcendental aesthetics of Kant and Hegel in the search for rational principles of art history. While the spe-

cific chronology of this aspect of the visual arts will not be recounted here (here, Michael Podro and Mark Jarzombek have both provided a succinct account of the figures and intellectual history involved),¹ Heinrich Wölfflin's central contributions must be acknowledged in the formation of modern art history scholarship as well as architectural design thinking.

Wölfflin's classic *Renaissance and Baroque*² promoted the concept of a 'painterly' architecture in reference to Baroque architecture, and in opposition to the more static, drafted lines of the High Renaissance. Painterly architecture concerned not merely the illusionistic, fluid, and expressionistic effects of chiaroscuro and space in tectonic form, but indeed implied a fundamental relationship between the two arts: For Wölfflin, the primary artistic contribution of the Baroque arts lay in its painting, and all other artistic disciplines attempted to imitate the formal effects of the painterly style. Architecture followed painting's lead, striving for visual qualities of the latter, where "Instead of following its own nature, architecture strove after effects which really belong to a different art-form: it became 'painterly.'"³ In his later *Principles of Art History*,⁴ Wölfflin moved away from his early interest in empathy theory, and towards more purely formal categories, incorporating the earlier differences between the *Cinquecento* and *Seicento* as the starting point of a fundamental binary opposition in artistic representation.

He identified five basic formal concepts distinguishing the High Renaissance from the baroque: linear versus painterly; plane versus recession; closed versus open form; multiplicity versus unity; and absolute versus relative clarity of the represented subject. While Wölfflin's remarks applied principally to painting, he also made pains to apply this binary division to sculpture and architecture as well, in an

-
1. Michael Podro, *The Critical Historians of Art* (New Haven: Yale University Press, 1982); Mark Jarzombek, "Describing the Language of Looking: Wölfflin and the History of Aesthetic Experientialism," *Assemblage* 23 (1994): 29-69. While Podro's approach here is more along the lines of a general historiographic survey, Jarzombek instead traces the development of aesthetic thinking from Wölfflin's Kantian-inspired scientific aspirations, to contemporary American formalist analysis. Here, the complex historical relationship between image and text is discussed, revealing the critical role of *reading* both image and text.
 2. Heinrich Wölfflin, *Renaissance und Barock* (Munich, 1908); *Renaissance and Baroque*, trans. Kathrin Simon (Ithaca: Cornell University Press, 1967).
 3. *Ibid.*, 29. In 1940, Clement Greenberg would later echo Wölfflin's sentiments in stating how "when it happens that a single art is given the dominant role, it becomes the prototype of all art: the others try to shed their proper characters and imitate its effects." Greenberg's essay, as he put it, was an historical apology of sorts for the formal properties and teleological trajectory of modernist abstraction, of which the New York School represented its zenith and endpoint. From Clement Greenberg, "Towards a Newer Laocoon," *Partisan Review*, July-August 1940; reprinted in Clement Greenberg, *The Collected Essays and Criticism*, ed. John O'Brian (Chicago: University of Chicago Press, 1988), 24.
 4. Heinrich Wölfflin, *Kunstgeschichtliche Grundbegriffe* (Munich, 1915); translated as *Principles of Art History*, trans. M. D. Hottinger (New York: Dover, 1950).

attempt to develop a general formal model. Here, he expanded upon the linear/painterly opposition, in discussing the fictive, illusionistic properties of the baroque; in the chapter on plane and recession, he discussed the differences between the frontal planarity of the early Renaissance, in distinction to the recessional, spatial play of the later period. Closed versus open form is described as the ‘tectonic’ totality of the former, versus the a-tectonic illusion of movement and immateriality of the latter (by this he refers to Bernini’s organic forms, as well as the lavish mirror effects of the rococo). By multiplicity Wölfflin refers to the articulated and independent elements in the formation of the architectural work, as with Alberti, in distinction to the organic and free-flowing unity of the seventeenth century, in which the whole composition dominates over its specific elements. Finally, the difference between absolute and relative clarity is discussed in terms of the distance between the formal clarity of the architectural conception in the earlier period, against the deliberately ambiguous and theatrical effects of the later; it is marked by such effects such as the frontal presentation versus the deliberate diagonal; the clear expression of structural forces in tectonic form, against the intentional erasure of same; or the ability to fully grasp the artistic conception from a single vantage point, versus the conscious attempt to construct a spatially and compositionally complex architectural order.

If this sort of comparative language seems somewhat familiar, it is due in no small part to Wölfflin’s pervasive influence on Aby Warburg and his students in Munich and London; architecture in this realm was understood in the context of a general art history, and interpretation was thus understood in the art historical terms of the German formal tradition. From this milieu came architectural historians such as Rudolf Wittkower, Colin Rowe, Reyner Banham, and Siegfried Giedion, steeped in Wölfflin’s comparative analyses. While Wittkower was primarily a humanist scholar, his students Rowe and Banham took this methodology towards rather different ends; Rowe towards modern architecture’s relationship with cubist painting, and Banham towards an examination of English Brutalism and pop art. For his part, Giedion attempted to encompass the modernist experience within a conceptual framework that began with the Renaissance. Rowe perhaps more than the others resituated Wölfflin’s language within a modernist context, with celebrated results. In all cases there was an implicit and rather unexamined belief in the intrinsic relationship between the arts and the encompassing zeitgeist from which they sprang.

The critical shift from this analytic mode, to the incorporation of this attitude as a means of design, however, occurred in architectural education from the late thirties. While the invocation of modernist themes had been a fairly typical occurrence in architectural schools, it had been usually in terms of the typological precedent, in the manner of the copying of the Beaux-Arts exemplar. By isolating and seeing its elements as a generalizable, abstract system, their vocabulary could be recalled without any necessary

reference to their original sources. In a similar manner, Bauhaus exercises and de Stijl forms had also been previously used for beginning design students, but always as a precursor to the issues of an actual building project. In moving towards a formalist methodology, progressively abstract design exercises were introduced into the architectural curriculum (for instance, the famous 'nine square grid' problem which Hejduk introduced at the Cooper Union in the early seventies, had already been in place at the Architectural Association at least by the mid-fifties).

While schools such as the AA and also Cambridge University in England, developed their interest with the formal properties of the architectural object, the migration of these ideas occurred with the emigration of many of these English critics to American schools; Rowe, Banham and Alan Colquhoun among them. Conversely, Peter Eisenman left the States to study under Sir Leslie Martin and Colin Rowe at Cambridge in the late fifties, in an attempt to outline a rational, conceptual basis for modern design (rationality at Cambridge also had another twist, which was also involved with a Wittgensteinian positivism and the algebraic calculus of forms as initiated by Christopher Alexander). In the United States, the promise of formal rationalism as brought over from art historical analysis, combined with the connotations of high cultural sophistication within a self-referential syntax, would prove to guide American design education in the postwar decades.

i. Rudolf Wittkower

Rudolph Wittkower's 1949 opus, *Architectural Principles in the Age of Humanism*⁵ is a peculiar marker for architectural theory, in that its fame is perhaps due more for its influence on contemporary theory and design, than for its immediate contributions to Renaissance scholarship. The somewhat curious dimension to this text is that it was read from its inception not so much as an historical analysis on the religious and cultural foundations of early and high Renaissance architecture, but rather, as an inducement and metaphor for the possible formalization of modernist design. In a 1972 essay on the influence of the Wittkower text,⁶ Henry Millon cites Robin Boyd's assertion that *Architectural Principles* was at least partly responsible for the reintroduction of the circle as a formal motif in postwar architectural plans (other influences here of course include Frank Lloyd Wright, Juan Miro and Jean Arp).⁷

5. Rudolph Wittkower, *Principles in the Age of Humanism* (London, 1949; 3rd revised edition, New York: Norton, 1962).

6. Henry A. Millon, "Rudolf Wittkower, *Architectural Principles in the Age of Humanism*: Its Influence on the Development and Interpretation of Modern Architecture," *Journal of the Society of Architectural Historians* 31 (1972): 83-91.

Further, Millon argues that, along with Le Corbusier's theory of the *Modulor*, the Wittkower text was responsible for a renewed interest in modular systems in postwar design. While Hitchcock and Johnson's *The International Style* was almost wholly concerned with modern architecture as a formal conceit, it did not present any sort of systematic means of analysis; in distinction, Wittkower's interpretation of Renaissance treatises presented such a model, albeit for a humanist subject.

Alina Payne has written more recently on some of the key concepts in the Wittkower text,⁸ centering around specific Renaissance themes: the use of symbolism; the appropriation of forms; the development of characteristic building types; and the idea of commensuration, that is, the essential humanist unity between art and science. Here, Payne argues that Wittkower's reductivist reading of Palladio ignored the architect's conception of architecture as including functional and social utility, and instead emphasized his ideas on regulating lines, number, and proportion. Consequently, Wittkower was able to reduce the Renaissance conception of architecture to a science based on its system of mathematical ratios, and accordingly also united architecture with humanist music theory.

Payne continues on to focus on the critical role of syntax, which for Wittkower, she argues, "ultimately constitutes the key object of his investigation."⁹ He almost entirely ignores the issue of ornament in the Renaissance, and instead "reads form with respect to structure rather than meaning."¹⁰ It is a diametrically opposed reading of Renaissance humanism from that of Geoffrey Scott's romanticised interpretations,¹¹ concentrating instead on the conception of forms treated as large typological units, with its components treated as abstract entities. In distilling the complex and intricate aspects of the Renaissance work to an abstracted state, Payne makes the argument that *Architectural Principles* begins to encroach, somewhat unwittingly, upon the inception of a modernist syntax: "not only does Wittkower's argument fit into a current art historical and intellectual context as shaped by Cassirer and Panofsky, among others, but it presents a familiar facture: the reduction of form to syntactic relationships, the geometric

7. Robin Boyd, *The Puzzle of Architecture* (New York: Cambridge University Press, 1965).

8. Alina A. Payne, "Rudolf Wittkower and Architectural Principles in the Age of Modernism," *JSAH* 53 (1994): 322-342.

9. *Ibid.*, 328.

10. *Ibid.* The concept of 'reading' architecture is a term which is found liberally in both this study as well as Payne's, and the general popularity of the term may also in no small part be attributed to Wittkower's literal reading of Renaissance treatises in his study. 'Reading' architecture thereby moved from this specific and literal examination of both text and diagram in the historical treatise, to that more general usage widely found today (via the rise of modern hermeneutic interpretation), understood as the conceptual understanding of the architectural object.

11. Geoffrey Scott, *The Architecture of Humanism* (New York: Norton, 1974).

grids, the emphasis on structure, on ‘white’ and ‘cubic’ forms...echo the then-current tenets of victorious modernism.”¹² Unlike Le Corbusier’s invocation of proportion and geometry, however, Wittkower presents the Renaissance in terms of a highly structured, easily iterable system of design thought. Consequently, Payne continues, “Wittkower thus offers a link between humanism and abstraction”¹³ by relating abstract form to an intellectual rather than perceptual grounding of form. It is a reading—again, this literal *reading* in Wittkower’s case—of the humanist treatise in terms of its diagrammatic reproduction within the space of the text. It is a flattened, reductivist space, where “form (and structure) is two-dimensional and is manifested either as plan or elevation: neither space (hence movement) nor the sculptural presence of the wall (hence the tactile or haptic) is at issue.”¹⁴ While this interpretation of architectural form ostensibly seems to reduce architecture to a limited set of conceptual parameters, conversely this reading also aligns architecture in a factual manner to drawing and painting. Modernism is thus doubly joined to its humanist antecedents; first by way of the intangible properties of proportion and geometry, and secondly by way of its material commonality residing at the surface of the printed page.

ii. *Colin Rowe*

Colin Rowe’s intellectual contributions to postwar modernist theory and design have been widely noted and analyzed elsewhere, and thus will not be recited again; rather, the references to his writings here serve only to place his work within the historical context with which we are immediately concerned. Rowe’s particular talent at amassing vast amounts of detail from a variety of sources, both high and low, architectural and otherwise, reinterpreted Wittkower’s Renaissance studies in terms of its consequences and relationship to modern architecture, enabling him to pursue a formal analogy between the classical and the modern order that he would continue to play out in his academic career.¹⁵ By setting up a conceptual parity between chronologically disparate systems, Rowe introduced an a-historical, non-material and non-site specific mode of understanding the architectural artifact, stressing instead its conceptual properties; architecture was then understood as a primarily intellectual activity, separating it from mere building.

12. *Ibid.*, 330.

13. *Ibid.*, 337.

14. *Ibid.*

15. Colin Rowe, *The Mathematics of the Ideal Villa and Other Essays* (Cambridge, Mass.: MIT Press, 1976). The essays here on Palladio and Le Corbusier, and Schinkel and Mies are his best known cross-chronological comparisons, but they are also indicative of his general allegiance to a formalist art historical tradition.

Two years before the publication of Wittkower's 1949 *Architectural Principles*, Rowe had already demonstrated his ability to contrast and compare two formerly dissimilar species of architectural form, in his first and perhaps best known essay, "The Mathematics of the Ideal Villa."¹⁶ Here he uses all of Wittkower's formal instruments, though stripped of their religious, cultural, and historical foundations; instead, the notion of the ideal villa resides in an abstract, timeless mathematical space (and in this conceit it is far removed from its medieval religious roots and is closer to a scientific, modernist notion of a mathematical logic). Where he invokes geometry, it is in terms of the inherent beauty of its mathematical symmetry rather than its religious affiliations; where he brings up the notion of proportion, again it is by way of a logic of an algebraic calculus which Rowe introduces, in order to equate the planimetric formulae from one side into consonance with the other. Here, the Villa Rotunda is presented not so much as an architectural construction, as the production of a self-referential theorem: "Mathematical, abstract, four square, without apparent function, its dry aristocratic derivatives have enjoyed universal diffusion."¹⁷ The Villa Savoye is treated in the same manner, although Rowe imparts it with Virgilian references, returning both to an idyllic, autonomous state (which, in their actual settings, neither possess). Within this hermetic environment, the two conceptual constructs are set up against one another, displaying their similarities and differences in mathematical terms: "They are both conceived as single blocks...Allowing for variations in roof treatment they are blocks of corresponding volume, eight units in length, by five and a half in breadth, by five in height."¹⁸ Proportions are compared, geometries are aligned, plan is measured against plan and contrasted to section, in general framing the architectural object as an essentially conceptual rather than material construction. Beyond the immediate dislocative shock of comparing a humanist icon with its modernist counterpart, however, Rowe's 1947 paper was still based firmly on the art historical methodologies of Wölfflin and Wittkower.

His studies at Yale in the early fifties introduced him to Robert Slutzky and Josef Albers, and what had previously been a purely analytical tool, came to be seen as also having major consequences for the design process. Robert Slutzky's education under Albers produced a formalized, analytic concern with the interaction between form, colour and space, that found its architectural corollary with Rowe. This was to be more fully played out when they left to teach at the University of Texas at Austin, where they were later joined by John Hejduk and Bernhard Hoesli, an ETH-trained Swiss who had worked for Le

16. Colin Rowe, "The Mathematics of the Ideal Villa: Palladio and Le Corbusier Compared," *Architectural Review* (March 1947): 101-4.

17. *Ibid.*, 101.

18. *Ibid.*

Corbusier. This particular story of the ‘Texas Rangers’ is significant because it points to one of the first disciplined attempts to counter the prevailing model of ‘problem-solving’ modernism; and thus explicitly situated itself outside of mainstream American practice. Their model was not Gropius’ vision of a synthesis between design and practice, but rather that of a progressive avant-garde that resisted the objective, bureaucratic team method, in favour of an heuristic approach that was aligned with the formal rigour of Albers’ graphic exercises. This can be seen in Hejduk’s Texas House series from the 1950s,¹⁹ which would forecast his later, more hermetic production in some fundamental ways: its spare graphic vocabulary; the dynamic composition of the plan and elevation; the obsessive serial variation on a basic theme; the minimal or absent site; and the use of the nine square grid (an amalgam of Albers, Wittkower, and Rowe’s intellectual contributions), now transplanted to a series of conceptual house schemes in the Texas desert. At the same time, their ostensible rejection of Gropius belied the extent of their allegiance to the principles and pedagogy of the German Bauhaus.

Rowe’s belated introduction to modern art at Yale shifted his analytical strategy from a comparison between different architectures to a comparison between different visual disciplines. The most explicit and ambitious example of this kind of analytical cross-pollination can be found in Rowe and Slutzky’s landmark 1955 essay, “Transparency: Literal and Phenomenal.”²⁰ The inspiration for this article was taken from *The Language of Vision*,²¹ written by Gyorgy Kepes (an associate of Moholy-Nagy’s then teaching at MIT), whom they quoted on the literal and phenomenal characteristics of overlapping transparent figures. Kepes and Moholy-Nagy held firm to the research efforts of Bauhaus design, however, while Rowe and Slutzky’s paper was principally concerned with the visual legacy of early abstract painting. From this initial assertion, Rowe and Slutzky deliberately mixed metaphors by associating analytic cubism with Le Corbusier’s Villa Stein and the League of Nations projects (actually a double transference, as Le Corbusier and Ozenfant took special pains to differentiate their purist manifesto from that of analytic cubism). Slutzky’s studies in gestalt psychology aided their architectonic reading of cubist painting; Rowe however, continued to see both the painted and the architectural object through the same formal analytic lens. Their reading of Braque and Picasso, for instance, was presented in Wölfflinian terms—“Frontality, suppression of depth, contracting of space, definition of light sources, tipping

19. John Hejduk, *John Hejduk: 7 Houses* (New York: Institute for Architecture and Urban Studies, 1980).

20. Rowe and Slutzky, “Transparency: Literal and Phenomenal,” written in 1955, republished in *The Mathematics of the Ideal Villa*, 159–183.

21. Gyorgy Kepes, *Language of Vision* (Chicago: Paul Theobald, 1944).

forward of objects, restricted palette, oblique and rectilinear grids, propensities towards peripheric development, are all characteristics of Analytical Cubism...²²

These analytic ideas were consequently transformed into a studio design process, beginning in Austin, and developed later in the late fifties in Cambridge and the mid-sixties at Cornell (Hejduk also incorporated these ideas in generating the conceptual Texas house series, and expanded as part of his pedagogical technique at the Cooper Union). Rowe continued to emphasize the essential role of the two-dimensional diagram as head of the urban design department at Cornell through the early eighties, where the legacy of the Beaux-Arts *parti* joined with the reductivist imagery of the modernist avant-garde and the figure-ground visual ambiguity of the Roman Nolli plan, in order to produce an urban structure that had the appearance of an incremental, chronological process, that was in fact informed by a highly complex and ordered reading of avant-garde collage practices.

The common thread running through Rowe's varied intellectual pursuits has been the tendency to understand the object of study in fundamentally two-dimensional terms, and thus can be related to both Wölfflin's formalist analysis, as well as Greenberg's teleology of modernist painting. That is, Wölfflin's comparative categories relied upon the fundamental suspension of belief in any essential differences between painting and architecture—the constructed artifact could be thought of as 'linear' or 'painterly', in the same manner as the easel work. Like Greenberg, Wölfflin did not view architecture as a wholly independent artistic process, but rather as a subset of the dominant art, which was Renaissance and Baroque painting; this led him to treat architecture according to painting's formal vocabulary. Greenberg's interest in the flattened plane of abstract painting, on the other hand, enunciated the primacy of the surface condition in modern art, encompassing architecture as well as painting and sculpture. While painting was not a fundamental aspect of Rowe's early research, his introduction to cubism in the fifties renewed this latent possibility, only here transferred to a formal comparison between cubist painting and the International Style. Like Greenberg, Rowe's understanding of the architectural object lay at its absolute surface, where the material disappeared in favor of the conceptual.

iii. *Reyner Banham*

Though somewhat younger than Rowe, Reyner Banham also belonged to that generation of British academics who trained under Pevsner at the Courtauld Institute, graduating in 1952. Under Nikolaus Pevsner, Banham's 1959 dissertation on the early architectural avant-garde was subsequently published as *Theory and Design in the First Machine Age*. Less dogmatically formalist than Rowe, Ban-

22. Rowe and Slutzky, 162.

ham was arguably more directly involved with modern art, having written several gallery reviews for the *Architectural Review*, as well as being a member of the British Independent Group (with Peter and Alison Smithson, Eduardo Paolozzi and Nigel Henderson). He first introduced the term ‘architecture autre’²³ in a December 1955 *Architectural Review* article, alluding to the French art critic Michel Tapié’s earlier notion of *un art autre*, in referring to the work and aims of what he recognized as the Smithson’s postwar realist revisionism of modern architecture. Banham saw *art autre* and architecture linked by a critical reinterpretation of the canonical International Style, informed simultaneously by industrial technology, pop culture, and the primitivist tendencies of Le Corbusier and Kahn.

Perhaps more influential in the late fifties and early sixties in Britain (and principally at the Architectural Association in London) than in America, Banham’s stance can be seen as both parallel and diametrically opposed to Rowe’s formalist readings. Though both had a common interest in the visual legacy of the modernist avant-garde, for Rowe this principally concerned analytical cubism and de Stijl, while Banham turned his attention more towards those anti-formalist tendencies in the modern movement: surrealism, dada, American abstract expressionism, Situationism, and the various aspects of the French *art brut* movement. Nigel Whitely here argues that “whereas *art autre* turned its back on Modernism as a whole, the New Brutalism signalled a return to the *attitudes* of the Modernism of its early period;”²⁴ Whitely claims that although the Smithsons’ 1949 Hunstanton school project ostensibly rose from a reading of Wittkower’s *Architectural Principles* and Rowe’s “Mathematics” article, “the influence they absorbed and applied was filtered through the anti-idealist outlook of the new brutalism.”²⁵

Banham recounted the critical importance of postwar anti-formalism for the Smithsons, invoking the rough hewn facture of the canvas surface as an analogy to *beton brut*: “among the fistful of often contradictory standards that the Smithsons—and some of their peers and equals—have brought to bear, some are aesthetic. The effect of some of these aesthetics is not always obvious—though Jackson Pollock’s paintings clearly have affinity to their anti-formal plans; and the *art brut* of Paolozzi or Dubuffet has an equal family relationship to their interest in the visible and tangible material qualities of their building-structures.”²⁶ The somber chromatic compositions of Still, Rothko, Newman, and Motherwell, found their constructed analogies in the valuation of building materials for their natural, ‘found’ quali-

23. See Nigel Whitely, “Banham and *Otherness*: Reyner Banham and his Quest for an *Architecture Autre*,” *Architectural History* 33 (1990): 188-219.

24. *Ibid.*, 195-6.

25. *Ibid.*, 198.

26. Reyner Banham, “The history of the immediate future,” *RIBA Journal* 68 (1962): 252-7.

ties, producing “an architecture whose vehemence transcended the norms of architectural expression as violently as the paintings of Dubuffet transcended the norms of pictorial art; an architecture whose concepts of order were as far removed from those of ‘architectural composition’ as those of Pollock were removed from the routines of painterly composition (ie. balance, congruence or contrast of forms within a dominant rectangular format...).”²⁷ Further, in terms of the absolute *scale* of abstract expressionist painting, Banham argues, the work of Motherwell and his peers begins to encroach upon an architectural condition.

There are (at least) two significant and ironic consequences to Banham’s critical appraisal of English Brutalism for American architecture: on the one hand, the idea of a realist popular culture transformed into high art was appropriated in America by Warhol’s ambiguous iconography, and Denise Scott-Brown (via the Architectural Association and the Smithsons) and Robert Venturi’s particular brand of high/low culture building. The latter’s reinterpretative amalgam of pop culture and high architecture lead to a condition where the deliberately glossy superficiality of the mass produced image was retained, while the Brutalists’ emphasis on raw materials and exposed construction was not. While we may initially read the division between Rowe and Banham as encompassing the same conceptual distance between the ‘Whites’ and the ‘Grays’, on closer inspection we see Scott-Brown and Venturi being occupied with the same penchant for a formalist analysis (as well as its consequent design methods) that occupied Wittkower and Rowe. Like their intellectual forbears, the work of Venturi and Scott-Brown deliberately eschews spatial depth (that celebration of spatial volume that marked the modernist monument), preferring instead to retain architectural meaning at the level of the diagram, inscribed on the surface of the wall. Clearly there was no strong division between the two avant-gardes (perhaps best characterized as the difference between ‘autonomy’ versus ‘irony’), in fact sharing underlying formalist beliefs in the production of a high architectural culture.

The other ironic consequence of Banham’s reading of Brutalist architecture—that is, his identification of the primacy of process over form; its non-relational, non-hierarchical composition; the lack of a determined ‘end-point’ to the work; the absence of a traditional figure-ground hierarchy or any centralized or distinct point of focus—came with their adoption not by anti-formalist forces, but rather in the other extreme, by a wholly surrealist extension of the International Style canon, in which its fundamental design principles were reversed to a logical absurdity through the strict formalization of these ostensibly anti-formal principles. Those properties which Banham identified as the Brutalist revision of the International Style—process over form, non-hierarchical composition, open-endedness, the absence of

27. Reyner Banham, *The New Brutalism: Ethic or Aesthetic?* (New York: Reinhold, 1966), 68.

figure-ground shape or centralized focus—were precisely the same formal concepts adopted in the work of Peter Eisenman.

iv. Peter Eisenman

As with Rowe's work, the bulk of Eisenman's writings and buildings have been extensively discussed, and will not be recited here. Indeed, Eisenman's architectural production, beginning in the early to mid-sixties, forms the terminus and implicit object of this study, in the idea of architecture as autonomous artform. Certainly this stance in itself is not original; what will be discussed here is rather the historical trajectory of this line of thought, and in this case Eisenman's work belongs as well within the Anglo-Germanic art historical tradition of formal comparative analysis. This is most fully revealed in Eisenman's dissertation studies at Cambridge in the early sixties, forming the nucleus of his intellectual and professional development over the next few decades.

Significant English attempts to synthesize modern art and architecture date from at least the mid-thirties, when the architects Colin Lucas, Wells Coates, the sculptor Henry Moore, and the painter Ben Nicholson joined to form the Unit One group. The architect Sir James Richards here recalled how "There was a closeness [between these painters and architects] in two ways—in the obvious way that the new abstract art of that time had an affinity with architecture. A Ben Nicholson all-white abstract relief was a piece of flattened architecture. That was a natural affinity, and the other was a purely personal one. The few architects, painters and sculptors who had a revolutionary viewpoint naturally found each other and became one movement."²⁸ The notion of the relief as an intermediary between painting and architecture raised the unique possibility that not only could architecture learn from and imitate the effects of painting, but that concomitantly painting could also develop an architectural presence. This was one of the driving conceptual themes behind the journal *Circle*, which was edited by Leslie Martin, Ben Nicholson and Naum Gabo. Both painting and architecture shared a material presence in the contemporary world, and thus "The idea behind the publication *Circle* was to put together one particular manifestation of art and architecture, to put side by side work which appeared to have one common idea and one common aim: the constructive trend in the art of our day. The idea was to try to place the work of art as an essential part of constructive thought, as the counterpart of architecture and the sciences."²⁹

28. Sherban Cantacuzino, "Sir James Richards Interview," in *A Continuing Experiment; Learning and Teaching at the Architectural Association*, ed. James Gowan (London: Architectural Press, 1975), 53. For further references on Nicholson's relationship to architecture, see also "Architecture and the Painter: with special reference to the work of Ben Nicholson," *Focus* 3 (1939); "A Note on Science and Art," *Architect's Year Book* 2 (1947); and "A World within a Frame: Ben Nicholson," *The Listener* (Jan. 1947).

Of the original Unit One group, Leslie Martin was perhaps the one most interested in researching underlying formal concepts in architecture; Martin had been in Paris around 1930, and for him “at that time there was certainly no doubt about the organising principles behind Le Corbusier’s work.”³⁰ Martin however filtered this appreciation of Corbu through the lens of Wittkower and Rowe’s analytical strategies, developing a system of reading and designing architecture and urban space by means of a proportional grid system.³¹

Martin had been appointed head of the School of Architecture at Cambridge in 1956, which, if not quite at the level of the Architectural Association’s cutting edge, nonetheless managed to attract considerable talent and visiting lecturers, including Buckminster Fuller, Richard Neutra, Louis Kahn, and Ernesto Rogers. Other new faculty members there included Colin St. John Wilson, who had come from the more pragmatic environs of the design department at the London County Council,³² as well as Colin Rowe, who joined the staff in 1958, teaching there until 1962. All three figures in one way or another had a significant influence in Eisenman’s intellectual development at Cambridge, who previously had a respectable if somewhat prosaic introduction to modern architecture at Cornell, Columbia University and The Architects Collaborative under Gropius.

Martin’s belief in the relationship between modern art and architecture had a significant impact on the design direction of the department, and studio exercises reflected the belief in modern painting as the intellectual foundation for modern architecture. Christopher Alexander, who attended architecture school there from 1955 to 1957, recalled this process: “The basic instruction consisted in teaching about modern art—a peculiarity of this program. There was an intense focus on painters like Mondrian and van Doesburg, with occasional references to Mies van der Rohe and Le Corbusier. But mainly it was

29. J.L. Martin, Ben Nicholson, N. Gabo, eds., *Circle; International Survey of Constructive Art* (London: Faber and Faber, 1937; New York: Praeger, 1971), 217.

30. J.L. Martin, *Buildings and Idea 1933-8* (Cambridge: Cambridge University Press, 1983), 8.

31. Leslie Martin, “The Grid as Generator,” in *Urban Space and Structures* (Cambridge, 1972).

32. In spite of the pragmatic, if not bureaucratic nature of their organization, the LCC nonetheless attracted several significant and idealistic young architects into their fold, as Wilson here points out: “Around the corner I found Alan Colquhoun and also there for two weeks—and for some inexplicable reason in the Planning Department—was Jim Stirling. We sought to develop in the blitzed ruin of Post-war London a pioneering brave new world atmosphere and thus became firm Le Corbusier fans. At that time Corbu stood for something that was archetypal, concerned with standards and general building types.” From Colin St. John Wilson, “Goodbye to all that,” *Scroope* 2 (Summer 1990): 7. In addition, Peter and Alison Smithson also worked in the LCC Architects Department in the late forties, during which time they designed their winning entry for the Hunstanton Secondary School.

focused on painting... Somehow, the implication was that what they were trying to do was what we were trying to do—and that we had to get a sense of what that was and then do it in buildings.”³³

Although Alexander left in 1958 for Harvard, before Eisenman arrived at Cambridge in 1960, Alexander’s influence continued to be felt; an intellectual debate had begun in the school during this period, between Christian Norberg-Schulz’ phenomenological approach to understanding architectural form, and Alexander and Lionel March’s early attempts at a more structured, mathematical model developing out of anthropological observation. Somewhat ironically, Alexander’s own work drifted away from his initial mathematically derived studies and towards Norberg-Schulz’ more intuitive, experiential understanding of place (from the rigid lattice to the more complex, intertwined semi-lattice structure of typological forms), whereas Eisenman, who ostensibly began his dissertation as a riposte to Alexander’s early manuscript of *Notes on the Synthesis of Form*,³⁴ attempted a rigid analytical model in developing a logical structure for reading architectural form.

Entitled *The Formal Basis of Modern Architecture*, Eisenman’s dissertation was completed in 1963, with Martin as his supervisor, along with Rowe, St. John Wilson, Peter Bicknell, Christopher Cornford, and Patrick Hodgkinson as his readers.³⁵ The text forecasts the analytical obsessions of his early work, revealing his intellectual debt to Martin and Rowe, as well as, at a distance, to Wittkower and Wölfflin’s formalist legacy and Rudolf Arnheim’s gestalt psychologism. Against any anthropological or functional model of understanding architectural form, Eisenman instead asserted that the architectural object was a self-referential, autonomous entity with an inherent formal logic external to time or place. It is an argument that somewhat ironically, can be seen as a legacy of formalist readings from Wölfflin and Frankl’s comparative analyses, to Wittkower’s diagrammatic expositions on Renaissance religion and culture. For Eisenman, the reading and writing of architectural form as the result of a logical process was also related to his interests in Wittgenstein’s logical positivism, de Saussure and Levi-Strauss’ structural readings, translating a structurally based, linguistic grammar to a logical grammar of form.³⁶

33. Stephen Grabow, *Christopher Alexander. The Search for a New Paradigm in Architecture* (Stocksfield: Oriel Press, 1983), 30.

34. Interview with Eisenman, December 19, 1994.

35. Peter D. Eisenman, “The Formal Basis of Modern Architecture” (Ph.D. diss., Trinity College, 1963). A published, annotated version of this text is forthcoming from Eisenman.

36. Eisenman interview. A complete listing of Eisenman’s bibliography is reproduced in Appendix 1.

Eisenman began by asserting how modernism's "particular mode of speculation has been historical rather than logical. There is an inherent danger in this absence of logical thought."³⁷ The apparent threat is that privileging of historical type as the traditional justification for architectural form rather than any innate properties on the part of the object. In distinction, the logic that is proposed here is closer to an attempt to develop a geometric calculus of basic forms:

It is the desire here to consider buildings as a structure of logical discourse, and to focus attention on consistency of argument, on the manner in which spatial and volumetric propositions may interact, contradict, and qualify each other.

This dissertation is therefore concerned with conceptual issues, in the sense that form is considered as a problem of logical consistency, in other words, as the logical inter-action of formal concepts. The argument will try to establish that considerations of a logical and objective nature can provide a conceptual, formal basis for any architecture.³⁸

The 'logic' that is cited here is also a reasoning borne of the implicit desire to align architectural thought with the formal analytical tradition in art historical discourse, as well as other current forms of contemporary cultural and philosophical discourse, most significantly that concerning the nature and the meaning of the linguistic metaphor in terms of an architectural language. While his particular invocation of Noam Chomsky's theory of generative grammar is better known, and most often cited as the basis for his early house projects, the linguistic primitives he cites here are derived from Le Corbusier's ideas on platonic solids and proportional systems, as filtered through Rowe's analytical reading of La Tourette: "a language will be distinguished and a systemic order for this language, which uses geometric solids only as absolute points of reference. By means of this reference, it will seek to clarify the relationship of form to any architecture."³⁹

Accordingly, the basic strategy of the dissertation involved the formal reading of four modernist architects with differing stylistic and intellectual approaches—Le Corbusier, Aalto, Wright, and Terragni—in the hopes of deriving underlying patterns common to their work. While the focus of the study centered exclusively on modern architecture, Eisenman implied that these patterns by extension should also be applicable to a generalized, abstracted view of architectural form. The invocation of Le Corbusier here is perhaps the most obvious in both the architect's own pronouncements on the universal

37. "The Formal Basis of Modern Architecture," 1.

38. *Ibid.*, 4.

39. *Ibid.*, 5. "The most convincing argument by Rowe was La Tourette. There's no question that La Tourette was all about about the possibility of architecture in a different way, in that kind of Wölfflinian, Wittkowerian, Frankl, tradition." Eisenman interview.

geometries underlying his work, as well as Rowe's formal dissection of La Tourette⁴⁰ and the early villas. Here, Eisenman chooses the Pavillon Suisse and the Cité de Refuge as his typological examples, in distinction to Rowe's examination of La Tourette and the villas. Somewhat less obvious, however, were his other choice of subjects; while Mies and Gropius were also mentioned in cursory fashion in the text, their exclusion as architectural examples somewhat reveals Eisenman's lack of interest with traditional concerns of function, technique, or materiality. The inclusion of Aalto and Wright seems equally anomalous, although necessary in terms of the argument's assertion of universal applicability: Aalto appears in the guise of the Tallinn Museum and the Saynatsalo Civic Center, while Wright is represented through the Martin House and the Avery Coonley House. Aalto appears as a means to refute the humanist/social functionalist interpretation of the modernist paradigm, while Wright makes an appearance here to debunk the organicist myth.

It is however Eisenman's reading (and subsequent rewriting) of Terragni which is his most original contribution, although here Colin St. John Wilson claims original credit for having introduced Terragni to Eisenman.⁴¹ Through Eisenman's analysis of Terragni (by way of the Asilo Infantile and the Casa del Fascio), the primacy of proportion and geometry is reintroduced in a modernist vehicle, thereby relating Le Corbusier's geometric universals to a Wittkowerian, formalist reading. Unlike Rowe's more art-historical approach, Eisenman in contrast attempted to advance a theory around the idea of generic form and its subsequent development into an architectural language.

The concept of *generic* form establishes an order based upon platonic geometries, arguing for an absolute, logical superiority over the vagaries of *specific*, or actual, forms. Properties of generic form, such as volume, mass, surface, and movement, are further set within the referential matrix of a Cartesian grid, thus locating the architectural object within a definable formal construct. In addition to the mathematical analogy, Eisenman also inserts a linguistic analogy into the mix, whereby "the distortions

40. Colin Rowe, "Dominican Monastery of La Tourette, Eveux-Sur Arbresle, Lyon," in *Architectural Review* (1961); republished in *The Mathematics of the Idea Villa and Other Essays*, 185-203. Rereading Rowe's article, one is struck by the similarities of thought between Rowe's analysis and Eisenman's thesis, for instance in Rowe's assertion that "La Tourette, like any other building by any other architect, is primarily determined by a formal statement which is felt to be a logical one" (193).

41. "In the school Peter Eisenmann came over to take a Phd. and stayed to teach with me. I gave Peter that great Alberto Sartoris book 'L'Architettura Modern', with all its lavish plates of Terragni which started an obsession from which he has never recovered. With Colin Rowe he went off to Italy [in the summer of 1961] and I received a letter in which they came to the conclusion that the British did country houses much better than Palladio." St. John Wilson, "Goodbye to all that," 27. Rowe and Eisenman's summer tour also included a visit to Como, where they visited a number of Terragni buildings; according to Eisenman, however, Rowe showed little interest in Terragni, preferring Italian mannerism to Italian modernism.

from the generic form can be thought of as the grammar, the specific use as the vocabulary, and the rules governing the distortions can be thought of as a system. These systems each have their own essential generic character and their own self-generated laws which must be comprehended and followed."⁴² From this Eisenman derives his most audacious inference, that "the architect only interprets the intent or formal essence of the building, and creates in the sense that he gives physical form to the generic requirement of that building."⁴³ In this, the extreme end of the formalist approach is reached, whereby it is not the architect who develops the conceptual apparatus underlying the architectural object, but rather it is the object which contains an innate set of regulating formal conditions that the architect must uncover, so that subsequently "If a building does not relate in its entirety to the system, then the system was poorly conceived."⁴⁴

Eisenman follows his theoretical assertions with analytical readings of two buildings each by the four architects, in order to buttress his argument of the universal applicability of the self-referential formal structures. The architects employ differing formal systems to their buildings, but are seen as containing wholly coherent works within their respective systems. Eisenman's reading of Le Corbusier unsurprisingly follows Rowe's analytical readings of La Tourette in his analysis of the Pavillon Suisse, especially in the distinction made between the conceptual and perceptual aspects of the architectural object (analogous to Rowe's distinction between implication and fact), whereby the perception of linear mass is countered by the conceptual reading of a spiral movement through the building. The Pavillon and the Cité are both read as a series of complex distortions from a generic rectilinear state, both instances of a modernist *parole* in relation to the general *langue* of architectural form. Eisenman attempts to inject the same sort of analysis to Frank Lloyd Wright's Oak Park residences, with somewhat lesser success, in reducing Wright's highly charged symbolism to a series of abstract formal maneuvers. His reading of Aalto is even less convincing, in presenting Aalto's work as the deformation of generic geometries. Eisenman's analysis finds its most fruitful target with Terragni, however, noting how the Italian Rationalist's "systemic development and the acknowledgement of syntactical requirements is perhaps the most elaborately used by the four architects discussed, thereby providing excellent empirical precedents for this thesis."⁴⁵ Through Terragni, Eisenman finds the perfect foil for the idea of architec-

42. Eisenman, "The Formal Basis of Modern Architecture," 39.

43. Ibid., 40.

44. Ibid.

45. Ibid. The pagination at this point in the dissertation is only intermittent or completely omitted; therefore no page numbers are noted here or beyond.

ture as the carefully proportioned evolution of a platonic geometry—itsself a product of a humanist tradition—only here denuded of its social and religious connotations and instead left with the skeletons of its regulating lines. Eisenman’s analysis of Terragni further develops Rowe’s reading of surface in Le Corbusier, leading once again towards the notion of a cardboard architecture with which Eisenman would consume himself for the following decade.

Appearing as a sort of apology for architectural rationalism, Eisenman ends his study with a distinction between what he terms ‘close-ended’ versus ‘open-ended’ architectural theory, arguing that formal logic is not necessarily inconsistent with the progressive development of architectural thought, but rather gives it a firm foundation (theory here is employed in the sense of both its analytical, descriptive sense, as well as its polemical, prescriptive form, as both text and the instantiation of its principles in the design object). Close-ended systems of thought, he states, “presupposes a firm body of knowledge. In this sense the critic sees the subject as an immutable category of being; and is concerned with what he believes to be its permanent qualifications.” In distinction, open-ended theory “should not be considered as a set piece, a neatly wrapped package, but rather as a continuously applicable and open-ended methodology.”⁴⁶ Beyond the rather basic observation that Eisenman’s theory and design work has indeed followed this trajectory, the differentiation of the two positions also recalls Wölfflin’s binary distinction between closed and open form; it is this fundamental conceptual binarism which Eisenman employs as a means of distinguishing his work from the International Style, much in the same formal manner that Wölfflin differentiated between the High Renaissance and the Baroque (for Eisenman, the distinction is made between the functionalist canon of High Modernism, versus the deliberate subversion of same by what he termed the post-humanist avant-garde).⁴⁷

Indeed, Eisenman’s work in retrospect reads like a summation of Wölfflinian principles: for instance, Wölfflin’s distinction between linear and painterly, implied a shift from the tactile, haptic qualities of the humanist canvas, in distinction to a purely visual, illusionistic space where volume and mass become deliberately ambiguous. The architectural object, though not strictly painterly, nonetheless carries the metaphor in baroque form’s impression of movement and the emphasis upon optical effects.⁴⁸ In spite of his early vocabulary’s strict orthogonality, Eisenman’s first projects also attempted these quali-

46. Ibid.

47. Peter Eisenman, “Post-Functionalism,” *Oppositions* 6 (1976): unpaginated.

48. “But for the baroque, new possibilities are given precisely by the fact that, beside the reality for the body, there exists a reality for the eye. We do not need to think of really illusive buildings, buildings which set out to give an illusion of something different from what is there, but only of the fundamental exploitation of effects which are no longer of a plastic tectonic character.” Wölfflin, *Principles of Art History*, 72.

ties, particularly in his notion of the architectural object as the trace of a formalizable process and his mannerist distortion of modernist formal elements into syntactic instruments.

The shift from plane to recession in baroque architecture, according to Wölfflin, was accompanied by a shift away from a pure frontal presentation and towards an interest in recessional and diagonal movement. Though much of Eisenman's early work is concerned to a great degree with an interest in planar composition, it is not in the humanist sense of constructing a fixed, singular facade, but rather (as with the baroque composition) it is in the service of attempting to pull apart the sense of constructed mass in the architectural object, and diverting its conceptual energy from a privileged frontal position, and towards a dynamic axial condition.⁴⁹

The distinction between closed and open form, Wölfflin argued, denoted the difference between the humanist self-enclosed work and that of the open-ended, a-tectonic nature of the baroque composition;⁵⁰ in similar manner, Eisenman attempted to downplay the tectonic aspects of his constructed projects in favor of their conceptual reading. Wölfflin also stated that the clarity of Renaissance proportion in closed forms were superseded by a more complex interpretation;⁵¹ likewise, Eisenman's reading and subsequent rewriting of Terragni appropriated the idea of an ambiguous, multivalent formal geometry in his architectural production.

The development from Renaissance multiplicity to that of unity in baroque architectural form, was accompanied by a shift from architecture as the ordered composition of distinct and separate elements, and towards the primacy of the overall composition at the expense of its contributing parts. In similar manner, Eisenman aimed to disengage and disrupt the canonical status imparted to the various icons of the modernist vocabulary (Le Corbusier's Five Elements, for instance), resituating their significance within an overall compositional strategy.

Finally, Wölfflin's distinction between absolute and relative clarity concerns the difference between literal representation and that more subtle abstraction (here he looks to the example of Rembrandt) which is pictorially more ambiguous, but which bestows a deeper insight into the represented

49. This condition is examined in Kenneth Frampton's essay "Frontality vs. Rotation," in Peter Eisenman et al., *Five Architects* (New York: Wittenborn, 1972), 9-13.

50. "...the weakening of tectonics, as the history of representative art shows, was accompanied by analogous processes in architecture. While it seems far-fetched to speak of a-tectonic architecture, the notion 'open' composition as opposed to 'closed' composition may be used without objection." Wölfflin, *Principles of Art History*, 149.

51. "The proportions of the classic Renaissance were of such a kind that one and the same proportion is repeated on different scales—plane and solid proportions...the baroque avoids this clear relationship and seeks to overcome the impression of the completely finished by means of a more hidden harmony. In the proportions themselves, however, the tense, the unsatisfied, gradually supplants fully harmonised repose." *Ibid.*, 152.

object upon reflection. Its architectural analogy is somewhat more problematic because of the literal character of architectural form, but Wölfflin interprets this in terms of humanism's static compositions, in opposition to the baroque tendency towards a dynamic, willful complexity.⁵² The convoluted vocabulary of Eisenman's architecture attempts to re-present this dynamism by means of deliberately unbalanced (in the classical sense), asymmetric elements that demand to be read within a larger order. The columns in the 1967 House I, for example, no longer read as individual structural components, but are employed in a rhetorical dialogue between the syntactic status of column and wall.

Without further berating this analogy, I do not mean to imply here that Eisenman deliberately employed an explicit Wölfflinian strategy in situating his architectural production as a polemical contrast to International Style Modernism; rather, I wish to outline the depth to which his work was influenced by an intellectual legacy informed by nineteenth and early twentieth century art historical analysis. Far from his claims of ahistoricity and a design logic driven by purely formal considerations, his stance is intimately imbedded within the particular mythos of logical positivism, structural linguistics, and the Anglo-Saxon analytical tradition of a formalist art history fostered in postwar English academia, and it is this legacy which he inherited and imported to America as a design and teaching methodology.

52. "...classic clearness means representation in ultimate, enduring forms; baroque unclearness means making the forms look like something changing, becoming." *Ibid.*, 222.

Point and Line to Plane

The Vorkurs in America

The transformation towards modern architectural design in America was accompanied by a corresponding shift in design teaching methods. This shift did not however occur as a radical break from tradition to modernism, from the master studio of classical precedents to the modernist workshop of innovative design research, but rather as a more haphazard and evolutionary transition between the two. Indeed, upon closer examination, the distance between the French Beaux-Arts and the modern studio is somewhat closer than would at first appear.

The majority of American design schools at the turn of the century followed a Beaux-Arts methodology, with the rote reproduction of classical type being the standard pedagogical method. MIT, Harvard, Princeton, and the other Ivy Leagues sought to import studio masters directly from Paris, or if that was not possible, then to hire their American graduates. The curricula of the various schools were remarkably similar, with five principle subject areas: freehand drawing; descriptive graphics, construction, history, and design. Cornell's curriculum, for instance, was typical in its development from an education based on the general humanities (following Vitruvius' advice), followed by basic drawing skills and lessons based upon the ancients, before finally embarking upon independent student design work.⁵³

American architectural education grew significantly between the Depression and mid-century: in 1930, there were 47 schools in the United States that offered instruction in architecture, with approximately 4600 students;⁵⁴ by 1932 there were 52 schools,⁵⁵ and by 1950 there were 64 institutions teaching architectural design, with enrollment reaching 11,665 in 1949.⁵⁶ With this expansion also came a liberal-

53. First year consisted of Algebra; French or German; physiology; rhetoric; drawing; geometry; zoology; trigonometry; ancient history. Second year: analytical geometry; French or German; physics; chemistry; drawing; zoology; trigonometry; ancient history. Third year: integral calculus; descriptive geometry; Egyptian and Greek architecture; drawing; mechanics; lectures on Roman architecture; geology; shades, shadows and perspective; Byzantine and Romanesque architecture. Fourth year classes involved stereotomy; geology and physical geography; Gothic architecture; drawing; photography; mechanics as applied to construction; Renaissance and Modern (that is, post-Renaissance) architecture; composition and design; various lectures in art, professional practice, before finally participating in full studio *esquisses*. From F.H. Bosworth, Jr., and Roy Childs Jones. *A Study of Architectural Schools* (New York: Charles Scribner's, 1932).

54. *The Architect at Mid-Century*, 100.

55. Bosworth and Jones, *A Study of Architectural Schools*.

56. *The Architect at Mid-Century*, 103.

ization of teaching methods beyond the basic Beaux-Arts approach, aided by the incorporation of Bauhaus teachers and more experimental teaching methods.

The influx of European (primarily German) emigres during the thirties played a significant role in the maturation of American intellectual thought in general, notably in the areas of gestalt psychology, art history, and architecture. Gestalt psychologists challenged the typically experimental approach in institutions such as Harvard, Cornell, Chicago, and the New School for Social Research in New York, where Max Wertheimer, one of the founders of the Gestalt school, led a group of psychologists in visual research.⁵⁷ Among this group included Rudolf Arnheim, himself educated under Wertheimer in Berlin, who would later teach on issues in art and architectural aesthetics at the Cooper Union and the Carpenter Center at Harvard.⁵⁸

Similarly, American art history studies also benefited significantly from the German scholarly influence: Erwin Panofsky migrated early on, teaching at the New York Institute of Fine Arts in 1931, and moving on to a professorship at Princeton in 1935; other major figures who also came to teach included Walter Friedlander, Paul Frankl, Richard Krautheimer, Ernst Gombrich, and Rudolf Wittkower, who held the chair in art history at Columbia.⁵⁹ Having come from an art historical tradition which saw architecture within the general purview of artistic practice, all these historians wrote or taught to some degree on aspects of (primarily humanist) architecture as an artform related to its sister arts. Because of the dominant position of Renaissance painting, architecture's relationship to art was primarily in reference to the painted canvas.

In architecture, the emigration of virtually all the major figures of the Bauhaus to America in the thirties not only ensured the adoption of modern architecture in their new homeland, but also radically changed the direction of architectural design education in the United States. Josef Albers was among the first to emigrate among the Bauhaus masters, moving to North Carolina at the end of 1933 to teach at Black Mountain College, and later becoming chairman of the Design Department at Yale in 1950. Walter Gropius' chair of the architecture department at the Harvard Graduate School of Design in 1936

57. Jean Matter Mandler and George Mandler, "The Diaspora of Experimental Psychology: The Gestaltists and Others," in Donald Fleming, and Bernard Bailyn, eds., *The Intellectual Migration: Europe and America, 1930-1960* (Cambridge, Mass.: Harvard University Press, 1969), 371-419.

58. Arnheim has written several significant texts on gestalt aesthetics, the best known of which are *Art and Visual Perception* (Berkeley: University of California Press, 1954); *Toward a Psychology of Art* (Berkeley: University of California Press, 1966); and in architecture, *The Dynamics of Architectural Form* (Berkeley: University of California Press, 1977).

59. Colin Eisler, "Kunstgeschichte American Style: A Study in Migration," in *The Intellectual Migration*, 544-629.

(itself the subject of a certain amount of departmental politics) was the first major broadside in the campaign towards a patently modernist architecture program in America. Moholy-Nagy followed in 1937 with his attempt to import the Bauhaus name and curriculum to Chicago as the New Bauhaus, later changed to the Institute of Design; the Institute was itself later absorbed into the architecture department at the newly founded Illinois Institute of Technology, at which Mies van der Rohe taught and headed as director, beginning in 1938. Gyorgy Kepes also taught at the Institute of Design from 1937, later moving to MIT in 1946, where he taught visual fundamentals and research in light and color.⁶⁰

In such applications of abstract visual thinking, existing stylistic vocabularies—whether cubist, de Stijl, or, occasionally, surrealist—were employed ostensibly in the hope of investigating and eventually producing original formal conditions in architectural design. Ironically, however, they all too often wound up substituting for the classical orders as visual precedents. The examination of cubist paintings as demonstrating selected aspects of a new visual paradigm, as championed by Moholy-Nagy and Kepes, instead became transformed, sometimes quite literally, into plans and facades. John Hejduk's well-known Cooper Union studio exercise, beginning in the mid-sixties, of producing a building 'in the manner of' Juan Gris, for instance, explicitly illustrated such an attempt at mimetically reconstructing the painted plane into an architectural object. How this particular set of events came to pass, and how this transformation was engendered, was the somewhat unintentional result of a generation of modern artists teaching in schools of architecture, in the American equivalent of the Bauhaus foundation classes. Their presence not only implied a tacit relation between the disparate arts, but also assumed that the particular formal characteristics of one medium could be transferrable to another. Unlike the early avant-garde dream of a unified artistic practice, however, it was clearly painting that acted to inform architectural design, with architecture willingly using modern art to bridge the gap from the two-dimensional surface to the three-dimensional object.

i. Kandinsky: Point and Line to Plane

The pedagogical foundation of many of the basic visual exercises used in architectural design exercises had their origins in the pioneering work of Wassily Kandinsky and his teaching activities at the Bauhaus. Kandinsky was responsible for the Preliminary Course (*Vorkurs*) after Itten's resignation in 1923, teaching classes in color and basic formal elements. The notion of teaching from basic elements had its roots with Friedrich Froebel and the educational reform movement in the nineteenth century,

60. The particular influence of the Bauhaus emigres in America is further examined in William Jordy, "The Aftermath of the Bauhaus in America: Gropius, Mies, and Breuer," *The Intellectual Migration*, 485-543.

although Kandinsky was interested as much in its analytical as well as compositional possibilities. As outlined in his didactic 1926 treatise *Point and Line to Plane*,⁶¹ Kandinsky attempted to outline a system of visual understanding as a prolegomena to abstract composition, beginning with the most fundamental formal components, and moving to a progressively more complex visual order based upon a combination of the basic elements. He made a distinction between *basic* and *secondary* elements: the most basic formal element was the point—what he termed the “proto-element of painting”⁶² as it is “the innermost concise form.”⁶³ The point, he noted, was analogous to the singularity of the musical note, the fundamental element in music composition. Like the note, the point only gains significance in its spatial and temporal relationship to other points.

The line, as the antithesis to the point, is a secondary element in that it is an extension of the point; exterior forces transform the basic point into a line. There are three typical conditions to the basic line: vertical, horizontal, and diagonal. Kandinsky associated each position in relation to its musical, chromatic, and emotional analogies: for instance, the acute (flatter) line being regarded as ‘tense’ and ‘warm’, and those increasing towards the right angle as moving towards a dominant, ‘male’ condition. There is a basic duality between the straight and the curved line, forming one of the essential oppositions; other ‘primary pairs’ included the triangle versus the circle, and the color yellow versus blue. The width of the lines suggest additional physical and emotional states; the movement of lines imply notions of tension, compression, and displacement.

The line has the potential ability to extend into the plane: the curved line describes the ‘seed of the plane’ in the arc of a circle, forming a two-dimensional enclosed surface. Three fundamental planar geometries are presented: the triangle, the square, and the circle.⁶⁴ Other, more complex shapes may be represented, though they are ultimately reducible to these fundamental forms; conversely, from these fundamentals, shapes of greater complexity may be constructed. Certain conditions of the line have specific relationships to given forms: the acute line to the triangle, the right angled line to the square, and the

61. Wassily Kandinsky, *Point and Line to Plane*, ed. and preface by Hilla Rebay (New York: Solomon R. Guggenheim Foundation, 1947); originally published as *Punkt und Linie zu Fläche*, eds. Walter Gropius and L. Moholy-Nagy (Dessau: Bauhaus, 1926).

62. *Ibid.*, 21.

63. *Ibid.*, 32.

64. Ellen Lupton and J. Abbott Miller expand on the central role of the three geometric figures in Bauhaus thought, tracing their development from the educational reform movement, to their possible influence on Lacanian psychoanalysis and fractal geometry; in *The ABCs of ▲■● : The Bauhaus and Design Theory* (Princeton: Princeton Architectural Press, 1991).

obtuse line to the circle. Each geometry contains its own proper characteristics: for instance, the square, bounded by two horizontal and two vertical lines, has unique spatial and empathic properties (looseness, condensation, weight, flight, and so on). The square further divided into four smaller squares is “the most primitive form of the division of a schematic plane,”⁶⁵ and reveals the potential for the formal development of the basic geometry. Finally, the ‘basic plane’ of the artwork lies beyond these fundamental geometries, being that which is responsible for containing and organizing the point, line, and planar elements, “the material plane which is called upon to receive the content of the work of art.”⁶⁶

The artist’s task is thus the structured amalgam of these graphic elements, and the final composition “is nothing other than an *exact law-abiding organization* of the vital forces which, in the form of tensions, are shut up within the elements.”⁶⁷ Kandinsky thus attempted to outline a primitive visual syntax, out of which a more complex visual construction could emerge. The Preliminary Course was intended to lay the foundations for the further development of the Bauhaus student, whatever direction was taken. While his efforts were almost solely confined to the production of the two-dimensional composition, the possibilities for its extension into the three-dimensional realm seem evident, at least in retrospect. Interestingly, however, while this connection may have been indirectly demonstrated (in Gropius’ and Van Doesburg’s cubic axonometrics, for instance), the sharp division between the introductory *Vorkurs* and the specialized activities of the advanced classes may have prevented such an explicit connection in a teaching environment. That is, the logical extension of point, line, and plane, into the cube and its architectural variants was not employed as a Bauhaus architectural exercise. Instead, it would not be until the second half of the century, and in American design schools, that the lessons of point/line/plane would return to present their architectural implications.

ii. *Albers at Harvard*

The contributions of Josef Albers to American architectural education are significant, though, as with Kandinsky, rather more implicit, but no less fundamental to postwar design teaching. His early Bauhaus experiments on color, shape, and texture, and the architectural implications of his later *Homage to the Square* series (itself an indirect homage to Kandinsky’s influence on his work) had deep reaching consequences in postwar architectural theory and design, and are documented later in this text; here, Albers’ pedagogical activities in relation to architectural education will be examined, revealing his

65. Kandinsky, 66.

66. Ibid., 115.

67. Ibid., 92.

attempts to transform the lessons of the Bauhaus Preliminary Course into a specifically architectural agenda.

Of course, Albers had already some amount of experience with an architectural curriculum, first through his teaching activities in the Bauhaus, and subsequently at Black Mountain College, of which Gropius was a nominal faculty member. Unlike the architect's more pragmatic approach, however, the psychological scientism of Albers' exercises in form and colour became the principal elements in isolating a design problem in terms of its formal analysis and composition.⁶⁸ Initial student problems consisted in constructing and analyzing abstract two and three-dimensional forms in terms of their visual effects, as a prelude to their training in art, architecture or industrial design. In doing so, it also counteracted the tendency for architecture to become a purely technical profession; in the guise of a scientific psychological model, art and technology were combined to create forms that could be understood and rationalized on their own terms.

As early as 1936, owing perhaps as much to his precarious financial situation at Black Mountain, as to a genuine interest in applying pure visual research to the applied arts, Albers had written to dean Joseph Hudnut (before Gropius' tenure at Harvard) on the possibility of teaching at the design school. The following passage to Hudnut describing some tentative course topics, reveals his debt not only to the didactic structure of the *Vorkurs*, but also to his continued belief in a synthetic unity among the arts:

I could conduct some theoretical conversations with practical exercises, the purpose of which is to give an understanding of the new problems in art, especially in architecture. I think the following themes could be a start for our discussions:

1. tectonic and atectonic architecture
2. Painted, drawn, sculptured, architecture; abstract architecture.
3. The increase of the interest for "Materie" in the modern art development.
4. Combination construction composition
5. What is stone and what is clay form, what is glass-, metal-, wood-form?
6. Formalism and functionalism
7. Wall papers and wall painting.
8. Modern architecture and modern typography and their relation
9. Curtains in exterior architecture.
10. Man as the most important furniture.
11. Modernistic or modern, fashion or development.
12. Historical studies and creative studies.⁶⁹

68. See Werner Spies, *Josef Albers*, trans. Herma Plummer (London: Thames and Hudson, 1971); Hans M. Wingler, *Bauhaus in America* (Berlin: Bauhaus-Archiv, 1972); and Mary Harris, *The Arts at Black Mountain College* (Cambridge, Mass.: MIT Press, 1987), on his work and educational research conducted in America.

There are several points of interest here in relation to this study: the differentiation between a ‘tectonic’ and an ‘atectonic’ architecture already indicates a conceptual division here, between the constructed work and its theoretical parallel; unlike Palladio’s blurring of the built structure and its textual and diagrammatic representation, Albers explicitly separates the two, the latter being a wholly independent entity aside from the built work. The notion of the atectonic leads into the second set of issues he raises; that of the notion of an abstract architecture. Whether painted, drawn, or sculpted, this species of architecture occupies a markedly different conceptual and material plane from that of the object *in situ*; abstract architecture is distinguished from its constructed counterpart in Kandinsky’s sense of the abstract, that is, as a self-referential, autonomous work in its own right. Conversely, the mention of the material aspects of the artwork implicate the role of materials in architecture, and this point is equally applicable in both its tectonic and atectonic, abstract mode. The reference to wallpaper and mural painting seems somewhat incongruous, but points back to his work with the Bauhaus mural workshops, as well as his studio exercises in texture and collage. Here, Albers’ reading of the mural surface is that of its integral attachment to the architectural surface, in distinction to the growing independence of the abstract mural work in the postwar period, revealing an independent artistic and architectural force in its own right.

In spite of Hudnut’s own interest in Albers’ agenda, conservative departmental politics and budget considerations prevented him from inviting Albers to Cambridge in a full teaching capacity in 1936. Ironically, it would be through Gropius once again—this time as dean at Harvard—that Albers would receive the invitation to teach at the GSD. In spite of whatever philosophical differences the two men had on the nature of the abstract arts in relation to architectural design, Gropius regarded Albers highly enough to reunite their affiliation at least temporarily, in Cambridge. He was initially invited to give seminars and lectures on an occasional basis for the next four years. Later, as a visiting lecturer, Albers taught a studio seminar on the Theory and Practice of Design in the spring of 1941; he subsequently also taught the same course for Summer School in July and August of 1941. The course register notes again reveal the influence of *Vorkurs* methods, in the invocation of materials, color, and process; however, it is in terms of its formal consequences rather than its relationship to a pragmatic tectonics of building, that Albers’ exercises were directed towards:

Theory and Practice of Design.

Introduction to theory and practice of design. Through studio exercises and criticisms

69. Josef Albers to Joseph Hudnut, 27 October 1936, Josef Albers papers, Yale Manuscript Collections, Item 32, Box 1, Folder 1, Yale University Library.

student made familiar with the processes of thought basic in design. Training in the techniques of design, including drawing, painting, and the use of simple tools and materials. Student studies the various qualities of materials—their structures, surface qualities, plasticities, colors, and characteristic forms. He learns the expressive nature of form, the effect of color and light upon the perception of form, and the ways in which forms can be controlled and related.⁷⁰

Unlike its Bauhaus variant, Albers' introduction to design stressed the design process as an independent operation, wholly independent of its functional or structural aspects. Design *qua* design had its own internal logic and parameters: specific properties of color, material, structure could be studied in order to reveal forms proper to their own unique characteristics.

Though the school was seeking a full-time instructor for the basic design position, Albers was not available (nor was he given the opportunity) for a full professorship in this area; after the 1941 summer session, Albers did not return to teach at Harvard for the next eight years. He taught the basic design course only once more, in the summer of 1950,⁷¹ but by that point Albers' fortune and reputation had markedly improved: that year, he was appointed chairman of the Department of Design at Yale University,⁷² and was also given a commission from Gropius to execute the Harkness Commons fireplace at the Harvard University Graduate Center. Beyond its sublimated allusions to the Dessau Bauhaus, the Graduate Center attempted to reignite the possibility of a postwar *Gesamtkunstwerk*, bringing in artists such as Albers, Herbert Bayer, Hans Arp, Juan Miro, Richard Lippold, and Gyorgy Kepes, to participate in its 'total' design. The awkward failure of the enterprise points to both the historical and intellec-

70. Harvard Graduate School of Design Course Register, Summer School, July 7—August 16, 1941, Harvard Graduate School of Design Special Collections.

71. Walter Gropius to Josef Albers, 14 November, 1949, giving formal offer to teach the basic design course, July 5-Aug. 26, for the sum of \$1200; Josef Albers papers, Yale Manuscript Collections, Item 32, Box 1, Folder 1, Yale University Archives.

72. Albers continued to teach a variant of the basic design course at Yale, only here geared towards undergraduate design students. Three first year design courses were offered: Basic Design, Elementary Drawing, and Color. Second year included Lettering and Drafting; Painting; and Sculpture. In a 1951 report to A. Whitney Griswold, the president of Yale, Albers described the objective of the courses as:

"a) To study principles underlying all the arts and which establish their relationship with each other.

b) To encourage the student to explore his personal inclinations and potentialities before making a definitive choice of his profession.

c) To develop a visual idiom related to requirements of a contemporary civilisation."

Thus, this curriculum was much closer to the original Bauhaus *Vorkurs* in that it was geared to both educate visually in a general manner, and guide the beginning student towards a specific career path. Josef Albers to A. Whitney Griswold, 6 June 1951, Josef Albers papers, Yale Manuscript Collections, Box 11, Folder 105, Yale University Archives.

tual distance between Dessau and Cambridge, as well as the growing autonomy of the postwar artwork. Even Albers' architectonic contribution of the fireplace reveals how the artist's meticulous ruminations on form and proportion invert Gropius' understanding of art in the service of architecture; in Albers' vision, it is the architectural that serves merely to define the physical framework of the work of art as formal investigation.

iii. George LeBoutillier

Though a relatively obscure figure in the history of the Harvard Graduate School of Design, George Tyrrel LeBoutillier helped to significantly shape the direction of the school's formalist reputation, and his class notes from this period reveal his central role in promoting abstract design thinking at the GSD in the immediate postwar period. While many of the exercises presented here are better known as belonging to the formalist pedagogy of the Texas Rangers and the Cooper Union from the fifties and sixties, LeBoutillier had already been carrying out this approach for the better part of a decade back in the 1940s. As a painter, LeBoutillier acted as the artistic surrogate for the missing Albers, teaching the equivalent Preliminary Course, but here geared specifically towards an architectural purpose.

His father, Addison LeBoutillier, was an architect of the old school, a partner in the Boston firm of Ripley & LeBoutillier. In contrast, the son went to Maine to study painting at Bowdoin in the late twenties, and then subsequently returned to Boston to attend the Boston Museum School of Fine Arts and the Child-Walker School. Having previously taught lettering and introductory design at Boston's School of Practical Art in 1941-42, LeBoutillier was invited to take over Samuel Hershey's Architectural Science 2, a beginning design class in the fall of 1942.

His class outline notes (listed in Appendix 3 on page 307) archives a crucial transition in design education, moving from a process of rote learning, in the repetitive tracing of Gothic and Roman lettering, but then using these linear exercises to segue towards a study of abstract planes and volumes, to explore their architectonic implications. The last set of exercises involved a series of texture studies, revealing a familiarity with Albers' teaching methods (it seems possible that LeBoutillier may have examined Albers' Harvard course material previous to his own class, and that he consulted with Gropius on this material), incorporating such didactic Bauhaus devices as 'touch boards' (panels composed from varying textures) collage, and photomontage.

In an unpublished essay entitled "Basic Design Training" (the title reflecting his own wartime work experiences), LeBoutillier attempted to outline his thoughts on the development of basic design principles for the architecture student. LeBoutillier believed that experimenting with certain basic con-

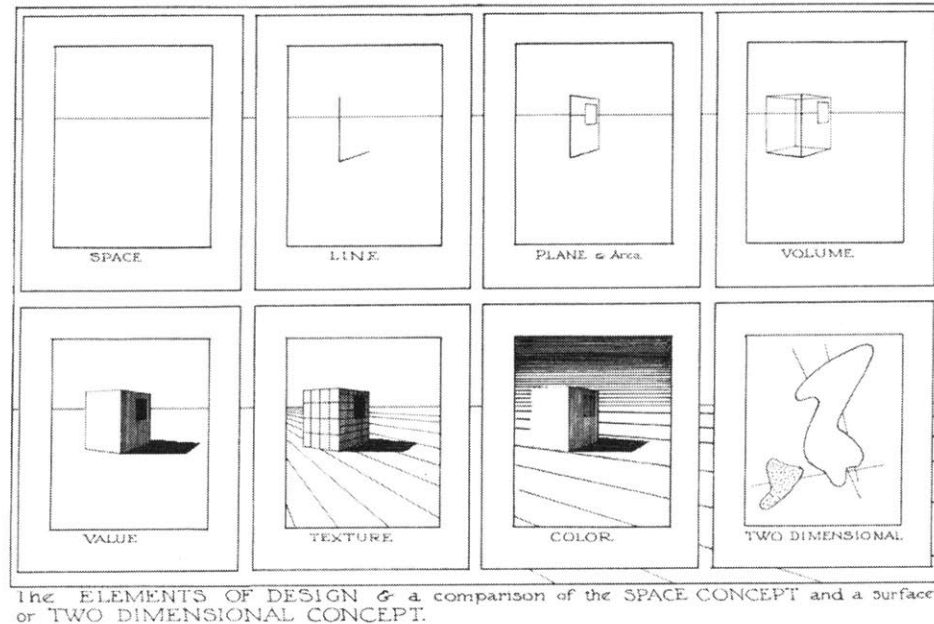


Figure 1: George LeBoutillier, diagram for Architectural Science 3a, 1945

ceptual elements (space-time; direction; planes; volumes; value; texture; and color) were to form the foundation of a general design education. The student would structure an understanding of a basic space-time condition by its differentiation through lines, planes, and volumes, and then subsequently developing its material and chromatic qualities. In LeBoutillier's class, Kandinsky's point-line-plane exercise was extended into the third dimension, and given architectural mass and volume. [fig. 1] LeBoutillier believed that these were general principles and could be utilized by any of the design professions; conversely, he felt that the 'experiments' should be left largely abstract, without functional or technical limitations to restrict the formal possibilities of the problem: "'Abstract' design, economics, construction, etc., can be studied independently as such, to be correlated through inclusive major studio problems. Thus the basic study becomes a contribution to the cumulative design development while remaining a separate field of research."⁷³

LeBoutillier continued to refine his introductory course over the decade, becoming progressively more abstract, relating basic graphic concepts more directly to the development of architectural form. The course description in the 1944-45 Graduate School of Design register outlines his attempt to relate

73. George LeBoutillier, "Basic Design Training," unpublished manuscript (Cambridge, Mass.: Harvard Graduate School of Design, 1947), 4.

primitive graphic elements to an understanding of the fundamental spatial and formal characteristics of modern architecture:

By means of studio exercises and discussions, the student is made familiar with the processes of thought and feelings which are basic in design and as a means to this end, given organized experience in the techniques of graphic expression and in the use of simple tools and materials. The student becomes acquainted with the fundamental concepts of *space, form, and function, and the primary structural relationships by which these are expressed and controlled*. The properties of materials are analyzed—their structures, surface qualities, plasticities, colors and characteristic forms—and applied *as elements in patterns*. A study of color and light, and the effects of these upon the perception of form and space, is included.⁷⁴

As previously, LeBoutillier began his course with series of mundane lettering exercises, but then used this opportunity to explore the notion of the pure line in space. Seen in a different context, the outlined letter thus becomes just one in a series of abstract elements, given new meaning as an autonomous composition. From this, the possibility of planes in space arise, which are provided with optical values through texture and color. The notion of space itself as a plastic element is examined, enveloping and inhabited by planar elements. Texture, color, proportion, symmetry are all subsequently examined as properties of the plane, before the student is allowed to tackle the problem of three-dimensional design in an axonometric study.

LeBoutillier's treatment of materials is shown in notes discussing its place in a possible course (reproduced in Appendix 4 on page 308), revealing again his debt to the Bauhaus *Vorkurs*, but here the intentions are solely towards familiarizing the beginning architectural student with a material palette. LeBoutillier makes a crucial distinction here between the actual, tactile properties of texture, versus its optical properties: texture was not irrevocably tied to haptic perception, but could also be understood in terms of its 'optical' texture, or pattern; texture could thus be discussed in terms of its visual effects, as well as its tactile sensations. The handout from his summer 1945 course on the 'texture' assignment shows how he distinguished between three varieties of texture, and their inclusion into a didactic program:

Discussion of the qualities and types of texture: Material texture, design texture, and Graphic texture. The tactile sense and function. the optical textures. The texture suggestion of certain pattern arrangements and their place in design.

Problem: An arrangement of material textures in a progression and a similar sequence of graphic textures. Design textures may be substituted for Graphic textures. Presentation scheme to be designed to convey the purpose of the problem and not that of a mere

74. Harvard Graduate School of Design register, 1944-45, 27; my italics.

abstract composition.⁷⁵

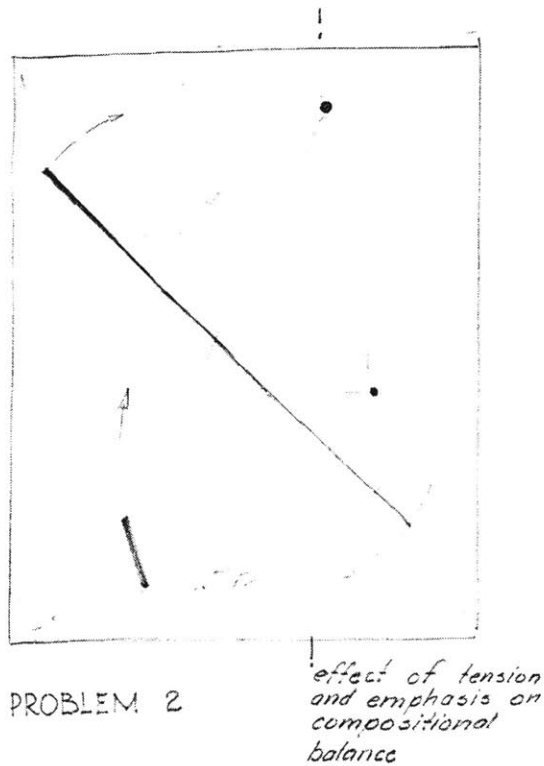
Textures now could thus be *drawn from the imagination*, as patterned elements [fig. 14 on page 261] rather than representations of real world objects; the link between object and material was now irretrievably broken.

By the late forties, LeBoutillier had refined the basic design course and felt sufficiently confident to completely eliminate the superfluous lettering exercises. In their stead he went directly to the abstract point and line graphic problems, developing the students' drawings into concepts about planes, volumes, mass, and space. He also began to incorporate Gestalt ideas about 'closed' or 'whole' form as a method of deriving planes and volumes from two-dimensional line drawings. While his earlier classes only looked to the spatial possibilities inherent in the point-line-plane exercise, the later design problems show his attempt to explicitly derive architectural form from graphic primitives. The initial problems are purely two-dimensional line exercises, uncovering compositional, empathic notions of tension, compression, shear, rotation, and balance, on the picture plane. These terms are not merely formal categories, but underly the possibility of understanding, describing, and ultimately conceiving of architecture on a formal basis; for instance, the point-line-plane exercises intimate "the notion of tension and the tension field as a basis for a structural system."⁷⁶ [fig. 2] These graphic concepts are consequently discussed in terms of its architectural implications, turning points into columns, and lines into walls, eliding the modernist abstract composition and the modern architectural plan [fig. 3]. The line divides the graphic surface into discrete areas [fig. 4], which are subsequently extruded into walls and volumes. Only in the final problem is an architectural studio design problem introduced, in the design of a scheme for an exhibition hall displaying a range of modernist artworks.

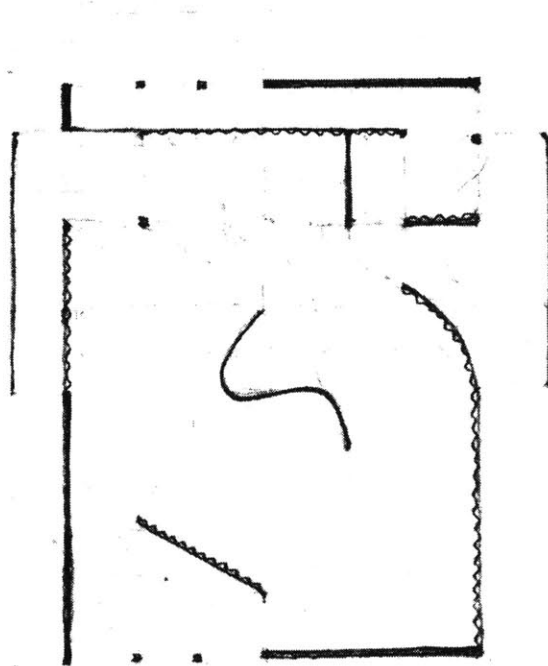
Here, LeBoutillier's notes reveal some of the pedagogical difficulties faced in bridging the gap between the abstract two-dimensional exercises, and their architectural end. He remarks here how "The success of the problems as value to the designers depend to a large degree upon the student's own determination to make the transition to applied uses. Here is the serious breakdown in the problems: too large

75. George T. LeBoutillier, Assignment 10, 'Texture Exercise', c. 1945 (George LeBoutillier papers, Harvard Graduate School of Design Special Collections). A handwritten addendum, dated Aug. 6, 1945 here notes that "This subject needs complete Revision. The problem and the approach to Texture are not satisfactory—either in the results or in appeal to the student imagination—Consider the possibility of combining texture and 'solid' volume."

76. George LeBoutillier, notes from lecture 3, Design I, 1948-49 (George LeBoutillier papers, Harvard Graduate School of Design Special Collections), 1.



**Figure 2: George LeBoutillier, sketch
for problem 2, Architectural Science
210, 1948**

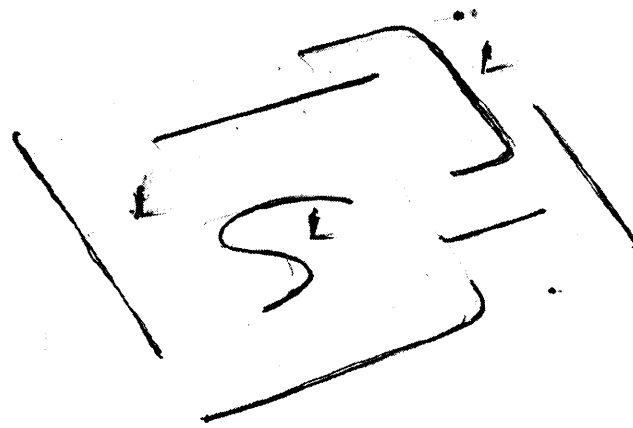


**Figure 3: George LeBoutillier, sketch
for problem 2, Architectural Science
210, 1948**

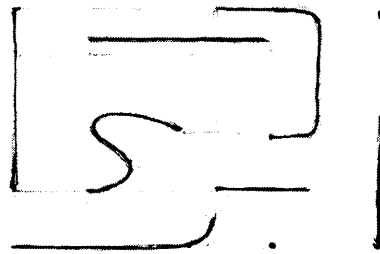
a majority of the students who may have done fairly well on the ‘abstract’ problems go into a fog just as soon as the assignment looks like an actual architectural problem.”⁷⁷ In other words, there was a lack of understanding in working the purely abstract composition, and its relevance to architectural design. Part of the problem the students were facing, however, was the cusp of a paradigm shift, between the functionalist, problem solving approach of the Gropius studio approach, and that more formalist methodology which treated functional concerns as purely secondary to the composition of the design. LeBoutillier for his part believed in the primary importance of visual composition as the means to the architectural object.

In his notes for the design class, LeBoutillier attempted to summarize his pedagogical agenda (as reprinted in Appendix 7 on page 311), discussing some of the issues and problems faced in the class. For

77. George LeBoutillier, untitled notes, c. 1948 (George LeBoutillier papers, Harvard Graduate School of Design Special Collections).



LINE AS A
SURFACE
DIVIDER.



POINTS
COMPLETE THE
TENSIONS

Figure 4: George LeBoutillier, sketches for Architectural Science 201, 1948

himself, the greatest challenge he faced as an instructor seemed to be the fact that the students had difficulty thinking in purely formal terms; that they instead attempted to continue to treat the graphic exercises as pseudo-architectural problems, with its associated technical and functional conditions and limitations. Instead, LeBoutillier wanted to have the student think in purely abstract terms of volume and space relationships, of architecture as a set of dynamic formal conditions answerable only to its own internal logic. It was not a question of reducing the architectural problem to a set of abstractions, but rather, thinking about architectural form in a fundamentally different manner.

iv. Gyorgy Kepes

While innovative in his own right, LeBoutillier's teaching efforts were not unique to Harvard's curriculum; indeed, MIT had also been investigating similar formal issues in its own curriculum as well from the mid-forties, beginning with the introduction of Gyorgy Kepes to MIT. Born in Hungary in 1906, Kepes was a member of Hungarian avant-garde group Munka from 1928-30, experimenting with techniques in photograms and photomontage. Greatly impressed by Moholy-Nagy's 1928 *Vom Material zu Architektur*,⁷⁸ Kepes went to Berlin in 1930 to collaborate with Moholy-Nagy. Both men subsequently left the German capital to flee the Nazi occupation in 1935 for London, working there on stage sets and exhibition designs. After Moholy-Nagy moved to the United States in 1937 to found the New Bauhaus in Chicago, Kepes accepted his colleague's invitation to direct the school's Light and Color Workshop, during which time he began work on *Language of Vision*, published in 1944.⁷⁹ In 1946, the same year of Moholy-Nagy's death, Kepes left Chicago to begin teaching at MIT, where he began a radical overhaul of the school's outdated introductory curriculum.

Previous to Kepes' arrival at MIT, the preliminary visual classes were derivations on well-worn Beaux-Arts methods. Drawing courses consisted largely of still-life exercises, copying of the classical orders, figure drawing, and finished wash rendering techniques. Working to steer the school towards a modernist agenda, dean William Wurster called upon Kepes to overhaul the fundamental structure of the basic classes and their role in relation to modern architectural design. Though unsurprisingly, much of the framework of the new foundation classes borrowed heavily from the Bauhaus *Vorkurs*, Kepes' own interests in light, color, and photography were also reflected in the new academic outline.⁸⁰

The Visual Fundamentals course, essentially a continuation of the same course he taught at the Chicago Institute of Design, attempted to organize the somewhat muddled organization of the Language of Vision into a coherent teaching structure. Visual Fundamentals was primarily concerned with the organization of graphic material on a two-dimensional surface, again incorporating the point-line-plane structure to develop the student's visual design sense. 4.031, the first part of the course, concerned the particular properties of a given form (its proportion, periodicity, mass, materials, synthesis), while 4.032, the following course, examined the organization of these forms (through number, modularity, space composition, particle development, plastic continuity). A representative 4.032 exercise derived from the

78. Laszlo Moholy-Nagy, *Vom Material zu Architektur* (Berlin, 1928); translated as *The New Vision*, trans. Daphne M. Hoffman (New York: Wittenborn, 1946).

79. Gyorgy Kepes, *Language of Vision* (Chicago: Paul Theobald, 1944).

80. A complete listing of Kepes' new courses are found in Appendix 8 on page 315.

point-line-plane structure, as outlined below, begins to study the spatial implications of the composition of various elements:

1. Study of the space expression that can be achieved by different relationship of the basic graphic signs. (point, line, shape) Just as the letters of the alphabet can be put together in innumerable ways to form words which convey meaning, so visual measures and qualities can be brought together in innumerable ways and each particular relationship generates a different sensation of space.
 - a. Study of the relationship of 5 different sizes of dots on a flat surface and in a 3 dimensional space frame.
 - b. Study the possible relationship of 5 different sizes and lengths of lines by changing their position, direction, intervals—on a flat surface and in a 3 dimensional space frame.
 - c. Study the possible relationship of the combination of dots, lines and rectangular shapes on the flat surface and in a 3 dimensional frame.⁸¹

Kepes also introduced classes in graphic presentation (4.051 and 4.052; largely derived from his own experiences with advertising media), painting (4.053 and 4.054; in relationship to stageset and exhibition design), and light and color (4.041, 4.042), his own topic of interest, the last of which explored various aspects of photographic and cameraless photography.

Unlike the standard photograph, the photogram had the peculiar effect of deflating spatial depth to a common plane, so that individual elements could appear more or less in the same plane, or conversely, in front or behind the other. Conversely, the ambiguous status of the picture plane also intimated a phenomenal expansion of depth, of multiple readings within the single image. It is of course this particular phenomenon which had been appropriated and revised by Rowe and Slutzky as 'phenomenal transparency'; recalling Kepes' own words in *Language of Vision*: "Transparency however implies more than an optical characteristic; it implies a broader spatial order. Transparency means a simultaneous perception of different spatial locations. Space not only recedes but fluctuates in a continuous activity. The position of the transparent figures has equivocal meaning as one sees each figure now as the closer, now as the farther one."⁸² It is a phenomenal reading of transparency which is literalized in the photogram, and which Kepes attempted to demonstrate in his classes in Chicago and MIT.

81. Gyorgy Kepes, Problems for Course 4.032, Spring 1948 (Gyorgy Kepes papers, MIT Museum).

82. Kepes, *Language of Vision*, 77.

Kepes' and Moholy-Nagy's photographic experiments had earlier initiated the possibility of the double reading, as with Albers' color research at Black Mountain College and Yale (some conducted through paper collage), but their relevance to architectural design had been somewhat unclear. If the drawing or photograph flattened, rather than enhanced, the tectonic and spatial qualities of the architectural object, then their exercises seemed to deflect away from their pragmatic application. Their intent, however, was to instill a level of abstraction to the architectural composition—not in order to obfuscate the problem, but rather to clarify the essential elements of visual design in building. The two dimensional surface cut to the essence of what could be expressed in three dimensions; it was not merely a visual shorthand, but was also a conceptual tool employed to understand the compositional aspects of the problem. The architect Joseph Maybank here describes the eventual epiphany he received only years after his exposure to Kepes' exercises at MIT as an undergraduate in the mid-fifties:

...I was a year out of M.I.T. before these lessons began to make sense. I was at T.A.C., working on the shadows in an elevation study—what we used to call a 'push-pull' (the 'push' begin the receding parts of the facade, the 'pull' being the parts that came towards you). It reminded me of an exercise I had done again and again under the direction of Gyorgy Kepes at M.I.T. Kepes had us glue bits of wood on a panel, and then photograph the shadows thrown by varying lighting. It had all seemed very abstract and impractical at the time.

Suddenly, in that drafting room at T.A.C., I realized you could do the same thing with a building. You could describe it entirely by casting shadows— you look at it as an abstract painting: line and color, light and shadow, solid and void. It was really a problem of *design*, and it wasn't until that moment that I understood the reasons for Kepes's designs.⁸³

This anecdote is revealing not only for its description of Kepes' understanding of architecture as a fundamentally abstract design problem, and the ways in which he attempted to engage the student in visual research, but as well, how deeply ingrained and unconsciously accepted this abstract approach in general had become, even within the team-oriented functionalist orientation of The Architect's Collaborative. Though it was their pragmatic decision-making which marked the office's reputation, it is clear here that the question of form remained a central aspect of modernist design. Architecture, that most three-dimensional phenomena of the arts, could in fact be distilled and defined as a two-dimensional

83. Joseph Maybank, "Harvard and M.I.T.: Onward from the 1950s," in *Architectural Education and Boston*, ed. Margaret Henderson Floyd (Boston: Boston Architectural Center, 1989), 126-7. The concept of 'push-pull' was most likely borrowed from Hans Hofmann's own pedagogical methods at his painting school in New York; for Hofmann, the aesthetics of 'push-pull' concerned a conceptual reading of depth through chromatic differences that did not depend upon traditional (perspectival) representational methods, but rather a perceptual understanding of color that was also explored by Albers. My thanks to Michael Leja for this connection.

construct. While Kepes for his part hardly strayed towards an explicit architectural intent (in distinction to LeBoutillier), it was perhaps his absolute focus on visual research which became ultimately more attractive in the development of a formalist architecture.

v. *Richard Filipowski*

As a sculptor, Richard Filipowski was the second artist to be hired in the School of Architecture at MIT after Kepes, and he augmented Kepes' primarily graphic sensibility with a sophisticated approach towards three-dimensional form. Filipowski began his artistic training as a student at the Institute of Design in 1942, but sufficiently impressed Moholy-Nagy to be offered to join the Institute staff on his graduation in 1946, assuming responsibility for the Visual Fundamentals course for the recently departed Kepes. While he had also studied architecture with Ralph Rapson at the Institute, Filipowski was primarily interested in pure over applied design, and concentrated his own work and research on the organic development of sculptural forms.

When George LeBoutillier left the GSD in 1950, Gropius invited Filipowski to join the faculty to teach the introductory design course in Cambridge, which he did for the next two years. As an experimental and occasionally contentious part of the GSD architectural curriculum, however, funding for the Basic Design course was continually tenuous, and finally was not granted a funding extension. Propitiously, Pietro Belluschi, the newly installed Dean at MIT, was eager to make his mark with new faculty hires, and was able to hire Filipowski in 1952, once again primarily to teach on problems of two-dimensional form and color. Two years later, though, the GSD budget had improved sufficiently for the school to present Filipowski the opportunity to return to his old position. As a counter offer to stay, Belluschi offered Filipowski the freedom to develop his own course and conduct independent artistic research, which he accepted. Consequently, Kepes' painting course was eliminated in 1954, replaced by Filipowski's 4.02, Form and Design class. Geared as much for the general MIT engineering undergraduate as for architecture students, Form and Design was intended to develop a background in two-dimensional understanding, and extend this knowledge towards the manipulation of three-dimensional forms. In a 1953 report of the Dean to the President, Belluschi attempted to justify Filipowski's exercises in abstract geometric structures in terms of their possible applications in structural engineering and architecture, arguing that the aesthetic component was an intrinsic aspect of the engineering design process:

For a number of years it has been felt that our curriculum, strong as it is in science, mathematics, and humanities, postponed too long the development of the student's esthetic vocabulary and his facility to manipulate and represent form. The appointment of Professor Richard Filipowski has been a major step in overcoming this weakness...

During the year Professor Filipowski worked primarily with third-year students, taking small groups in scheduled alternation with architectural design, or projects in the visual design studies aimed at awakening the tactile senses. Their constructions in plaster, wood, cardboard, and metals made them concentrate on structure and space and helped them to think of materials as rigid members, as sheets, or as plastic masses. This is an excellent complement to the engineering studies of structural analysis and building materials.⁸⁴

While some of the student projects are at least initially somewhat reminiscent of Buckminster Fuller's geodesic structures, Filipowski's conception of geometric form is more refined, and is closer to D'Arcy Thompson's landmark *On Growth and Form*,⁸⁵ in its analysis of organic modularity and biological diversity. While Thompson's text was already well known to Kepes and others at the Institute of Design, Filipowski's original contributions to its neo-Bauhaus interpretation lay in his understanding and manipulation of natural phenomena, their basic geometric conditions, and their three-dimensional, organic consequences. In distinction to Fuller's repetitive geometries, Filipowski presented the geometric primitive as a structure with organic potential for growth and change, with a coherent internal language that allowed for both a consistent identity, as well as the ability for variation and change within its specific physical and material limits. The resulting forms were simultaneously self-referential, internally coherent, yet also inherently structural, and architectonic in nature. In this, his thinking is remarkably similar to recent research on fractal geometry, though Filipowski's immediate interest concerned its three-dimensional, sculptural consequences, rather than its specifically architectural implications.

vi. *Robert Preusser*

The third artist to join the MIT faculty, Robert Preusser, was also a former student of the Institute of Design in Chicago from 1939 to 1942, and subsequently taught at the University of Houston Art Department, before joining the MIT faculty in 1954. As a painter, Preusser became responsible for taking over the introductory Form and Design class, leaving Kepes to concentrate his efforts on the Light and Color course. As with Kepes and Filipowski, Preusser had also taught a variation of the Preliminary Course at Houston, concentrating on two-dimensional graphic problems; Preusser's own interest on this topic concerned the particular gestalt effects of color fields, and like Albers, he taught color problems through the use of colored paper cutouts. Working from a set of basic chromatic conditions, Preusser attempted to show his students how color and its associated fields could intimate advancing or receding

84. Report of the Dean to the President, November 1953, MIT School of Architecture (MIT Archives).

85. D'Arcy Thompson, *On Growth and Form* (Cambridge: Cambridge University Press, 1917).

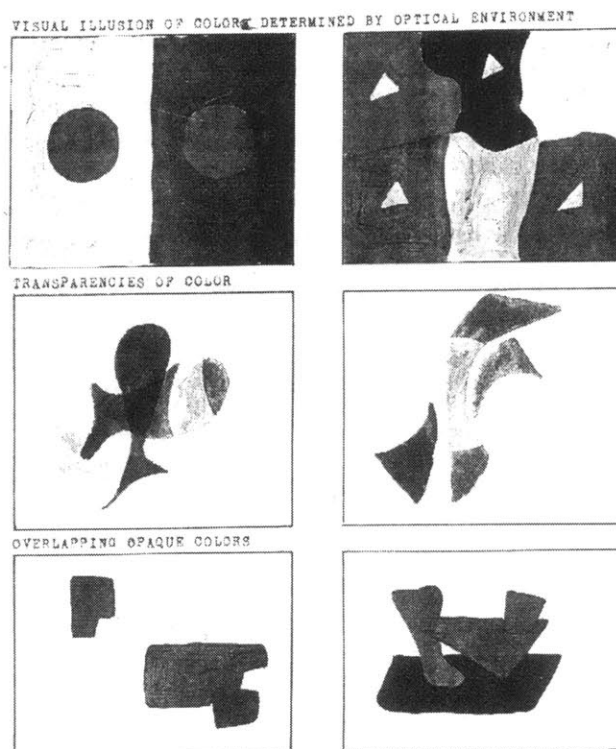


Figure 5: Robert Preusser, color gouache sketches and notes for 4.031, Visual Design Problems class, c. 1953

space; recession or relief; relative size and position; figure-ground relationships, shape, position, and so on [fig. 5]. In his Visual Fundamentals notes (see Appendix 9), Preusser also intimates ideas on phenomenal transparencies, derived from Albers' use of color fields and Kepes' reading of transparency. For instance, Preusser here notes how "color can be made to recede or advance by control of neighboring color," so that "this makes possible indication of space without destroying flatness of picture plane."⁸⁶ The manipulation of line and color is thereby "a means of allowing simultaneous perception of different spatial locations,"⁸⁷ turning a two-dimensional field into a virtual three-dimensional field.

Following Belluschi's cue, Preusser also made a concerted effort to relate his painterly research to the applied sciences, arguing that a general visual education could be applied to any aspect of form construction, from two-dimensional graphic design, to industrial design, the engineering sciences, as well as

86. Robert Preusser, Visual Fundamental notes, ca. 1953 (Box 3, Folder 28, MIT Library Archives).

87. Ibid.

architectural form. Like Filipowski, however, Preusser did not steer the Visual Fundamentals class explicitly towards an architectural end, but instead intended the course to serve as a general introduction to visual design, applicable to any of the fields of study at MIT. In this sense, it was reminiscent of the aims of the original Bauhaus Preliminary Course, but Preusser extended its aim beyond the visual arts, to the sciences and engineering technology.

vii. Robert Slutzky: Art, Education, and Gestalt

As both an undergraduate and graduate student in the Department of Art at Yale in the early fifties (it was reorganised in 1955 into the School of Architecture and Design), the young Robert Slutzky was exposed to the defining, if somewhat divergent, influences of Josef Albers and Burgoyne Diller. The former, a first generation Bauhaus master, strove to focus upon the perceptual effects caused by the variegated combination of color and pattern, at the expense of compositional variety. The second, an American devotee of Mondrian, delimited color in favor of working the compositional possibilities of the canvas surface. Slutzky's early canvases reveal somewhat more of Diller's neoplastic compositional aesthetic [fig. 6], perhaps as Albers never painted in the traditional sense, but Albers' disciplined invocation of color remained a guiding force in Slutzky's work. Slutzky examined Albers' research into color and pattern in relation to Gestalt psychology, which had both a Bauhaus pedigree (Gestalt psychologists had lectured at the Bauhaus), as well as a growing intellectual influence in the United States.

In his 1954 M.F.A. thesis paper, Slutzky looked into the influence and possible use of a Gestalt methodology for art education, referring to the Gestalt psychologist G.W. Hartmann. According to Hartmann, Slutzky noted, the learning process was best accomplished through goals set by the learner; that it should be a process of gradual discovery and organization; and that it should provide for continuous modification and change. This recalls not only Albers' own teaching methods, but also the Bauhaus and American Bauhaus influenced pedagogical practices at Chicago, Harvard, and MIT. Slutzky's review stressed the conception of art education in relation to the individual's total growth, and to art's role in relation to society at large; the idea of Gestalt was not simply that of a methodology confined to art alone, but indeed, outlined the possible parameters for understanding the role of the abstract work as a metaphor of social community: "We can relate the structure of painting to the structure of society, when

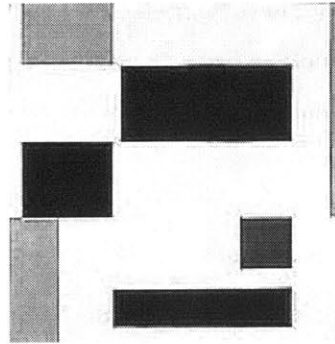


Figure 6: Robert Slutzky, *Red Square*, 1955

any sub-dominant ‘gets too strong’ the whole system suffers. It is precisely this that Albers refers to when he equates aesthetics with ethics.”⁸⁸

The idea of a carefully considered, balanced chromatic and compositional order, therefore had significant consequences far beyond the single canvas, reaching towards other disciplines in the arts and sciences. Slutzky felt there was “a minimizing of the unity of ‘artistic’ and ‘other activities’”⁸⁹ in present day education and that consequently “Artistic and other activities should be mutually correlated,”⁹⁰ adding that “On the university level there should be a closer understanding of the sciences, social studies, and fine arts.”⁹¹ In the case of the Yale art department, this naturally meant the inclusion of architecture into its sphere of concern. While much of this initially seems congruent to the old Bauhaus dictums, a slight but significant shift occurs with Slutzky’s reading, in the difference between a unified vision of artistic practice, versus the notion of Gestalt methods informing art and architectural practice. While the ideas of Gestalt perception may underlie both disciplines, it is through drawing and painting, as the ‘purer’ discipline, that fundamental constructs regarding form may initially be distilled, which consequently come to inform the architectural design process. Art thus comes to the service of architecture, guiding and informing form.

One of the most significant instances of Slutzky’s contributions to this area is of course the oft-cited ‘Transparency’ article, written with Colin Rowe in 1955. While Rowe seems to be regarded as the

88. Robert Slutzky, “Art, Education, and Gestalt” (M.F.A. Thesis, Yale University, Spring 1954), 28-9. A listing of Gestalt references in Slutzky’s thesis are recited in Appendix 2 on page 306.

89. *Ibid.*, 31.

90. *Ibid.*

91. *Ibid.*

principal author of this article, insufficient credit has been given to Slutzky's crucial painterly and intellectual contributions towards its formation (Rowe showed little or no interest in modern art to this point). The invocation of Kepes and Moholy-Nagy, the references and formal insights on analytical cubism, and the Gestalt reading of transparency, belong to Slutzky rather than Rowe, as well as the possibility of reading painting and architecture on the same conceptual plane. Indeed, Slutzky's interest in the distinction between 'literal' and 'phenomenal' readings can be traced back to his 1952 B.F.A. thesis, in which he examines the differences between the 'actual' and 'illusionistic' surface in painting. The artistic medium layering the canvas work comprises the actual surface of the painting, while its illusionistic surfaces reprise spatial qualities found in the traditional representational canvas: "the term 'actual surface' will be equivalent to the appearance of the paint surface superimposed upon a quasi two dimensional basic surface. Paint may lie on the canvas like a thin veil, as in a glaze..."⁹² The veiled surface hides its actual nature in favor of an illusionistic fiction, while actual surface (as revealed in synthetic cubism, or Schwitters' Merz constructions) resides as a tactile element. In some ways he recounts Greenberg's argument on the abstract canvas surface, but Slutzky was not interested in promoting a teleology of modernist abstraction; instead, he concentrated upon their differences and individual properties. The notion of surface crops up again later in his discussion of transparency, but it is literal transparency which is understood in terms of its illusory, fictive surfaces, while the literal flatness of Juan Gris' actual surface tensions on the canvas induce the possibility of a phenomenal, intellectualized transparency.⁹³

Ultimately, what distinguishes Slutzky's contribution from that of Albers or Rowe was his ability to bridge the void between modern painting and architecture, through a common underlying basis in reading art as pure form. Through Slutzky, the possibility of extending Kandinsky's original point/line/plane exercise into variants on the cube as an architectural studio exercise, along with the Nine Square Grid problem (both conducted with Hejduk beginning in the mid-fifties at Texas and the Cooper Union), occurred not through a simple logical extension from two to three dimensions, but demanded a critical

92. Robert Slutzky, "An Examination of 'Actual Surface' in Oil Painting" (B.F.A. thesis, Yale University, 1952), 1-2.

93. While some critics have claimed the authors of 'Transparency' were mistaken in their understanding of Gestalt theory, i.e. that Rowe and Slutzky read it in terms of a fragmented illusionism rather than a unified perception, Slutzky does distinguish between the two: "It should be explained here that when Gestalt psychologists talk of artistic form they imply 'illusionistic' rather than 'actual' form. My contention is that through the receptive powers of vision similar in most people 'actual surface' forms or actual textures can be substituted for the elements' 'field' and have significant meaning as such." His reading of actual texture was of course borrowed from Albers' texture collage exercises. From Slutzky, "An Examination of 'Actual Surface' in Oil Painting," footnote 21, 11.

conceptual leap from painting to architecture. This leap was made possible here because architecture itself could be treated as a two-dimensional object, read through a Gestalt aesthetics.

Painting and Architecture

Architecture Towards Painting

In the wake of the prominence given to American art in the international art scene following the Second World War, American architecture began to look to art in order to realign itself as part of a high cultural practice. The functional utility of wartime building primarily carried the technical aspects of modernism into mainstream practice; however, it was still unclear as to how architecture could be included in a theory or uniform style of art.¹ The industrialization of the building process, along with the transformation of military industrial plants to postwar domestic and commercial building production, became significant forces in the mass cultural reception of a modernist architectural style, whereas modern painting and sculpture, especially that produced by native artists, did not demonstrate the same attempt as the early European avant-garde to combine the arts into a cohesive and unifying practice.

The development of postwar American architecture as an artistic rather than an industrial activity therefore became the central issue for architects, teachers and critics interested in resituating the profession within the fine arts rather than the technical sciences. In some ways, this debate between *ars* and *techne* paralleled the early conflict between Henry van de Velde's support of the organic *Kunstwollen* against Hermann Muthesius' promotion of the mass produced type in artistic production. However, the American analogy differed in that building technology became central to the industrialized mass production of architecture, while painting and sculpture dominated the postwar art scene. Architecture as art-form did not yet understand its relationship with its sister arts in the contemporary situation.

At the same time, postwar American painters also became interested in architecture, though they were not driven to imitate architectural ideas per se, but rather came to architecture as a result of their own investigations in working the limits of the canvas. Postwar architecture and painting could then be seen to be related to one another: as architecture looked to painting as an alternative to the dominant programmatic functionalism of American modernism during the late forties and early fifties, painting began to find its conceptual limits bordering on the architectural. A symbiotic transformation occurred: as painting, especially mural painting began to take on the scale, material density and object nature of the vertical architectural surface, modern architecture in reverse worked towards the conceptual purity found in the two-dimensional image.

Rereading architecture as painterly construct necessitated some amount of translation; the autonomous frame of the canvas could appear either as an idealized metaphor for the plan as architectural gen-

1. Gilbert Herbert, *The Dream of the Factory-Made House* (Cambridge: MIT Press, 1984).

erator, or conversely as the basis for the generation of a section or elevation. The first approach looked to the images contained within the picture plane as ideogram, as an index of a three-dimensional gestalt oscillating between structural mass and contained volume. This was the most obvious and banal reinterpretation of the visual metaphor. Similarly, the superficial reading of picture plane as elevation (no matter how visually elegant or complex), could only lead to a conceptual dead end.

Out of this, however, came a second, more subtle reading of abstract painting which would lead the postwar architectural avant-garde towards a more rigorous and intellectual investigation of its own technical and intellectual apparatus: the successive layering of forms and planes of color within the ostensibly absolute flatness of the abstract canvas, insisted on the corollary perception of varying and limitless depth, as Rothko and Motherwell among others demonstrated. This double reading created the possibility for the architectural plan and section to be understood not merely as a two dimensional index of material form, but *if read as a painting*, the architect's technical documentation could also be seen as a successive conceptual layering of tectonic planes and volumes, in either horizontal or vertical section. The design consequences of this observation were two-fold: on the one hand, the architect's drawing now contained conceptual rather than mere illustrative meaning beyond the marks held on the flat surface of the architectural rendering; on the other, the architectural line regained a painterly weight, as the composition of the architectural plan turned to the interior fascinations held within the decorated diagram.

Greenberg's Crisis

To more fully investigate the epistemic trajectory of this position, we need to reevaluate the critical reception given to the relation between abstraction and the flat canvas through its principal author, Clement Greenberg. Greenberg's identification of the material flatness of the painterly object within an ineluctable teleology in the development of modern painting, became one of the significant defining factors in marking the intellectual superiority of American over European painting during the forties and fifties. However, these same conditions which marked this aspect of modernist painting also revealed a disturbing possibility of it becoming something else; that is, moving the delimited space of the canvas from the framed boundaries of legitimate painting, and into the material, four-dimensional realm of architecture. This tendency in the art of the sixties, which Michael Fried would later denounce as 'theatrical,' drove painting from material planarity to the tectonics of relief painting, the object realm of sculpture, and finally the occupation and delineation of space in architectural form.

It is an inherent dilemma which Greenberg himself introduced in presenting the terms of abstract expressionism's mastery through his reading of avant-garde culture. An advanced artistic culture, he claimed, could only be possible by its own deliberate separation from mass cultural operations, by working within the formal limits set up by the discipline itself. This necessary isolation, he added, meant that avant-garde production was concerned with working within the limitations of their respective media. For painting, this meant its destiny lay in understanding the material object nature of the canvas as its primary quality. The popular reading of Greenberg's argument emphasises the flatness of the abstract canvas as the primary aspect of American art's intellectual triumph. In his 1940 essay, "Towards a New Laocoon," for example, he identifies how this new understanding of the limits of the canvas begins to suppress the traditional reading of painting as window, and towards the conception of the painting as a progressively shallow, then absolutely flat space.

Under the influence of the square shape of the canvas, forms tend to become geometrical—and simplified, because simplification is also a part of the instinctive accommodation to the medium. But most important of all, the picture plane itself grows shallower and shallower, flattening out and pressing together the fictive planes of depth until they meet as one upon the real and material plane which is the actual surface of the canvas; where they lie side by side or interlocked or transparently imposed upon each other...²

The difference between perspectival illusion and material presence marks the distance for Greenberg between the old garde of European cubism's inability to shake off the yoke of perspectival illusionism, and American abstraction's realization of the intrinsic object condition of modern painting. It is at this high point in the discovery of 'pure painting,' however, that Greenberg also acknowledges in the same paragraph that it is with painting's discovery of its own materiality, that it begins to be something other than a purely autonomous practice: "A vibrating tension is set up as the objects struggle to maintain their volume against the tendency of the real picture plane to re-assert its material flatness and crush them to silhouettes. In a further stage realistic space cracks and splinters into flat planes which come forward, parallel to the plane surface."³ On the one hand, he points out, the represented objects on the canvas are absolutely suppressed, in deference to the flat canvas; on the other, this suppression instead emphasizes its original, real material presence. He points to Hans Arp here, as one instance of an

2. Clement Greenberg, "Towards a New Laocoon," *Partisan Review*, July-August, 1940; reprinted in Clement Greenberg, *The Collected Essays and Criticism*, vol. 1, John O'Brian, ed., (Chicago: University of Chicago Press, 1986), 23-38.

3. Ibid.

artist who took the logical step beyond working on the single plane, to relief work that emphasized depth and material construction.

The object of art here is art as object; that is, a varying series of media, painted, glued, crushed, pressed or otherwise attached to what was formerly the neutral ground of the planar canvas. The virtual, illusionistic depth represented behind the transparent picture plane is then replaced by a real, material relief of objects on top of the opaque canvas. Greenberg attempted to salvage his reading of abstraction by acknowledging the impossibility of painting as pure object; what makes painting painting and not sculpture or architecture, he later adds, is in fact its tendency towards illusion, towards a virtual rather than sensible depth:

“The flatness towards which Modernist painting orients itself can never be an absolute flatness. The heightened sensitivity of the picture plane may no longer permit sculptural illusion, or trompe-l’oeil, but it does and must permit optical illusion. The first mark made on a canvas destroys its literal and utter flatness, and the result of the marks made on it by an artist like Mondrian is still a kind of illusion that suggests a kind of third dimension.”⁴

It is this intermediary plane, then, between an absolute flatness and concrete presence that abstract painting is destined to occupy for Greenberg. For Mondrian, however, the element of the third dimension was not only contained within the rectilinear canvas; the unframed edges of his paintings presented a literal depth to the work, foregrounding the object status of the canvas. The free-standing installation of *Victory Boogie-Woogie* in Mondrian’s New York studio, for instance, cannot be merely attributed to temporary convenience or accident, but rather begins to occupy a reading of the painting as an object in relation to its environment.

In the large scale of American painting of the fifties, the issue of size becomes a critical factor in transforming the reading of painting from transparent plane, into an object as such. Greenberg had already been aware of this tendency, as much as he was unwilling to receive this as a legitimate painterly process. Unlike the wall mural, which is dependent upon architecture for its physical support, the large canvas begins to separate itself from its supporting structure through its physical mass. Separating itself from the supporting structure, the canvas becomes an independent vertical surface in space. Here, he writes how “There is a persistent urge, as persistent as it is largely unconscious, to go beyond the cabinet picture, which is destined to occupy only a spot on the wall, to a kind of picture that, without actually becoming identified with the wall like a mural, would spread over it and acknowledge its physical real-

4. Greenberg, “Modernist Painting,” *Art and Literature*, no. 4, Spring 1965; reprinted in *Modern Art and Modernism*, Francis Frascina and Charles Harrison, eds. (New York: Harper & Row, 1982), 8.

ity.”⁵ The persistent urge that he mentions here, of painter and painting to go beyond the confines of the frame, is found interestingly enough, at the exact point when absolute flatness is about to occur at the picture plane: the canvas, for instance in the large works of Rothko, Pollock, and Motherwell, in form, density, texture and scale, begins to impress their material presence in relationship to the viewing subject. Indeed, these painters were striving for this precise effect, in the intimacy of perception between viewer and object through the spatial, volumetric relationships found in the work of architecture.

It is Pollock who perhaps comes closest to literalizing this condition in the act of painting: the artist's method of placing and working the canvas on the floor transgressed the traditional spatial divide between painting and architecture, through the introduction of the horizontal as a painterly surface. Pollock makes this explicit in the well known 1947 description of his work method: “My painting does not come from the easel...On the floor I am more at ease, I feel nearer, more a part of the painting, since this way I can walk around in it, work from the four sides and literally be *in* the painting.”⁶ As the canvas began to take over the floor and walls of his studio, Pollock created a unique condition for his painting wholly unavailable within the space of any gallery environment, by transforming the literal flatness of the canvas into an illusion of depth that broke out of the immediate confines of the studio. Hans Namuth's well known mythologizing photographs of Jackson at work in his Long Island studio [fig. 1] during this same period, portray the artist within this continually evolving self-created abstract space, the site for a self-referential visual environment.

For Greenberg, this restructuring of abstract painting amounted to nothing less than a crisis for a tradition of easel painting stretching back to the early Renaissance. In his 1948 essay, “The Crisis of the Easel Picture,” he described how “this sort of painting comes closest of all to decoration—to wallpaper patterns capable of being extended indefinitely—and in so far as it still remains easel painting it infects the whole notion of this form with ambiguity.”⁷ He acknowledged however, that even the most advanced abstract painters explicitly aimed towards this type of visual ambiguity, and that they were interested in precisely this trajectory away from the traditional framed canvas. Greenberg marked the scale of this new kind of painting as “located halfway between the easel and the mural,”⁸ that is, as another genre of painting which does not depend on the wall for either support or structure, but rather as a shape that

5. Greenberg, “The Situation at the Moment,” *Partisan Review*, January 1948; reprinted in Clement Greenberg, *The Collected Essays and Criticism*, vol. 2, 192-96.

6. Jackson Pollock, “My Painting,” *Possibilities I*, Winter 1947-48. Edited by Harold Rosenberg and Robert Motherwell, the journal *Possibilities* lasted for only one issue.



Figure 1: Photo of Jackson Pollock by Hans Namuth

begins to pull away from the wall to form its own independent existence and relationship to the viewer. It is a kind of painting which he saw as having architectural aspirations.

The underlying issue at stake here concerns the dominant status of abstract painting in postwar culture, and with it, the autonomy of avant-garde painterly practices. In looking to architecture, he saw painting giving up its proper domain, relying instead on an outside discipline for inspiration. For Greenberg, painting's position of cultural primacy could be maintained only by an increasingly obvious adher-

7. Greenberg, "The Crisis of the Easel Picture," *Partisan Review*, April 1948; reprinted in *The Collected Essays and Criticism*, vol. 2, 223. A modified version of this passage occurs in his collection of essays *Art and Culture*: "Though the 'all-over' picture will, when successful, still hang dramatically on a wall, it comes very close to decoration—to the kind seen in wallpaper patterns that can be repeated indefinitely—and insofar as the 'all-over' picture remains an easel picture, which somehow it does, it infects the notion of the genre with a *fatal* ambiguity." Italics added. The notion of fatality emphasizes Greenberg's belief in the crisis facing traditional easel painting. Pollock was also well aware and acutely sensitive to the charges of decoration in his painting (primarily through Greenberg), as evidenced in the Naifeh and Smith biography, describing Pollock's collaboration with Peter Blake on an 'ideal museum': "When Blake suggested that 'it would be nice to have some pieces of [miniature] sculpture to provide contrast,' however, Jackson balked. 'What do you think I am,' he sputtered, 'just a decorator?'" Steven Naifeh and Gregory White Smith, *Jackson Pollock: An American Saga* (New York: Clarkson N. Potter, 1989), 588.
8. Greenberg, "The Situation at the Moment," *Partisan Review*, January 1948; reprinted in Clement Greenberg, *The Collected Essays and Criticism*, vol. 2, 195.

ence to an artificial critical construction based upon the relationship between the intrinsic properties and the autonomous identity of art. Consequently, this practice of deliberate contamination could only lead to pure painting's corruption and eventual demise, as he warned here: "Perhaps the contradiction between the architectural destination of abstract art and the very, very private atmosphere in which it is produced will kill ambitious painting in the end. As it is, this contradiction, whose ultimate causes lie outside the autonomy of art, defines specifically the crisis in which it now finds itself."⁹ By looking to architecture, painting entered a self-identity crisis and in doing so, was in danger of losing its position as the leader of the arts.

Though he was critical in many ways about the deteriorating ideals of autonomous painting at mid-century, Greenberg was nonetheless cognizant of the historical role the arts had on one another. While painting and music were artforms that contained the possibility for a wholly independent construction, architecture seemed inherently reliant upon the other arts for inspiration, and hence unproblematic in its attempts to borrow from the other arts. On this point, he noted how abstract painting clarified the conceptual development of the International Style: here, "painting—cubist painting—did serve to reveal the new style in architecture to itself, define some of its plastic ingredients and make their tenor explicit."¹⁰ In spite of the stylistic similarities between Gris, Ozenfant, Leger, and Le Corbusier's organic transformations of Purist volumes, for Greenberg Cubism's contributions to architecture were not so much in terms of a formal language, but rather the sense of simultaneity, transparency and layering that Sigfried Giedion outlined in *Space, Time and Architecture*.¹¹

Greenberg went further to say how there was a common artistic sensibility in America after WWII, one that encompassed architecture, painting and sculpture. Unlike the early European modernist avant-garde with the explicit goals of a unified artistic practice, the American corollary appeared to be a more or less ad hoc process, brought to bear through common formal investigations. In this regard, modern sculpture acted as the exemplar and intermediary between painting and architecture: "sculpture demonstrates more clearly than either painting or architecture those essential features of the new style

9. Ibid. He writes further about Miro, Picasso and Chagall's recognition of the "demise of the easel picture and, with only two destinations left for pictorial art—the wall area and the page—they have chosen the latter, for which they find at least precedent." Interestingly and ironically enough, the above mentioned artists would also involve themselves in architectural collaborations, for instance in Miro's 1948 restaurant murals for the Terrace Plaza Hotel dining room in Cincinnati, Picasso's work with Niemeyer in South America, and Chagall's monumental stained glass work *America*.

10. Greenberg, "Our Period Style," *Partisan Review*, November 1949; reprinted in Clement Greenberg, *The Collected Essays and Criticism*, vol. 2, 323.

11. Siegfried Giedion, *Space, Time and Architecture*, 5th ed. (Cambridge, Mass.: Harvard, 1967).

that are shared by all the visual arts in common.”¹² Although the architecture of the fifties and sixties did in fact undergo an extended period of fascination with sculptural form—usually awkwardly composed and heavy-handed—this literal sculptural quality was not in fact what he was referring to, but rather it was to sculpture’s tendency towards the flat plane that fascinated him. Not only painting and architecture, but perhaps most significantly, sculpture also participated in an investigation of planarity, of compressing three-dimensional form into two. He stated:

What most essentially defines the new unity of style in architecture, sculpture and painting is, however, their common tendency to treat all matter, as distinguished from space, as two-dimensional. Matter is analyzed into points, lines and the surfaces of planes that are meant to be felt as without thickness and possessing hypothetically absolute two-dimensionality of demonstrations in plane geometry. It is by virtue of this immateriality, this urge to reduce their plastic elements to the minimum of substance needed to body forth visibility, that modern architecture and sculpture can be with the greatest justice termed ‘abstract.’¹³

He identified a new genre of modern architecture as essentially ‘abstract,’ implying that it contained the same qualities of flatness and overall dispersion as the abstract expressionist canvas. Painting, on the other hand, was in danger of losing itself to the carnal pleasures of sculpture and architecture. However, this insistent drive to invert the traditional terms of painting from two-dimensional plane to three-dimensional object, which Greenberg and later Michael Fried saw as a threat to the practices of a legitimate (or legitimized) painterly practice, could never be wholly carried out. The conceptual break between the painted canvas, which is concerned with working the surface to represent, to be *something else* in addition to its literal objectness, and the wall in architecture, which stands to reveal its material presence—by its tectonic, semantic and syntactic relationships to an architectural structure—ultimately also points to a cultural philosophy and market economy dividing the architectural artifact from the painterly object. The mural format destroys the ability for painting to remain a distinct commodity, unless the work initiates an independent and complementary relationship with its architectural frame, i.e. it becomes architectural to some degree. This was the path that Greenberg warned of, and the one that Pollock began to pursue.

12. Greenberg, “Our Period Style,” 323.

13. *Ibid.*, 324-5.

Between the Easel and the Mural

My reading of Jackson Pollock here is not intended to act as a comprehensive summary; rather, what I wish to explore are certain aspects of the artist's works that may roughly be categorized as 'architectural.' That is, not only those formal aspects which Greenberg had pointed out as the double-edged quality of the abstract canvas, those that moved painting towards architecture, but also the way in which architects appropriated these latent qualities of the all-over painting in order to produce its architectural analogy.

Pollock's paintings, spanning from the traditional easel format dating from the Depression era to his last heroic all-over canvases, reveal the artist's continual struggle to question and dismantle traditional forms of visuality and artistic process. His first hesitant canvases, heavily influenced by the American regionalist painters Thomas Hart Benton and Albert Pinkham Ryder, and the Mexican muralists José Orozco and David Siquieros, outlined the path of figurative allusion, impassioned gestural, rhythm and color, that his work would follow through his brief, meteoric career. Pollock attempted to work the traditional limits of easel painting by posing basic questions about painting itself: what constitutes, what defines legitimate painting?;¹⁴ what is the relationship between the painterly gesture and the arbitrary sign?; how is the painterly object different from or similar to an architectural plane?

This investigation operated on two levels: at the visual plane and the tactile, material realm of painting. In spite of Greenberg's problematic formal model of postwar abstraction, his interpretation dominated the reception of Pollock's significance from the forties onward as the American triumph of pure painting. For instance, while the murky formal morass called upon by Michael Fried's 'purely optical' characterization of Pollock's 1947-50 work¹⁵ gives lie to such an overarching statement (on this, see Timothy J. Clark¹⁶ and Rosalind Krauss¹⁷ prescriptions against this reading), it is nonetheless important to see how this position gave rise to a generation of criticism and subsequent production which privileged the optical over the tactile. Through this lens, the formalist Pollock's multiple skeins of color are

14. Lee Krasner recalls how, in a mixture of mood swings and self doubt, Pollock continually questioned his work: "One one occasion, he pulled Lee into the studio and, pointing at *Lavender Mist*, asked, 'Is this a painting?' ('Can you imagine?' says Lee, still marveling thirty years later. 'Not 'Is it a *good* painting,' but 'is it a painting?')." Naifeh and Smith, 649. Also recounted in Elizabeth Frank, *Jackson Pollock* (New York: Abbeville, 1983), 105-6.

15. Michael Fried, *Three American Painters* (Cambridge, Mass.: Fogg Art Museum, 1965), 10-19.

16. Timothy J. Clark, "Jackson Pollock's Abstraction," in *Reconstructing Modernism: Art in New York, Paris, and Montreal (1945-64)*, ed. Serge Guilbaut (Cambridge, Mass.: MIT Press, 1990), 172-243.

17. Rosalind Krauss, *The Optical Unconscious* (Cambridge, Mass.: MIT Press, 1993), 243-308.

intentionally layered in order to oscillate and shift the optical space of the canvas between the immediate surface and a variable recession of indeterminate depth—what Rowe and Slutsky would some years later characterize in Gris and Leger (but, interestingly enough, no mention made of Pollock) as phenomenal transparency. In this interpretation, the figurative, unconscious symbolism that Pollock discusses, is overlooked or discounted in favour of the abstract, aleatory gestural stroke (Rauschenburg, Johns and Lichenstein all later comment on Pollock's 'automatic' gesture raised to the status of the carefully worked indexical sign of heroic high modernism), as the artist is transformed to an autonomous formalist.

All of which ignores the explicit symbolic figuration and calligraphy that resides throughout his work, as well as the 'problematic' lapse back into ambiguous imagery after 1950, which Greenberg pointed to as the artist's downfall from the 'classical period' of the all-over drip paintings. Greenberg maintained that the abstract expressionist painterly gesture was paramount in recreating that infinitely shallow depth inherited from the legacy of analytic cubism, tracing an automatic movement that did not admit of figure but only pure form.

As Krauss and others have pointed out, however, Pollock's optical effects are borne of a deliberate facture—whether industrial grade paint strewn over masonite, or india ink soaked into Japanese rice paper—that do not admit of an illusionistic recessional space or an equally fictional pure visual surface. Through his introduction to David Siqueiros in 1936, Pollock saw new technological means—industrial paint, silkscreening, spray guns, airbrushes, asbestos, plywood and masonite panels—used to create art outside the tradition of easel painting. In exploring the visual possibilities of line and color in the drip paintings, the specific object qualities of his work became critical to its definition and direction.

The case for the emergence of the painting-as-object can be detected in the increasing dimensions of Pollock's production: from the first canvases, barely a foot square, to the monumental scale of the 1950 *Autumn Rhythm*, measuring almost nine feet high by 18 feet long, Pollock intended to expand the physical size and mass of the work to the extent that the easel became irrelevant. While the relation between the artist's words and paintings were ambiguous at best, it is clear that Pollock explicitly mimicked Greenberg's formalist polemics for his 1947 Guggenheim Fellowship application, in which he repeated how he intended to "paint large movable pictures which will function between the easel and the mural;" he further went on to say that his paintings "would constitute a halfway state, and an attempt to point out the direction of the future, without arriving there completely."¹⁸

18. Francis O'Connor and Eugene V. Thaw, eds., *Jackson Pollock: Catalogue Raisonné of Paintings, Drawings, and Other Works* (New Haven: Yale University Press, 1978), 238; also cited in Naifeh and Smith, 551.

Though Greenberg anticipated a possible shift in abstract painting towards the mural format (Motherwell, Rothko and Rheinhardt, and others, were also involved in similar investigations of scale), what Pollock later discovered however, was that the 'halfway' state he envisioned would in fact constitute a new direction for painting, one in which painting would no longer be subject to the limitations of the easel format, nor tied to the specific architectural constraints posed by the mural. That is, the large-scale Pollock canvas could not only be hung on traditional exhibition walls, but it also had the ability to develop and demarcate its viewing space independently—it acted as a wall (Marcel Breuer recognized this capacity, in commissioning the unrealized mural from Pollock for the Geller House in Long Island).¹⁹

The architectural potential of Pollock's work is heightened by his experimentation with dimension, from the anthropomorphic proportions of the 1947 *Gothic*, corresponding the spectator's body to the painting, to the horizontal expanse of the 1949 *Number 2*, enveloping the viewer's field of vision. By working the relationship between the canvas and the viewing subject, these paintings act simultaneously as a projective mirror of the observing body, and as a vertical plane that initiates a dialogue with the observer. The limits of the painting are no longer traditionally circumscribed through its horizontal and vertical dimensions, but through its status as an independent object, marking and demarcating space.

This sense of independence is reflected in Elaine Scarry's ruminations on the corporeal qualities of inanimate objects, in *The Body in Pain*, in which she describes walls as projections of the body: "walls are also...independent objects, objects which stand apart from and free of the body, objects which realize the human being's impulse to project himself out into a space beyond the boundaries of the body in acts of making...."²⁰ Pollock's drip paintings in this sense retain this projective aspect in a very intimate manner, not only through mimesis, but also as the indexical evidence in the act of making. Here, gravity plays a unique role in marking the transition between artist and artifact: Pollock's vertical orientation in relation to the horizontal canvas marks the unique condition of making his work—the drip painting does not denote the slow vertical runoff of enamel drying on the wall, but rather marks the trajectory of color directed by force and gravity, soaked in and flung out at the point of impact.

In distinction to readings of Pollock which maintain the optical fiction of the 'allover' canvas, thereby denying the material specificity of the individual work, it is important to see how all of his paintings have discernable edge conditions, contained by their relationship with the boundaries of the rectangular frame: the grandeur of the 1950 *Autumn Rhythm*, for instance, acknowledges its physical limits

19. Naifeh and Smith, 600.

20. Elaine Scarry, *The Body in Pain* (New York: Oxford University Press, 1985), 39.

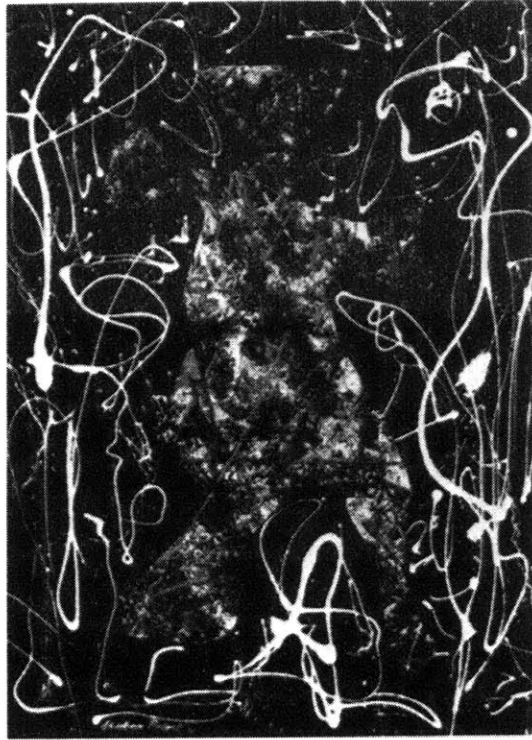


Figure 2: Jackson Pollock, *Cutout*, 1948

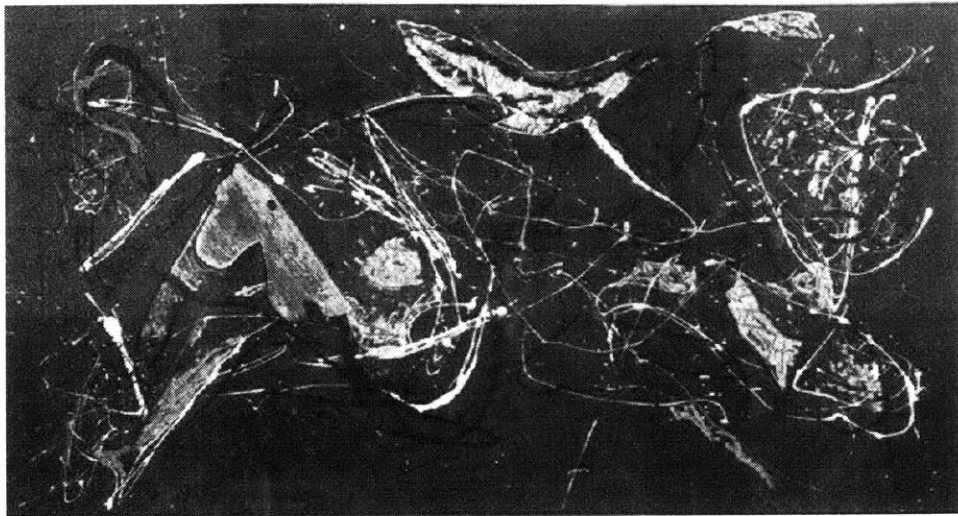


Figure 3: Jackson Pollock, *Hobby Horse*, 1948-50

through the lessening of intensity and the play of line and color against the edges of the painting. The Namuth film shows how Pollock circumnavigated his canvases, occasionally stepping directly into them, but always focussing upon the work as a distinct entity, the work in progress.

In contrast to the initial appearance of sloppiness and apparent random gesture, Pollock's production reveals the importance of the craft of making in each work. His experimentation with differing forms of pigmentation and painting surfaces, and the willingness to play with new methods of construction, test the limits of both easel painting and the mural. This is especially evident in light of the enigmatic works that are interspersed among the period of the landmark drip paintings: cutouts, collages, glass painting, and sculpture, mark Pollock's various attempts to explore visual expression beyond traditional means of easel painting. *Cutout* from 1948-50, [fig. 2] and the 1948 *Number 10A* (The Wooden Horse), [fig. 3] mark two poles of engagement with the painting surface which the drip paintings do not address: the negative and positive, backwards and forwards from the idealized, neutral visual plane. The former, a small oil on paper work interrupted by a crude cutout figure, is subsequently pasted on to a contrasting web of color on masonite. It is a work defined through negation, negation of not only Matisse's figurative silhouettes, but also a critical displacement of Pollock's own contemporary canvases: by laminating and exposing one layer through the other, the artist effectively counters the illusion of pure surface opticity and recessional spatial depth—the work is inexorably wrenched into the material, made world. *The Wooden Horse* works the other optical space: in answer to Hans Arp's biomorphic collages, Pollock creates an assemblage which attacks pure painting and pure collage, diffusing the borders between modernist high art and low brow ornamentation, the individual against the mass produced. In contrast to Picasso's 1912 *Still Life With Chair Caning* which upholds art as representative illusion, *The Wooden Horse* forefronts the issue of material presence: raw brown cotton canvas; dripped and etched oil and enamel paint revealing an impasto that is not concerned with the individual *fattura* of the artist, but rather the characteristics of the paint itself; a toy wooden cutout, pasted in, looking one way or another, or not at all, foregrounding its raw potentiality as one shape cast among a host of others.

If Pollock ever had a yearning for 'pure painting', it could perhaps be seen in the glass paintings he initiated at Hans Namuth's request, during the 1950 filming.²¹ The concept had come up with Peter Blake (the nominal director of *Architecture* at MoMA from 1948-49, architect and later editor of *Architectural Forum*) the previous year, in which Pollock and Blake posed the possibility of "a painting that wouldn't just be supported in midair but that was transparent, that you could see landscape through and beyond."²² This new form of painting would eliminate both easel and mural forms in abolishing the

21. Naifeh and Smith, 648-9.

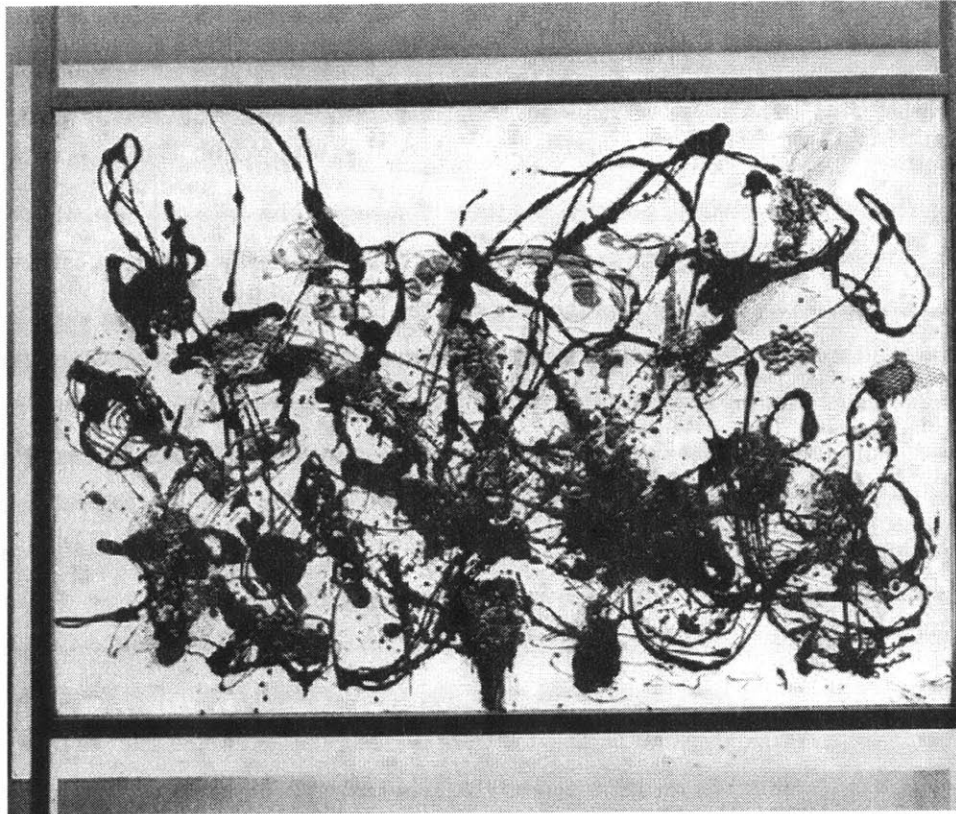


Figure 4: Jackson Pollock, *Number 29*, 1950

need for a secondary support, as pigment and support became equivalent. The result of the Namuth film, *Number 29, 1950*, [fig. 4] demonstrates not merely 'Pollock painting on glass', but shows that the artist recognized the medium's potential: the use of wire mesh, string, colored glass and marbles, reveals Pollock's interest in the varying degrees of transparency of the objects on glass, and the way in which the pigment acted as a glue, holding the various materials together.

Gravity, scale, dimension, craft, material specificity—all these terms marked Pollock's movement away from both the easel and mural format, and towards the construction of objects inhabiting and defining space. Pollock himself realized the architectural potential of the glass painting: "I think the possibilities of using painting on glass in modern architecture—terrific. The possibilities, it seems to me are endless, what one can do with glass. It seems to me a medium that's very much related to contemporary painting."²³ If however Pollock had no direct architectural pretensions, then certainly these later works,

22. Peter Blake, from Naifeh and Smith, 649.

along with the work of his abstract expressionist contemporaries, demanded acknowledgement of the formal consequences for postwar American architecture.

The historical importance of the close relationship between modern art and architecture had already been marked by the Museum of Modern Art in New York, which had started its Department of Architecture back in 1930. Curiously, Philip Johnson, the first director of the Architecture Department at MoMA, and also later during the immediate postwar years, had already built up a significant personal collection of modern art from the early European avant-garde, but showed little interest in contemporary American work. Johnson's understanding of modernism, like many others at MoMA, was still largely constrained by an account of high modernism that still had its heart in Paris. By the end of the forties, however, that view was changing, and it demanded American architecture also take notice. Peter Blake described the situation thusly: "in four short years, [1946-49] Jackson and one or two others changed the direction of modern art and shifted the center of gravity from Paris to New York. It was absolutely staggering. To young architects like myself, who believed that a similar shift of emphasis was possible in *our* art, this accomplishment seemed enormously encouraging."²⁴ Through painting, the doors to a new architecture had opened; what form this would take, however, was still to be decided.

Philip Johnson and the Museum of Modern Art

As Franz Schulze pointed out in the architect's biography, Philip Johnson played a central role in the promotion and institutionalization of modern architecture in the United States from the 1930s onwards.²⁵ However, it is also critical to relate his personal charisma and intellectual influence with his curatorship at the Museum of Modern Art in New York from 1930-32, and later from 1945-54. The critical role of the Museum in distilling and educating the American public to the new architecture has been rather underestimated to date, and indeed it can be argued how MoMA reinvented modernism as a viable formal, technological and social product of American innovation at mid-century. Here, the work of the Bauhaus emigre, the United States military-industrial complex, and the formal autonomy of non-representational painting, all became intertwined under the banner of a progressive domestic visual culture.

23. Interview with William Wright, November 1950; cited in Francis O'Connor, "Chronology," in *Jackson Pollock: A Catalogue Raisonné*, Francis O'Connor and Eugene Thaw, eds. (New Haven: Yale University Press, 1978), 81.

24. Peter Blake, *No Place Like Utopia: Modern Architecture and the Company We Kept* (New York: Alfred A. Knopf, 1993), 116.

25. Franz Schulze, *Philip Johnson* (New York: Alfred A. Knopf, 1994).

Beginning in 1930, the Dept. of Architecture under Johnson, and later with Peter Blake in 1948, and Arthur Drexler from 1951, became responsible for presenting modern architecture in the guise of the International Style as an essentially aesthetic phenomenon.²⁶ For them, the material transformations in the postwar building industry were indications of a progressive and dominant visual and material culture in America. Modern architecture in this particular sense could therefore be absorbed and presented in relation to concurrent activities in painting and sculpture.

In contrast to the moral, political and social agenda that initiated and propelled modernism in Europe in the first half of the century, the American reception of modern architecture was presented initially in terms of its visual effects, introducing a new visual language that also corroborated a sympathetic conception of contemporary painting and sculpture. American architecture in this manner was thus able to instantiate and justify a progressive modernism that aligned itself with the aura of high culture imported from painting and sculpture, while at the same time also referring to and retaining the moral authority of the Beaux-Arts ideal.

That is, the official classicism presented by the architecture of the Chicago World's Fair of 1893 set the terms (and, in many ways, continues to set the agenda today) for the role of American architecture as a fine art,²⁷ within the context of high culture at the turn of the century—at the same time that architecture as an independent professional discipline began to be taught in America. The classical reading of architecture as the mother art, as the principal artform that forms and guides the other arts, became the initial filter through which to interpret and distill the International Style in America. In this way, modernism could legitimate an air of cultural authority, alongside an association of economic and technological progress.

The interpretation of American modernism as filtered through a neoclassical lens, lent primarily by professors themselves trained within a Beaux-Arts regimen, meant that it was interpreted as a stylistic revision of an architecture that developed out of the same principles developed by the Ecole. The primacy given to typological precedent, the emphasis on planimetric composition, the spatial transitions of the *entourage*, and the progression of the *marche*, also became natural starting points for an architecture which ostensibly claimed to dispense with the visual legacy of the old academy.

26. Henry-Russell Hitchcock and Philip Johnson, *The International Style* (New York: W.W. Norton, 1932).

27. For a perceptive outline of the images and urban consequences of the Fair, see Barbara Rubin's "Aesthetic Ideology and Urban Design," in *Annals of the Association of American Geographers*, vol. 69, no. 3, September 1979, 339-361.

Thus, the 1932 Modern Architecture Exhibition at the Museum of Modern Art, organized by Johnson, Hitchcock and Barr, interpreted the International Style through Wölfflinian terms of linear planes and plastic form, and Frankl's understanding of the relationship between form and spatial volume. Franze Schulze underscored this bias, in pointing out how they "persisted in their shared belief that modern architecture was noteworthy primarily as a phenomenon in the history of art,"²⁸ in ignoring Lewis Mumford's assertion of modern architecture's social and technical innovations. The International Style could therefore be incorporated within the nascent history of modernism developed by MoMA, emphasizing its relation to abstract painting and sculpture. In 1938, the museum mounted a major Bauhaus exhibition that concentrated upon Gropius' directorship during the years 1919-28,²⁹ and thus in part brought into forefront his new leadership role at the Harvard Graduate School of Design, along with the introduction of Breuer, Mies, Albers, Moholy-Nagy, and other Bauhaus expatriates into the staid American architectural academy.

After Johnson's extended leave from the department at the end of 1934, the museum continued to propagate modern architecture as part of a progressive attitude in American culture. In his absence, the Architecture Committee for the museum played a significant role in its direction and activities through and after WWII: chaired by Philip Goodwin, other committee members included Winslow Ames, Catherine Bauer, John Coolidge, Talbot Hamlin, Joseph Hudnut, Carl Feiss, Henry-Russell Hitchcock, Edgar Kauffmann, Jr., George Nelson, Stamo Papadaki, Alfred Barr Jr., and the curator John McAndrew. Though he was largely absent from its affairs during this period, (due to an ill-fated and short-lived interest in reactionary politics in the Midwest and Berlin) Johnson was also one of the committee's honorary members. It is interesting to note that Johnson's importance to the Museum was such that his domestic political forays were overlooked in favor of his influence in the cultural politics of American modernism.

In order to promote its new vision of a modern American architecture, the museum designed a pedagogical series of travelling exhibitions on modern architecture, divided into two main audiences: one group of works was intended to be lent to the more educated viewer in smaller regional museums, colleges and universities, and looked at more specific aspects of modern architecture. The best known exhibition of this group, "Built in USA," examined developments in American architecture since 1932; a smaller show, "A New American Architecture," was culled from this show and lent to high schools. Other noteworthy travelling exhibitions developed by the museum during this period included "The Les-

28. Schulze, 77.

29. Schulze, 172.

son of War Housing,” an overview of military housing design and construction with implications for the postwar housing industry; “Regional Building in the United States,” a significant exhibition that showed both traditional and modern architecture, highlighting (and at the same time, somewhat marginalizing) the contributions of modernists such as Richardson, Wright, Howe, and Wurster; and “Modern Architecture for the Modern School,” a survey of recent school designs incorporating innovative designs and social programs.

The second, smaller group of travelling exhibits was designed to be more educational in nature, and they were intended to be loaned at relatively low cost to regional high schools, libraries, clubs and hospitals primarily in the Northeast (but also later to the South and out west to California). The first exhibition, “What is Modern Architecture?,” which began in 1938 and lasted with some modifications through the war years, featured not only such foreign notables as Le Corbusier, Mies, and Aalto, but it also showed work by American architects working in a modernist vein, including Kahn, Stonorov, Hood, and Wright.

The show was accompanied by a short booklet which outlined the basic visual principles of modernism, as initially laid out by the tenets of the International Style.³⁰ Divided into two parts, the first section was a basic visual introduction to the modernist idiom according to traditional Vitruvian principles, in an attempt to alleviate any middle class discomfort about the ‘new’ aesthetic, as well as catering to the message of economic and industrial progress; the following part then demonstrated a number of contemporary examples of this new architecture. The museum stated how this was intended to be “An Introduction to modern architecture showing that the traditional requirements of usefulness, sound construction, and beauty are as important and apparent now as they have been in the great styles of the past. The exhibition explained how changes in living have affected changes in building in the 20th century, and shows new materials, methods of construction, and architectural theory have recently developed.”³¹

30. *What is Modern Architecture* (New York: Museum of Modern Art, 1942). The travelling exhibition, consisting primarily of photographs and plans, cost \$12 for an average loan of two weeks. This book series began with the *Guide to Modern Architecture, Northeast States* (New York Museum of Modern Art, 1940), a regional survey edited by the then current curator of the architecture department, John McAndrews, and this was later followed by Edgar Kauffmann, Jr.'s *What is Modern Design?* (New York: Museum of Modern Art, 1950). The museum also published a similar guide on modern painting by Alfred Barr, Jr. [*What is Modern Painting?* (New York: Museum of Modern Art, 1943)]. The museum's regional bias is apparent in McAndrew's initial emphasis on modern architecture in the northeastern United States, leaving out significant work done in California and the Midwest.

31. *What is Modern Architecture?*, unpaginated.

The text highlighted the notion of architect as modern artist, by their mutual incorporation of abstraction. Modern sculpture was closest to architecture because of its emphasis on pure form in space, built on their common legacy beginning with Ictinus, spanning Borromini and Le Corbusier to the present: "Like many modern painters and sculptors modern architects admire the severe beauty of abstract forms. The precision of modern construction allows the architect to reveal harmoniously proportioned rectangles or smooth cylinders in their full perfection and purity."³² Architecture as defined here was not simply the result of utilitarian expediency and technical progress, but rather "is an art, moreover, and while it makes good use of science it is not subservient to it. Science can guarantee the durability and practical usefulness of a building, but only the creative imagination of the architect can give it beauty."³³

Following this show, the next exhibition on "American Architecture," presented during the war years from 1942-45, presented a capsule history in three parts: the first examined the developing architecture of the colonies; the second showed the 'Pioneers of Modern Architecture,' as shown by Richardson, Sullivan, and Wright; and the third presented 'Modern American Architecture' as the formal culmination of the social and cultural forces that created modern architecture in the United States. This promotion of American architectural design during the war years also coincided with a developing critical awareness of American painterly activity as an incipient native avant-garde. Because architecture did not participate (for the most part) within the New York gallery system for the visual arts, the MoMA Dept. of Architecture took the lead in promoting modern architecture, and specifically emphasized the critical role of American architects in the development of the International Style.³⁴

When Johnson resumed his curatorship at the Museum in 1946, he also brought his well cultivated *bricoleur* sensibilities to his understanding of the role of architecture as high cultural practice: modern

32. Ibid., 17.

33. Ibid., 5.

34. It is interesting to compare the architectural reception of the 'International Style' term in relation to its darker connotations in art and politics at mid-century. While modern art and architecture in America had always looked to Europe for its inspiration, this had to be distinguished from any connection with the globalizing spectre of Marxism and fascism post 1945. Guilbaut here mentions for instance, how the New York Times art critic Edward Alden Jewell took pains to differentiate between 'international' tendencies in art sponsored by leftist artists such as Gottlieb and Rothko, versus the more politically acceptable concept of a 'universal' art form: "International,' [Jewell] said, 'refers to politically separated groups rather than to humanity, whereas "universal" art roots in individual experience and for that reason may have a profound appeal for individuals anywhere.' At the same time 'universal' art would be profoundly American, since the artist would have taken his inspiration from his own personal experience, which was of course American." See Guilbaut, 119.

architecture did not reside merely as part of the general ethos of twentieth century visual practice, but indeed formed a central guiding part in its development. His first major postwar exhibition in 1947 reintroduced Mies van der Rohe to an American audience, and here he made pains to stress not merely the German architect's passion for technical perfection, but also his deep interest and involvement with architecture as part of the visual arts.³⁵ Johnson's strong interest in modern art formed the basis for an unrealized travelling exhibition in 1946 along the same lines as the previous shows, but this time with an emphasis on the role of art in the work of architecture. Unfortunately, his initial attempt at comparing the modern arts never went beyond the initial proposal, and the idea was eventually cancelled in the wake of a departmental reorganization.³⁶ The notion of pairing painting and sculpture with architecture remained with Johnson, however, and along with the heightened attention given to postwar American painting, gave him the opportunity to use the Museum as a forum to explore the possibilities for a new synthesis between the arts. In so doing, he was also able to resituate architecture out of the realm of pure functional and technical utility, and in the realm of the fine arts.

Painting and Sculpture in Architecture

The exhibition that eventually resulted from the unrealized 1946 proposal revealed not only his view of the relationship between art and architecture, but it also marked the beginnings of the postwar cultural dominance of American architecture, in its deliberate alignment with abstract painting and sculpture. The show, *Painting and Sculpture in Architecture*, began in August of 1949, travelling to high schools, colleges and museums across America from 1949 to 1953.³⁷

The publicity release accompanying the exhibition reveals Johnson's reading of architecture as high art practice, situating the legacy of the International Style as the beginnings of a modernist renaissance among artists. By doing so, the radicality of any modernist break was instead replaced by an insistence upon an historical affiliation between past and present. Here, modern architecture's explicit lack of ornamentation became the watershed for a new revival among artists and architects; the text here is particularly revealing, in its attempt to relate contemporary artwork with recent modern architecture:

35. Philip Johnson, *Mies van der Rohe* (New York: Museum of Modern Art, 1947).

36. MoMA archives, Box 37, II.1/37(5).

37. MoMA Archives, Circulating Exhibitions, Box 89: *Painting and Sculpture in Architecture*. The exhibition circulated to the Boston Museum of Fine Arts in 1951, and two years later to the Harvard Graduate School of Design, during Gropius' tenure.

This exhibition surveys the history of the successful collaboration of architects, painters and sculptors, and points to the beginnings of a new cooperation of these artists within the modern movement.

Architecture in itself, in the considered and abstract relationships of its shape, masses and planes, may be considered a form of sculpture. Examples ranging in time from the temples of Egypt to Frank Lloyd Wright's Taliesin West illustrate this point with equal clarity. Certain elements of architecture, columns, stairs, roofs and ceilings, have always lent themselves either to abstract sculptural treatment, or to the use of the art of the painter or sculptor; sometimes the synthesis is so complete, as in the Royal Portal at Chartres, that sculpture and architecture become one.

This complete collaboration, representing the high point in any cultural period, was made virtually impossible by the new architectural philosophy of the twentieth century. To eliminate the meaningless and eclectic decoration that had smothered architectural forms throughout the Victorian age, architects returned to the direct and expressive use of materials, without the stigma of "style" or the camouflage of ornament. This strict employment of the visual and textural qualities of the materials themselves for a disciplined esthetic effect, eliminated the work of the painter and sculptor. Almost automatically, any painting or sculpture used became an applied, rather than an integrated element. However, as modern architecture becomes an assured art rather than an experimental expression, architects, painters, and sculptors are learning to work together again, within the new idiom, toward a full synthesis of their arts comparable to the successful collaboration of past ages.³⁸

Against the prosaic tendencies of American postwar building, the exhibit intended to remind its viewers of the fundamental art of architecture, and of the close formal and cultural bonds between architecture and its related arts. Presented as a thematic historical survey, *Painting and Sculpture in Architecture* viewed the International Style as the natural progression and culmination of architecture as the synthesis of the arts. The pieces, primarily photographs, were divided into eight sections focussing on selected architectural themes: section I examined the notion of architecture as sculpture, from Stonehenge as the original prototype, to the Acropolis, and then making a subsequent leap to modernist icons such as Mies' Berlin skyscraper project, Lubetkin's penguin pool at the London Zoo, and Wright's Taliesin West compound in Arizona. Section II looked at the column as an isolated formal element, ranging in style from the Parthenon (again, as classical prototype), to Bernini's serpentine columns for the baldachino at St. Peter's; Mies' chrome elements at the Tugendhat house, and the plastic inverted columns of the Johnson Wax Co. building. Other sections included an examination of stairs (III), roofs (IV), wall penetrations (IVa), applied sculpture (IVb), and freestanding sculpture (V).

38. *Painting and Sculpture in Architecture*, publicity release, 1. The reference to Chartres also brings to mind Johnson's own well known nascent revelatory experience with the cathedral; see Schulze, 45.

The sections on sculpture examined how artists worked both integrally and isolated from the architectural space, and reciprocally, how architects historically viewed their work as large sculpture. Recalling Hitchcock's landmark *Space, Time and Architecture*,³⁹ the exhibition catalog stressed the primacy of space-making and its relationship to form in modern architecture. Unlike Hitchcock, however, who saw the developments in modern architecture as part of a zeitgeist reflecting contemporary science and culture, the MoMA exhibition catalog instead emphasized how architecture was foremost an artistic activity investigating common themes explored by painting and sculpture:

The elements of architecture are space, form and plane. Their interplay and their relationship to each other can be an exciting experience in itself. To modern architects this experience of pure and unadorned building became not only an economic necessity; it became an esthetic need as well. For one of their principal aims was to break with the over-decorated eclecticism of the past century.

In trying to avoid superfluous decoration many modern architects at first rejected collaboration with sculptors and painters. In recent years, however, many of them have come to recognize this gap in their work—a gap which only the work of other artists can fill. Instead of relying solely upon the sculptural qualities inherent in architectural forms, they have called upon sculptors to provide a focal point of spaces and walls. And instead of relying solely upon the textural qualities of their surface materials, they have called upon muralists to give scale and drama to a wall or ceiling plane.

This exhibition demonstrates the possibilities of collaboration among all the artists whose elements are space, form and plane—architects, sculptors and painters. It draws upon a part of the rich western tradition of collaboration among artists. And it shows the continued validity of such collaboration in the examples from the architecture of our time.

All architecture is, in a sense, also sculpture

Modern architects attempted at first to return to the barest essentials in building

Their walls, floors and ceilings were, therefore, designed principally to count as textural planes, composed in a deliberately stark simplicity. The textures of stone, wood, marble, glass and metal replaced the fantasies of stained glass, mosaic-stone and paint.

In more recent years, however, attempts have been made in Europe, South America and in the United States, to return to the rich tradition of mural painting, and to interpret it in the spirit of the new architecture.⁴⁰

39. H.R. Hitchcock, *Space, Time and Architecture* (New York: Oxford University Press, 1941).

40. *Painting and Sculpture in Architecture*, exhibition catalog, unpaginated.

The Mies of the Barcelona Pavilion and the Tugendhat House are most obviously evoked in these passages, that is, in a modernism stripped of ornamentation, relying only upon the inherent characteristics of the building material for visual effect. Two diverging tendencies are revealed in these passages: on the one hand, it points to the incipient plastic work of architects such as Niemeyer, Breuer and Saarinen; on the other, the minimalist surfaces presented by the modernist palette began to reincorporate mural work (as shown also by Niemeyer). That is, sculpture and painting were two simultaneous forces vying for the attention of architectural design.

In the case of Peter Blake's 1949 project for a Pollock museum (discussed at length later), modern painting, sculpture, and architecture converge in an abstract expressionist transformation of the Barcelona Pavilion. Pollock's all-over canvases are punctuated by sculptural forms which act as spatial pivots and markers against the undifferentiated grid of the museum space. In this manner, the paintings mediate between the architecture of the vertical plane surface, and the volumetric presence of the sculptural object. The Pollock sculptures themselves are manifestations of the implications of perspectival depth in his canvases (in obvious distinction to Greenberg's claims): "Pollock's heavy application of paint to canvas itself sometimes approaches the three-dimensional effect. His first attempt at sculpture, shown here, is evidence of an effort to give greater substantiality to his calligraphic, abstract designs."⁴¹

The last three sections of the exhibition examined the relationship between painting and architecture: section VI examined the historical role of painting on architectural surfaces; section VII looked at the role of texture and pattern; and section VIII summed up by presenting the collaborative work of modern architects and painters. Beginning with Sert's Spanish Pavilion for the World's Fair in Paris of 1937, enclosing Picasso's *Guernica*, other contemporary examples were included, such as Niemeyer's Chapel of St. Francis in Brazil with its decorative stained glass work; the Caldron Theater in Hempstead, New York by William Lescaze and Max Spivak; and Juan Miro's 1948 commission for the Terrace Plaza Hotel restaurant, in collaboration with Skidmore, Owings, and Merrill [fig. 5].

The aesthetics of the International Style here work the wall in two distinct ways: as independent tectonic plane, and as neutral backdrop for painting. It was the latter, however, through the virtual compression of the wall to a two-dimensional abstraction of the vertical plane, that architecture and painting could once again be reconciled and the arts could therefore rediscover a unified formal sensibility. At the

41. Ibid. Blake himself most likely wrote this passage, as evidenced in this anecdote: "When I joined the Museum of Modern Art, Bertha Schaeffer put on an exhibition of artists working with architects, and I wrote in the catalogue about Jackson's work in relation to architecture." From Jeffrey Potter, *To a Violent Grave: An Oral Biography of Jackson Pollock* (New York: G.P. Putnam's Sons, 1985).



Figure 5: Juan Miro, Terrace Plaza Hotel Mural, 1948

same time, however, modern painting starts to work in the opposite direction; that is, the new heroic scale of postwar American abstraction inverts its own identification with pure planarity as proposed by Clement Greenberg, and instead approaches the scale and tectonic depth of the wall plane. It is this oscillation between the plane of the wall and the ostensible plane of painting, which is astutely pointed out in *Painting and Sculpture in Architecture*. Here, it is precisely these transgressions which are responsible for the possibility of a unified artistic sensibility. The following passage points out how the traditional two-dimensional boundaries of painting and drawing were being tested by artists who aimed to transcend the limitations of the frame:

A painter's pre-occupation with recreating three-dimensional objects on a two-dimensional surface, may at certain critical moments of his development, result in a need actually to create forms in the round.

Like his sketches and drawings, a painter's sculpture is revealing in relation to his canvases, and is distinguished by the same stylistic characteristics. Indeed, his sculpture may be of particular significance, heralding a new development in his work.⁴²

Even with the case of the later Mies, in his 1942 project for a concert hall, for instance, the sensuous materiality of marble and travertine surfaces shown in his earlier work were displaced by a reductionist collage of pure shape and pattern. Similarly, the reflective multiplicities of the glass surface in the 1929 Barcelona Pavilion are here set aside in the 1938 Resor house project in Jackson Hole, in favour of the heroic expanse of pure transparency, where background is compressed to the foreground, the house

42. Ibid.

acting as a visual framing device for Mies' architectonic interpretation of the transcendental Romantic landscape in America.⁴³ Johnson's reading of Mies is revealed in the text for the architect's 1947 retrospective, where he writes how Mies' museum design for the *Guernica*

is the most elaborate expression of his theories governing the use of painting and sculpture with architecture. Just as in the Barcelona Pavilion and the house for the Berlin Building Exposition, works of art are used as an integral part of the design, but they are never required to sacrifice their independence. They enhance the architecture while the architecture enhances them...The relative 'absence of architecture' intensifies the individuality of each work of art and at the same time incorporates it into the entire design. Thus *Guernica*...is clearly an independent painting, *while functioning architecturally as a screen that defines the space around it.*⁴⁴

Johnson sees Mies here approaching a virtual flattening of the vertical plane in architecture, and towards the picturesque, painterly two-dimensionality of surface texture and form. Architecture is absent in its material form, replaced by a collage of surface images. The architectural aspirations of painting which Johnson pointed out were being tested by the American abstract expressionists, through the manipulation of shape, scale and material. The traditional elements of architecture, space and structure, were being incorporated into artistic paradigms, while architecture sought to regain its roots in art in a literal manner, through the use of drawing and collage. The commonalities in postwar visual practices were therefore not arising so much from shared experiences as from their attempts to transgress the limits of their own respective disciplines. The *Painting and Sculpture in Architecture* show recognized this condition in its attempt to revive a collaborative atmosphere between the disparate arts, as outlined in the following passage:

These examples illustrate the result of collaboration among painters and architects. There is today a very real fight for possession of the wall between painters and architects. But just as this fight was often arbitrated successfully in the past, so it can be arbitrated today.

All over the world today there are encouraging attempts at real collaboration between painters, sculptors, and architects—encouraging enough to be considered the possible start of a new tradition. Whether this possibility becomes a certainty, will depend in part upon the terms on which the exponents of the different arts can learn to cooperate. The first step, then, is to resolve the battle for possession of the wall or the space, and to present to the outside world an example of cooperative action.⁴⁵

43. This point of course was not lost on Johnson, who used the Resor and Farnsworth house concept of architecture as frame for the picturesque landscape, as the inspiration for his own New Canaan residence under construction in 1949.

44. Johnson, *Mies van der Rohe*, 154, 156. The latter emphasis is mine.

The battle which is alluded to here between architecture and painting, was not solely about style—that is, the expressive distance between the spare, carefully modulated proportions of the International Style, versus the deliberately individuated vision of postwar American abstract painting—the larger, unspoken question tested their disciplinary limits, of what properly belonged to the art of building, against the construction of painting.

What is Happening to Modern Architecture?

The attempt to align American architecture with the formal inventiveness and ideological supremacy associated with abstract painting, therefore developed within the context of an institutional framework that could promote an advance guard for a culturally informed upper-middle class. At the same time, there was some question as to the degree to which an aesthetic model of modernism could be accepted. Lewis Mumford, one of the original authors of the *Modern Architects*⁴⁶ book that accompanied the 1932 International Style show at MoMA, later became one of its central critics, claiming its sterile functionalism had little to do with contemporary needs or the specifics of place (to be sure, Mumford's responsibilities in the text was limited to the issue of social housing).

As early as 1932, Mumford regularly used his monthly column "Sky Lines" in *The New Yorker* to criticise modern architecture for its obsessions with formalist aesthetics over social needs. In the October 11, 1947 issue, Mumford asserted that the International Style was not a valid model for contemporary American architecture: "What was called functionalism was a one-sided interpretation of function, and it was an interpretation that Louis Sullivan, who popularized the slogan 'Form follows Function,' never subscribed to...Well, it was time that some of our architects remembered the non-mechanical and non-formal elements in architecture."⁴⁷ The original functionalist model of modern architecture, Mumford argued, was inherently flawed and now outdated, and it needed to be replaced by an architecture that responded more to regional tradition and social needs. He pointed to architects such as Maybeck and Wurster as part of a Bay Area regional style, the domestic salt boxes of New England, and alluded to European architects like Aalto who were more interested in what Mumford termed a humanist rather than a functionalist understanding of modern architecture.

45. *Painting and Sculpture in Architecture*, exhibition catalog, unpaginated.

46. Alfred H. Barr, Jr., H.-R. Hitchcock, Philip Johnson, and Lewis Mumford, *Modern Architects* (New York: Museum of Modern Art, W.W. Norton, 1932).

47. Lewis Mumford, "Skyline," *New Yorker*, 1947.

To his former co-curator Philip Johnson, this article seemed not only like a criticism of the original premises of the International Style, but also against the aesthetic basis of modernism. In rebuttal, Johnson organized a symposium with Mumford as the initial speaker, in which his article would be used as the basis for discussion on where modern architectural design was headed. The symposium, "What is Happening to Modern Architecture," was held at the Museum of Modern Art on February 11, 1948, and its participants included some of the most notable architectural figures of the period, including the museum director Alfred Barr, Serg Chermayeff, Marcel Breuer, Walter Gropius, Henry-Russell Hitchcock, Edgar Kauffmann, Jr., George Nelson, Eero Saarinen, Vincent Sculley, and Edward Stone.

While the speakers at this meeting presented a variety of opinions on the direction of modernism, there was the general consensus, framed within the environs of the museum, that architecture's basis lay within the realm of art. Barr characterized this position in stating that "We are on the side of architecture as an art rather than on the side of mere building, however structurally efficient, commercially successful, sentimentally effective, humanistically plausible, or domestically agreeable that building may be."⁴⁸ The 'we' mentioned here referred not just to the supporting audience members, but significantly those department members and trustees who sat on the Museum committees. Through Barr, the official position of the Museum reiterated its continued belief in the reinforcement of the classical distinction between architecture and building, thereby also marking the current division between architecture as artform, versus architecture as technical- industrial production.

Here, the Dept. of Architecture and Design within the Museum of Modern Art played a critical role in reinforcing the relationships between architecture and the other arts represented in the museum; in reinstating the central ideal of architecture as a high cultural activity, Barr and others saw modern architecture as an integral aspect of a modernist visual culture. Barr countered Mumford's thesis in stating that the 1932 show did not support architecture that seceded to mere function, but had the higher pursuit of art in mind: "I find that much of this book [*The International Style*] was dedicated to defending architecture against the scientific functionalists on the one hand and commercial functionalists on the other. We even considered using the term 'post-functionalism,' to make absolutely clear that the new style was superseding functionalism."⁴⁹ While Barr's retrospective reading also pointed out how the International Style did not ignore utilitarian concerns, social issues, or regional tradition, the idea of architecture as artform remained an underlying foundation of the symposium.

48. Alfred H. Barr, Jr., "What is Happening to Modern Architecture?," *The Museum of Modern Art Bulletin*, vol. XV, no. 3, Spring 1948, 5.

49. *Ibid.*

What is Happening to Modern Architecture?

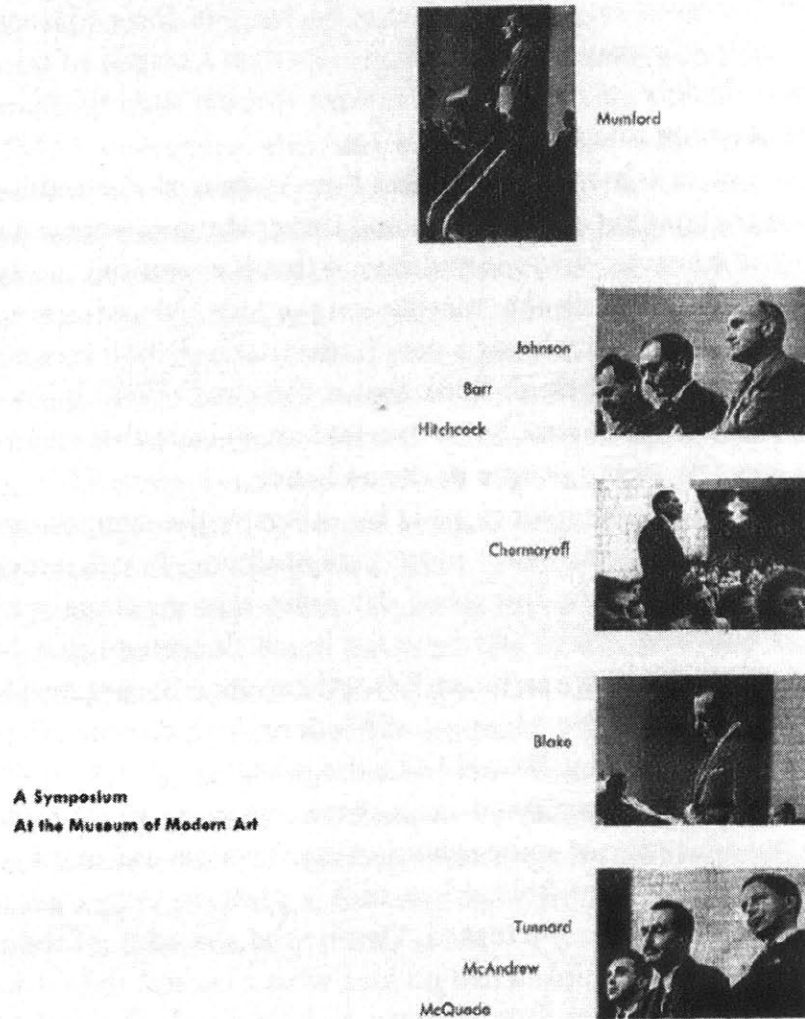


Figure 6: Symposium cover, "What is Happening to Modern Architecture?"

This manifested itself through the issue of style—whether International, Bay Region or otherwise—which came to occupy the forefront of discussion, as participants either attempted to modify the parameters of what constituted an international, modern conception of contemporary architecture, or conversely questioned the usefulness of any stylistic labels in general. The first group (Barr and Hitchcock, among others) argued for the need for a critical insight afforded through the parameters of stylistic

interpretation; the second group (including Gropius, Breuer, and Saarinen) saw style as an impediment to true creative growth and research, saying that more attention needed to be given to understanding present day conditions, rather than categorizing the work of the recent past. This was not to say, however, that the latter discarded the position of architecture within the arts; rather, they shared an immediate concern for the cultural and technological relevance of architecture in relation to the other arts. George Nelson typified this attitude in stating that “What is happening to modern architecture is that it is just barely beginning to feel the impact of the social attitudes and technical facts of a new world in the making.”⁵⁰ Style for the first group indicated the maturity of a recognizable aesthetic; the lack of style for the second signaled the continuing expansion of modernism’s intellectual and technological parameters.

At the close of the symposium, Mumford reiterated Nelson’s position in recognizing the beginnings of a mature phase in modernism, one that understood the cultural, psychological and spiritual needs of its users. While architecture’s ostensible direction was left unresolved at the meeting’s end, it became clear that the pure canonical forms described by the International Style no longer applied at mid-century. The symposium participants agreed that the conception of modern architecture as purely utilitarian machine was both false and undesirable (even if, as Gropius, Nelson and Peter Blake⁵¹ had argued, that the machine had not yet progressed far enough in its ability to serve social needs), and that the social and the functional aspects had to be integrated. How this was to be achieved, however, was left an open question. If indeed architecture could become an integral aspect of a new progressive culture, then what could its role be as part of the visual arts? Further, how to uphold the artistic foundations of architectural culture? In the wake of symposium’s challenge, this became the central issue Barr and Hitchcock attempted to address.

Painting Towards Architecture

The role of painting became critical for architecture in the postwar era, in that it was through its institutional alignment with modern art and specifically contemporary American painting, that architecture could become part of the dominant art culture based in the United States, rather than Europe. With

50. *Ibid.*, 13.

51. Blake and Johnson later co-wrote a rebuttal to another article similar to Mumford’s in tone in the April 1948 issue of the *Magazine of Art*, that argued for the picturesque tradition over that of the rigid formality of modern architecture. Blake and Johnson here pointed to both classical and modern examples of how public architecture has always reverted to a monumentalizing order. See “Architectural Freedom and Order: An Answer to Robert W. Kennedy,” in *Magazine of Art*, Oct. 1948, vol 41, n. 6, 228-231.

the immigration of Mies, Gropius and other exiles from the European architectural community, the United States had inherited a de facto position of architectural importance already by the forties. However, the relationships between this established and imported old guard, and the primarily native roots of the New York School of Painting, were not at all clear. The European avant-garde of the twenties—the Bauhaus, de Stijl, Constructivism, Neue Sachlichkeit, and others—attempted to bring architecture together with other art practices, towards some means of a formal and social synthesis. In contrast, the regional and expressionistic art practices during the late forties in America had little, if any relationship to the emerging technical and industrial transformations occurring in postwar architectural practice.

The task then, was to construct a theoretical framework around the reading of modern architecture within the context of modern art, and conversely, modern art and specifically abstract painting as concerned with the same formal structural and stylistic issues as modern architecture. To this end, in 1948 Barr and Hitchcock contributed towards a catalogue of paintings and sculpture owned by the Miller Company, a lighting firm whose corporate philanthropy attempted to promote an appreciation of modernist aesthetics as a part of postwar industrial design. Through an expansive private art collection that included work from both the early twentieth century avant-garde as well as from contemporary American artists, the Miller Company was able to combine pragmatic business concerns with the ethereal realm of high art, reuniting painting and sculpture by a patronage that presented the two disciplines as an intellectual prelude to a progressively designed postwar environment. This latter day redefinition of an American *Gesamtkunstwerk* thereby aligned high art with industrial design through architecture as the natural medium. By looking to high art as an exemplar for modern architectural design, the aesthetic and economic division between mere building and true architecture could be made distinct; modern architecture in the postwar economy could then be resituated as part of a progressive industrial and cultural state.

Hitchcock and Barr developed a case for this realignment of architecture within the context of high art by directly relating it to painting and sculpture. While the title of the book, *Painting Towards Architecture*,⁵² initially suggests how painterly work had been influenced by the formal and material aspects of architectural theory and design, it is made clear in the text that it is architecture that stands to gain the most from an appreciation of the formal aesthetics of modern art. This point was reinforced in the opening remarks of the text by Burton G. Tremaine, Jr., the president of the Miller Company, who

52. *Painting Toward Architecture* (New York: Duell, Sloan and Pearce, 1948). Text by Henry-Russell Hitchcock, foreword by Alfred H. Barr, unpaginated. Vincent Scully did research work for the catalog, under Hitchcock's direction.

stated how the presentation of this collection could be “of potential value to contemporary architects.”⁵³ Thus, the painterly and sculptural work which was seen to be influenced by architectural values, could then be used to resituate modern architecture away from a pragmatic functionalism, and again look to modern art as its true inspiration.

According to Barr, the case of the early European avant-garde was a parable for the possible new relationships to be discovered between an emerging postwar avant-garde in art and architecture dominated by the United States, and the economic and institutional forces propelling the architecture of the coming decade. Hitchcock reinforced Barr’s argument in arguing for the intrinsic abstraction of architectural composition, claiming that “Architecture has always been an essentially abstract art....”⁵⁴ Hitchcock offered Frank Lloyd Wright and Le Corbusier as two significant examples of architects who abstracted architectural motifs from artistic sources; Wright with Japanese prints, and Corb with Purist painting. Hitchcock stressed Corbu’s painterly activity as a direct analogue to his architectural production, in noting how

The smooth, flat, rendered surfaces of his buildings had the immateriality of the colored shapes in post-cubist painting. And soon the darker colors of his pictures of the mid-’20s were introduced in addition to pastel tones in order to contrast certain wall surfaces more boldly with the off-white tone which he considered the neutral color of the actual stucco. Even the curves of the objects in the pictures were echoed in his plans in the freely bent shapes used for non-structural screens...Neither in plan nor elevation were his architectural compositions allowed to ramble; rather they are compactly ordered inside rectangles, as if within the frame of a painting.⁵⁵

Flat painting here acts as a conduit between the modernist conception of space created by the new physics, and the modern plan. Quoting the symbolist painter Maurice Denis, Hitchcock describes abstract painting as a material object defined through abstract qualities: ‘a picture is a flat surface covered with colors—colors arranged in a certain order and thus arranged to give pleasure to the eye.’ This statement stresses the idea that a painting is a material object intended to be apprehended in terms of the abstract organization of its surface elements.⁵⁶ While Denis’ comments solely concern the surface of painting, Hitchcock extends its meaning to infer the object status of modern painting and its analogy with built forms. In this manner, the history of cubism is reinterpreted in relation to architecture. Thus,

53. *Ibid.*, unpaginated.

54. *Ibid.*, 11.

55. *Ibid.*, 28.

56. *Ibid.*, 13.

synthetic cubism from 1912 “became more architectonic,”⁵⁷ as it moved from the fragmentation of traditional representational space and form, to the foregrounding of specific materials and defined shapes through collage. In doing so, cubism “dealt in a non-perspective way with problems of depth and projection,”⁵⁸ thereby transcending its two-dimensional origins. The elimination of perspective in this model displaces the body relationship to architecture by shifting from vision to thought; depth and projection work not only the recessive distances of the sensible visual range, but also the conceptual oscillation between the horizontal and vertical planes.

Hitchcock’s vague analogy between synthetic cubism and modern architecture leaves out how the former specifically relates to or influences the latter—equivocation turns to equivalence, as the principles and practices of cubist painting become equally valid for the development of plans, sections, elevations, axonometric renderings, and even construction details. In so doing, Hitchcock’s argument inferred a complementary relationship in the translation between media. One marked the ossification of analytical cubism’s fragmented images into material reality, as bodies meld into walls, guitars into bathrooms, bottles into chimneys. Léger’s post-cubist paintings and Le Corbusier’s purist compositions contributed to this shift by distilling abstract form into discrete shapes recognizable as either volumes or masses. In Léger’s case, the tubular geometry of his compositions mimicked objects of mass production, facilitating their introduction into built form; from this example, the International Style could then be rationalized through both art and technics.

In this model, the complement to the above is painting’s unconscious desire towards the architectural. This does not occur by the representation of things on canvas, but rather looks at the literal object condition of the painting itself, working in and making space. Hitchcock accordingly outlines the twin poles in the intertwining relationship between painting and architecture in this passage: “Léger’s painting served as a particularly effective catalyst in making mechanical elements artistically useful to architects, because the range of his subject matter was not limited to such forms. Moreover the *scale* of his compositions of the mid-20s, sometimes very similar to purist work in their extreme simplicity, is perhaps more truly architectural than that of any of the other painters of the period.”⁵⁹

The issue of scale as potential architecture is conjectural on the critic’s part: Léger’s canvases never reached the monumental dimensions of the abstract expressionists; rather, the artist was more interested in using size as a method of creating a physical connection with the viewer, correlating the fig-

57. *Ibid.*, 22.

58. *Ibid.*, 23.

59. *Ibid.*, 28. *My italics.*

ures in his painting to the observer (for example, the 1921 *Three Women*, measures 6' 1/4" high x 8'3" wide). Moreover, rather than discussing the implications of scale in terms of current work carried on by American abstract expressionists, Hitchcock limits his context to paintings directly applied to the architectural surface through the traditional mural format, rather than as the independent type of object Greenberg forecast.

Hitchcock's examples were further limited by the collection's bias to the established European avant-garde, as well as a select group of relatively conservative American artists. Pollock, perhaps the most obvious example of the younger generation, is not mentioned in this scenario, nor other contemporary representatives from the New York School, and none were included in the Miller Company collection exhibition.⁶⁰ Any debt between painting and architecture here could only be understood in terms of the early avant-garde *Gesamtkunstwerk*, rather than a new field of painters who were pushing towards a self-sufficient conception between easel and mural painting.

In this light, Juan Gris, trained in architecture and compatriote of Le Corbusier, proved to be indicative for the authors of *Painting Towards Architecture* of how painters could distill and reconstitute architectural concepts in painting. Gris' comment to Daniel-Henry Kahnweiler about his work as "flat, colored architecture"⁶¹ is subsequently taken to mean its two-dimensional composition within the frame of the canvas, "consciously arranged so that the parts are subordinated to the rhythm and unity of the whole."⁶²

Its three-dimensional architectural counterpart, the Dom-ino frame, could be then seen to have the complementary effect of compressing the plan to its diagrammatic outlines, insomuch as the pilotis acted as conceptual markers defining the structural matrix and limits of the free plan. In his 1947 article "The Mathematics of the Idea Villa," Colin Rowe concisely remarked how the "free [modernist] plan is exchanged for free [Renaissance] section"⁶³ in the Villa Stein, in its precise partitioning of planimetric elements into separate horizontal layers visible as discrete strata on the facade. Reading Le Corbusier's reinvention of the Palladian ratio from front to back—(1.5) : .5 : 1.5 : 1.5 : 1.5 : .5—engages the section one layer at a time, as thick extrusions from the plan, so that discrete sections may be perceived as independent enti-

60. In the wake of the August 1949 *Life* article on Pollock, Tremaine bought the relatively small *Number 6, 1949*, for his collection in the November 1949 show at the Betty Parsons Gallery. See Naifeh and Smith, 598, 883.

61. Daniel-Henry Kahnweiler, *Juan Gris, His Life and Work*, trans. Douglas Cooper (London: Lund Humphries; New York: Curt Valentin, 1947. Rev. ed. New York: Abrams, 1969), 140. Also cited in *Painting Towards Architecture*, 58.

62. Comment by Mary Chalmers Rathbun, *Painting Towards Architecture*, 58.

63. Colin Rowe, "The Mathematics of the Idea Villa," *Architectural Review*, reprinted in *The Mathematics of the Ideal Villa and Other Essays* (Cambridge, Mass.: MIT Press, 1976), 11.

ties. Some years later Rowe would then see these planes in a dynamic optical and conceptual sequence, forwards and backwards, in the vibrato of shallow and projecting depths.

For Hitchcock, the exemplary model for the painting/architecture axis remained with neoplasticism; here, painting acted as the part of research, while architecture would carry out the implications of its optical constructions. J.J.P. Oud's 1925 Cafe de Unie was perhaps the most direct application of the neoplastic canvas to an architectural facade, flattened so that "the sash bars of the windows played the same part as the rigid black lines in Mondrian's painting...while the flat surface plane was divided into a few rectangular areas smoothly painted in white and the primary colors."⁶⁴ In plan, he brought up Barr's famous misreading of Mies' early country houses, citing how "the influence of Van Doesburg is evident in the pattern of the floor plans."⁶⁵ Here, the labored facture of the painted line in Mondrian is transformed into the dense materiality of masonry construction. Van Doesburg is also brought up in relation to how the "isometric color constructions of the early '20s, on which the architect Van Eesteren sometimes collaborated, may be read by the observer either as autonomous abstract pictures or as extremely bold projects for a hypothetical architecture of colored planes intersecting in space."⁶⁶

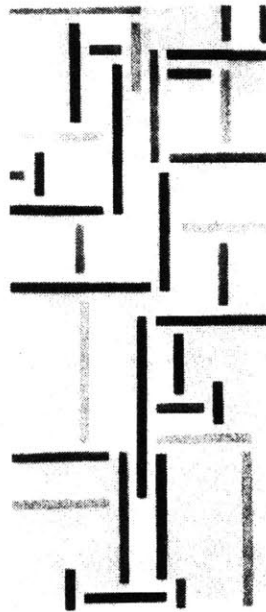
Conversely, Hitchcock pointed out how Bauhaus artists incorporated architecture for source material, and, in the case of Moholy-Nagy and Josef Albers' experiments in light, volume, color and construction, how their works were "examples of controlled research: exercises, almost in pure design."⁶⁷ Hitchcock cited these artist-educators particularly for their significant contributions to revising postwar design education in the United States, by incorporating a more general, abstract approach to visual education as the Bauhaus had done. Consequently, rather than the traditional Beaux-Arts method of copying classical precedent, their approach stressed "abstract pictorial and plastic exercises as a method of

64. *Painting Toward Architecture*, 32.

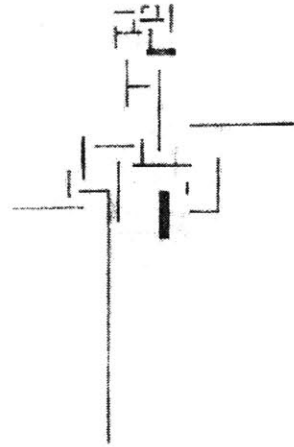
65. *Ibid.*, 34. Giedion later repeated this analogy in *Space, Time and Architecture* [fig. 7]. Though Mies had always disavowed any de Stijl influence, Johnson also points to these projects in his Mies biography as obvious references to the Dutch painterly avant-garde. On closer examination, it is clear that this sequence of works owes as much to Frank Lloyd Wright and Dudok, in the emphasis on the horizontal plane, its volumetric complexity, the roof plane(s) as a sectional device forming intermediate datum planes, the material specificity of masonry construction, and the carefully defined interleaving of brick and glass to define mass and volume, opacity against transparency. In contrast to the de Stijl painting which is dependent upon the bounding framing for its compositional structure, the Mies houses form discrete objects by their massing, rather than the rectangular limits of the plan or elevation drawing. Further, the initial two-dimensional similarities to de Stijl composition are defied by his insistence on rooting the work as a haptic experience of the viewing subject in a continuous space; hence his preference for the perspective view, over that of the axonometric.

66. *Ibid.*, 32.

67. *Ibid.*, 34.



162 (52) Doesburg: Russian dance, 1918 (*not in exhibition*); cf. Picasso, fig. 27



163 (305) Mies van der Rohe: Project for a brick country house, plan, 1922

Figure 7: Doesburg/Mies comparison in Giedion, *Space, Time and Architecture*

aesthetic training in much the same way that figure drawing in more humanistic periods was used as a means of visual discipline for the architectural student.”⁶⁸

These exercises in architectural abstraction thereby became a convenient link to modernist abstraction in painting and sculpture; the close formal relationship between the art and architecture of the early twentieth century became an obvious starting point for this new approach in Bauhaus influenced design education in postwar America. Thus, it was primarily to these established precedents in de Stijl, Cubism and to a lesser degree, Constructivist art, that architectural teachers and critics looked to for visual inspiration and formal rules of composition. To this end, Hitchcock argued for the continuing relationship between abstract art and modern architecture, again stating the role of art as precursor to the work of architecture:

Yet it is still abstract art, considered in a broad sense, which speaks the visual language

68. Ibid., 45. In a separate review of the Barr and Hitchcock text, Serge Chermayeff attempted to make the case that the neo-Bauhaus strategy of distilling visual information to basic units of lines, planes and organic forms was related to the abstraction of vision by scientific-technological means. From the review, “Painting Towards Architecture,” *Arts and Architecture*, June 1948, 24-31.

most intelligible to architects. Or more accurately, it is the abstract aspects of various kinds of modern painting which belong to the world of the architect as visual artist. Whether or not particular architects find renewed stimulation from these aspects of modern painting, the appreciation of them has undoubtedly played and continues to play a major part in preparing the public to accept the visual forms as well as the practical purposes of modern architecture.⁶⁹

Abstract art is seen here to have the role of visual precedent for the practicing professional, and for the general public in understanding and appreciating the vocabulary of modern architecture. For Hitchcock, abstract art became a working tool for the architect, a site of visual experimentation that could be translated into architectural plans and elevations: "In relation to modern architecture, the central meaning and basic value of abstract art, whether painting or sculpture, is that it makes available the results of a kind of plastic research that can hardly be undertaken at full architectural scale."⁷⁰

The idea that the visual arts may act as a research tool for architectural design recalls Giedion's attempt at a scientific model of visual culture, one that traces a line from relativistic physics to art and architecture. The painter here acts as a sort of visual research scientist for the more pragmatic concerns and limitations of the architect, testing new formal possibilities created by technical and cultural innovation. In doing so, the immediate needs and practical limitations faced in the postwar building industry could be set in relation to the more abstract issues faced in the visual arts.

In the same manner, visual research studies would act as a pre-design visual foundation in architectural education, thus transforming the politically suspect origins of Bauhaus teaching in America into a pseudo-scientific enterprise with a legitimized cultural agenda. Bauhaus teaching practices could then be reinserted within the context of a socially conservative, humanistic enterprise, as Hitchcock argued how "Architectural education has widely adopted abstract pictorial and plastic exercises as a method of aesthetic training in much the same way that figure drawing in more humanistic periods was used as a means of visual discipline for the architectural student."⁷¹ Here, he alluded to not only Moholy-Nagy's efforts at transplanting the Bauhaus to Chicago, but also the earlier, ill fated attempts to inculcate a native artistic movement through the Black Mountain School in North Carolina.

Hitchcock acknowledged the corresponding lack of unity in the American art scene, saying that "The original moment of tangency between abstract art and modern architecture which took place in the '20s was not paralleled at the time in America." In the same way that modern architecture revealed its

69. *Ibid.*, 45.

70. *Ibid.*, 54.

71. *Ibid.*, 45

debt to European modernist painting, Hitchcock also wanted to promote a new relationship between contemporary art and architecture in the United States, contending that “American abstract art may well have something to offer American architects today.”⁷² Though Hitchcock had in mind more established figures such as Stuart Davis and Alexander Calder rather than the nascent work of the Abstract Expressionists, he attempted to develop a native confluence among architecture and the visual arts. Contemporary American painting and sculpture could give visual inspiration and affiliation to the building arts. However, this model became untenable in the face of the new aleatory, non-representative, scaleless, seemingly interiorized and personal mode of expression that threatened to dispel any easy association with architecture.

What in the end drove this enforced relationship between two uneasy and unequal participants was the prospect of an emerging high culture market that depended on both disciplines for a new audience, one that saw the decorative implications of abstract mural painting as the perfect antidote to the arid surfaces of modern architecture, and conversely, the ability of modernism’s bare planes to function as the neutral backdrop for the heroic expressiveness of abstract expressionism.

Architecture Towards Painting

In toto, *Painting Toward Architecture* is remarkable for what it intended, as well as for what it left out: on the one hand, that there was indeed some sort of overriding relationship between the arts, in which the architect could grasp and bring to full fruition the tectonic potential demonstrated by the modernist canvas. The text is insistent in its absolute proclamation of the architectural destiny of painting, so much that the entire Miller Company collection is resolutely shoehorned through this thesis, even artists whose affiliation with architecture seems spurious at best: John Marin, Georgia O’Keeffe, and Charles Sheeler, among others, being put forth as examples of artists whose work demonstrated some kind of affiliation with the art of building.

On the other hand, it was clear that this relationship was a one-way street; Barr and Hitchcock were unaware or ininterested in the converse, of abstract expressionism’s tendencies away from the supporting wall and towards a self-sufficient, independent spatial and material conception. Or rather, more to the point, there seemed to be a relative disinterest and vague confusion with the place of abstract expressionism within this scenario, as shown by the noticeable absence of the New York School of painting in the Miller collection and exhibition.

72. Ibid., 46.

In an ironic fashion, Mondrian became the watershed between the neoplastic ideal of a totalizing art practice, and the beginnings of a native American abstraction. Here, Yve-Alain Bois argues how the artist's last works in New York during the early forties became the site of a relentless search for a pure optical flatness residing solely within the plane of the canvas:

In short, it is not sculpture that Mondrian is after. He is seeking the sculptural in painting: he strives to give to his works, which are autonomous entities, the literal quality of an object that will render them optically impenetrable. To make sculpture per se would, for Mondrian, have been a renunciation. It would have meant siding with Gabo. He remains a painter and wants to resolve the problem in painting.⁷³

The neoplastic painting thus lies forever trapped between the infinitely compressed optical foreground of its painterly impasto, and its material Other, the realm of sculpture. No perspectival recession into the frame, nor projection beyond the surface. Not wholly surprisingly, Mondrian became one of the first viewers to recognize Pollock's significance to the object trajectory of contemporary painting, even before the all-over works of the late forties.⁷⁴ Pure painting's destiny lay in its ability to assert its independence from its architectural support, as Mondrian had already hinted with the 1944 *Victory Boogie Woogie* [fig. 8]. It is this work, an unfinished assemblage of colored tape applied to a diagonally set canvas, that sets the tone in its unconscious facture and defiant distance from the surrounding walls of the painter's studio, for a new generation of painters that deliberately aimed to dismantle the conventions between painting and object.

Hitchcock argued for the architectural potential of Mondrian's New York paintings for architecture, although he discounted the ramifications for the work itself. The critic described the artist's role as visual research scientist, opening up new formal possibilities in architecture: "Mondrian, however, like a theoretical physicist, really pursued his aesthetic research for his own sake. The application to architecture of the implications of the latest and richest work he did in America just before his death remains still a potentiality."⁷⁵ Hitchcock here deliberately points to *Victory Boogie Woogie*, part of the Miller Company Collection, as the site of a new architecture waiting to be uncovered.

It would lie with a younger generation of architects to follow this particular painting through its architectural implications in the following decade; for teachers and practitioners such as Bernard Hoesli, John Hejduk, Colin Rowe and Robert Slutzky, reading painting became absolutely essential as a prelude

73. Yve-Alain Bois, "Piet Mondrian, *New York City*," in *Painting as Model* (Cambridge, Mass.: MIT Press, 1990), 173.

74. *Ibid.*, 181-2.

75. *Painting Toward Architecture*, 32.

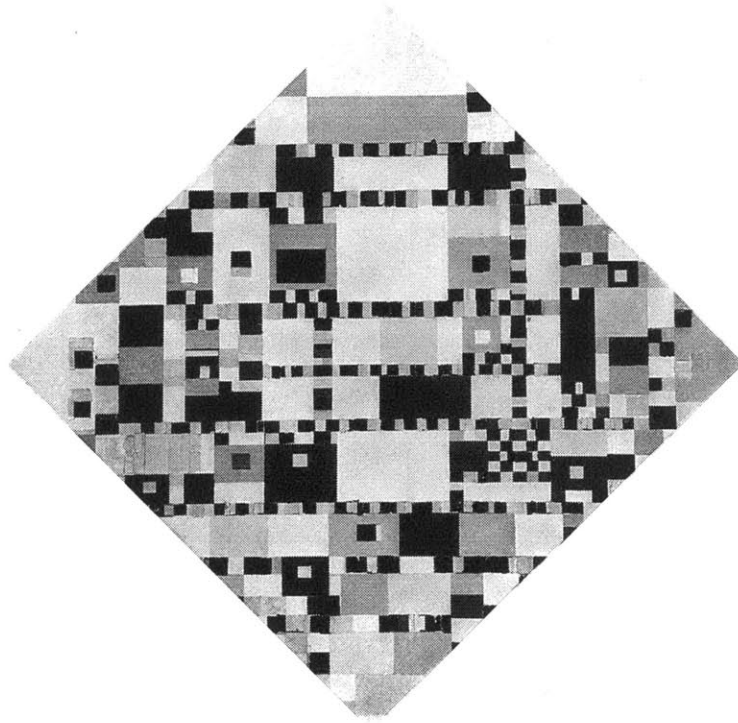


Figure 8: Piet Mondrian, *Victory Boogie-Woogie*, 1943-44

to forming the architectural plan. It is in this context that *Painting Towards Architecture*—already eight years old by the time they began teaching—became one of the core texts for the junior year studio during the tenure of the Texas Rangers in the mid-fifties.⁷⁶

Buried in this text, the spectre of *Victory Boogie Woogie* returned to haunt Hejduk, as the Miesian perpendicular logic of the nine square Texas houses became systematically cranked into the prismatic cruciforms of the Diamond House series. For Hejduk, the early modernist mode of axonometric rendering made this transformation possible. There is an insistent desire in his projects to move away from architecture, away from the illusory transparency of technical reproduction, and towards the zero degree engagement of a virtual, rendered space. In doing so, Mondrian's painterly research is undermined, as his quest to produce absolute flatness is supplanted by recessive depth—not of classical perspective, but rather the informational logic of a projective geometry. This is not to say that there is no 'art' to the lat-

76. See Caragonne, *The Texas Rangers*, 428-9. Caragonne points out that it was Hoesli who recommended the text to the reading list, although of the group, arguably Hejduk carried its implications the furthest.

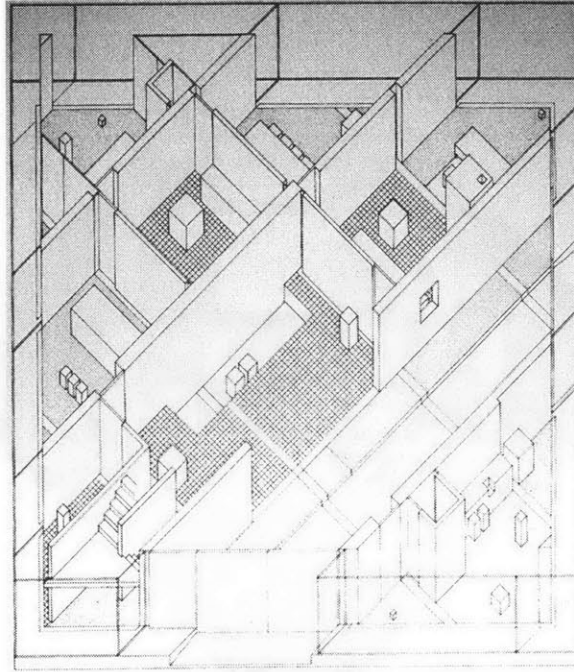


Figure 9: John Hejduk, Diamond House, 1966

ter; rather, it becomes an artform which wholly confines its subjects to an encompassing formal system. Robin Evans pointed out how the axonometric format is not merely the transparent bearer of representative meaning, but indeed holds and regulates its contents:

The metric framework is the form. Even early telescopic perspective compositions were less completely defined by their method of graphic construction. What we see here, as we see also in the axonometrics of Sartoris, Eisenman, Albers, Held, and many others, are concretions of the measuring grid's reticulated structure. There is nothing intrinsic to axonometric/isometric projections that restricts their content thus, so what holds them in that form? Not science, not technique, but architects and artists. They are the tyrants.⁷⁷

In this manner, the Diamond House series epitomizes that marriage of art and science that Giedion pointed to; first, in their ability to formally mimic the rotational aspect of neoplastic compositions; and secondly, by simultaneously incorporating the axonometric, that most *modern* of representational devices, compressing three dimensions into two measurable ones. By rotating the square plane to the

77. Robin Evans, *The Projective Cast* (Cambridge, Mass.: MIT Press, 1995), 339.

diagonal, a superficial likeness is set up between painting and plan; lines become walls, colors become volume—it is this symmetry which Hitchcock first alluded to.⁷⁸

In tilting the vertical planes straight back to form the plan oblique, however, some interesting events occur in Hejduk's drawings: the geometry of the square plan is retained and emphasized over all other surfaces that are not exactly coincident with the drawing plane. The plan is not merely the generator, it is its aim and end. To perform this goal, the wall planes are tipped out of perpendicular to the floor, so that they are visible in relation to the projective plane of the observer; measured space is compressed and collapsed. In Mondrian, all traces of perspectival depth are systematically erased; with Hejduk, space reappears in a dessicated form, trapped against the surface. Ironically, the artist's quest for flatness surfaces in its object presence, revealing a material depth, whereas the attempt to reproduce the painterly effects of a neoplastic architecture forces it to exist solely as a resolutely flat, reproducible sign. Painting moves toward architecture; architecture toward painting.

78. Bois argues that the difference between line and color was precisely what Mondrian attempted to erase in his painting, through the complex modulation of pattern.

Painting into Architecture

"Unframed Space"

At the age of twenty-six and not yet graduated from the Pratt Institute, Peter Blake became the nominal head of the Department of Architecture and Industrial Design at the Museum of Modern Art in the spring of 1948. Though the position was merely titular and designed to placate those trustees who disapproved of Philip Johnson's past foray into fascist politics,⁷⁹ Blake's newly acquired position within the New York art and architectural establishment gave him a measure of influence and recognition.

Through the Swiss photographer Herbert Matter, Blake became acquainted with Jackson Pollock in the summer of 1949, and later that year Pollock invited the young curator to design the installation for his fall show at the Betty Parsons Gallery. For the show, entitled 'Murals for Modern Architecture,' Blake designed a model of an 'Ideal Exhibition' space for Pollock's monumental canvases, in which the paintings would be placed in a rectangular glass pavilion, modulating the entire volume into a series of specific spatial events. [fig. 10] Blake's original inspiration here came out of Mies' 1942 Museum for a Small City project, published in *Architectural Forum*, and also featured in Johnson's 1947 biography of the architect. Placed freestanding between thin T-shaped supports, held up by mirrored walls on both ends, or simply supported from the ceiling, the ensemble of murals would form both architecture and exhibition.⁸⁰ Elements from both other Mies projects also appear in the scheme: the etched glass light-well in the center of the Barcelona Pavilion is replaced here by a panel with equal sized murals covering both sides, creating an unusual 'transparent' condition in putting two Pollock murals back to back. The semi-circular Macassar ebony wall of the Tugendhat house dining area also makes an appearance here, transformed into a perforated brass screen enveloping the volumetric skein of a Pollock sculpture.

For this project, Pollock made several miniature plaster dipped wire sculptures for the model at Blake's request, which were "a kind of three-dimensional interpretation of his drip paintings"⁸¹ (these miniatures turned out to be the only works of their kind, roughly akin to Calder's wire sculptures, and in line with Greenberg's pronouncement about the the tendency towards linearity in contemporary sculp-

79. "In fact, though not officially, Philip was the director of the department, and I worked under him. The reason this arrangement was unofficial (as he explained me, with typical candor) was that 'some of the trustees can't forget my Nazi past and would resign if I became the official director of the department.' We maintained the fiction—I was head of the Department of Architecture and Industrial Design, and Philip was a sort of unofficial consultant. Nobody, needless to say, was fooled." Blake, *No Place Like Utopia*, 108.



Figure 10: Jackson Pollock and Peter Blake at the 1949 Parsons Gallery show, with model in foreground

ture). In this sense, Blake's scheme extended Mies' original conception, whose photocollage implied a clear separation between the work of the architect and that of the artist. The mural for Mies acted as merely one element within the general schema of surfaces constructed by the architect; with Blake's museum project, the artist's work constituted and defined its environment.

Arthur Drexler grasped its architectural aspirations in describing how "The project suggests a re-integration of painting and architecture wherein painting *is* the architecture, but this time without mes-

80. One interesting sidelight concerns the reproductions of the paintings themselves, which are not scaled copies of Pollock's work. That is, there is no relation between the actual works and their representation for the purposes of the model. According to Blake, this was owing to the limited resources available at the time for proper prints; they were simply cut out of existing magazine and catalog reproductions, and fit to the scale of the model. While some are shown in their original proportions (for instance, the 1949 *Summertime*), others are summarily cut out so that only a detailed portion of the original is shown; in at least one case, one relatively small Pollock is rotated ninety degrees, and blown up to mural size. In neither case was there any attempt to align the scale of the paintings with the intended scale of the museum. Since the model took its place in the Pollock studio after the Parsons exhibit, it seems that the artist was not particularly disturbed by this transformation of his work; rather, as Blake had it, the museum was intended as a 'proof of concept', and not as a 'proper' representation of the artist's works. However, it does reveal Blake's willingness to manipulate scale and proportion in the service of the architecture, and lends credence to Pollock's charge that the architect treated the murals as decoration. From interview with Peter Blake, Oct. 19, 1996.

81. *Ibid.*, 112.

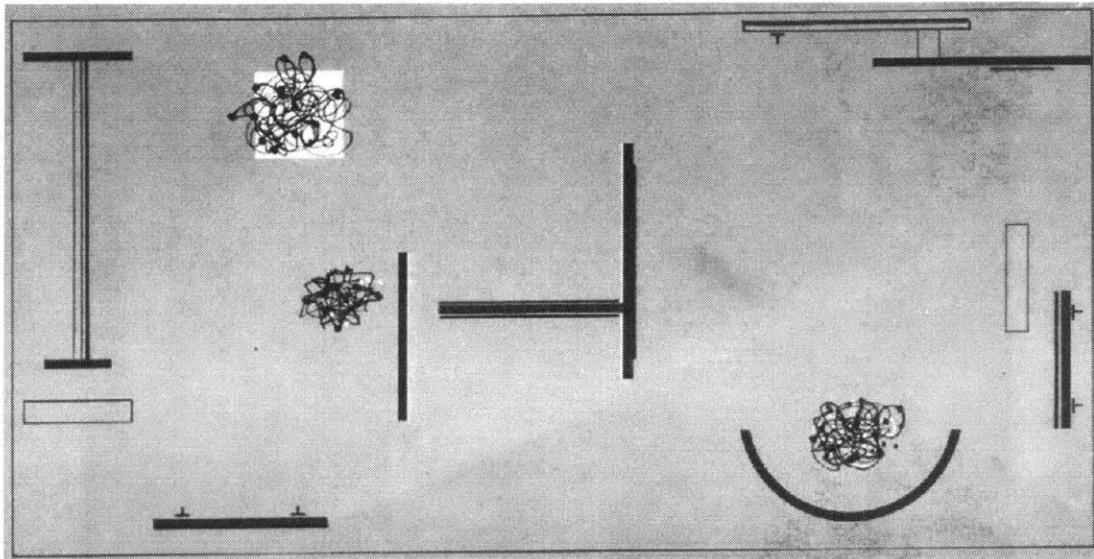


Figure 11: Peter Blake, floor plan of Pollock Museum

sage or content. Its sole purpose is to heighten our experience of space.”⁸² In this, Drexler recognized Blake’s reading of the Pollock murals in the critic’s dismissal of its veiled symbology, transforming the aleatory nature of the work to pure background pattern, and thereby heightening the raw physicality and spatial presence of the paintings (Pollock’s quip that Blake saw him as mere decorator bears out this charge). For Blake, Pollock’s canvases revealed the intimations of a limitless visual depth, both within the perceptual recesses of perspectival space, and across the planar surface of the overall canvas.⁸³

Two elements to the model reinforce this reading of limitlessness: the first concerns the opaque plexiglass roof hovering over the base, supported solely by the mural panel walls. [fig. 12] The exterior walls, presumably of clear glass, were left out in the model ostensibly to see the paintings better, but in doing so also permitted the haptic reading of the model to align with the visual recesses projected beyond the immediate boundaries of the glass box. The barren emptiness that Blake associated with the rural wilderness of the East Hamptons in which this project was envisaged, thus coincided with the neutralized *tabula rasa* setting afforded to the freestanding building-objects designed within the canons of

82. Arthur Drexler, “Unframed space; a museum for Jackson Pollock’s paintings,” *Interiors*, January 1950, 90-1. Blake also quoted part of this passage in his book; 112-3.

83. “To look at some of his paintings, to me, was like sitting on a dune for hours on end and looking out to sea, at the endless horizon and the shifting waves and clouds and banks of fog.” Blake, 114.

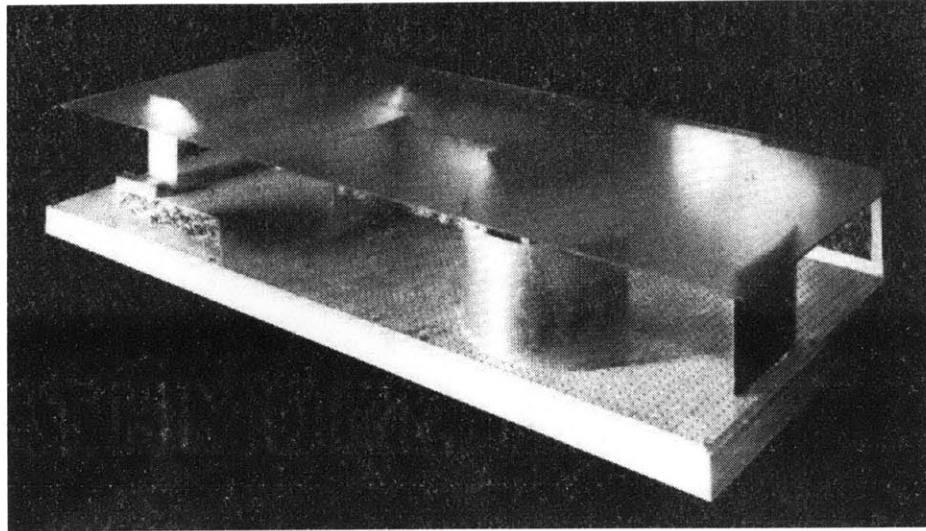


Figure 12: Peter Blake, Pollock Museum model, 1949

the International Style. Secondly, the perforated masonite surface which Blake used for the floor of the model served a dual purpose: on the one hand it acted as a convenient modular unit in which to situate the wall panels at right angles to one another—the walls could be moved or turned to accommodate changing exhibitions (one mural, shown in a photograph to be parallel to the exterior pane, is shown in another perpendicular to the wall, and thus rotated about a pivot); on the other, the incessant repetition of the grid structure not only recalled the conceptual extensibility intimated by the Dom-Ino frame, but also that potential centrifugal pressure residing in the plane of the modernist canvas.⁸⁴ By means of the universalizing grid, the juncture between plan and plane makes the elision from Le Corbusier to Mondrian a natural if not inevitable process.

Through the tectonic facture of Pollock's painted surfaces, Blake heightened the architectural presence of the murals. The postwar reinterpretation of the fresco genre served no pedagogical, illustrative purpose here—the abstract expressionist mural was not subject to the limits of the wall surface, nor detached from it; rather, it constituted a new kind of wall surface by asserting its own independent spatial identity. The use of mirrors as supports acted to visually extend the mural beyond its physical

84. Rosalind Krauss, "Grids," in *The Originality of the Avant-Garde and Other Modernist Myths* (Cambridge, Mass.: MIT Press, 1986), 8-22.

boundaries, extending in a visually illusionistic manner the notion of the all-over canvas, so that the canvas gained the appearance of a contiguous and freestanding wall surface.

Several different relationships between wall and painting are displayed here in an effort to diffuse their differences: freestanding (curved) wall; mirrored wall; full height wall/mural; half-height wall/mural (facing outward so that the back and support side face the main space); 'floating' wall/mural supported by full height walls; back to back murals attached to a single wall; and finally, one larger wall on which is fixed a smaller painting—the only instance of a 'traditional' mounting. Mural and sculpture slide past walls, or are walls themselves. The overall effect is no longer of the gallery wall as a neutral background, but rather that of part of a larger vocabulary of vertical elements which define interior and exterior, path and vision.

In this installation, three types of spatial conditions are posited against one another: visual or painterly space, as presented through the non-perspectival optical depths of the painting, the optical extension constructed by facing mirrors; and the haptic, architectural spatial dynamic fashioned by the physical interrelationship among the paintings (and further modulated by the sculptural pieces). The implications of this construction becomes clearer if we posit it against other spatial relationships between painting and support: in the pre-Renaissance fresco, the painting is set within and delimited by its architectural environment; architecture creates and circumscribes the conditions for the mural. Its visual space is confined to the flat surface it is derived from. With the development of a formulaic painterly perspective in the Quattrocento, the painted work begins its optical assault upon the limits and conventions of its architectural support. This is not to discount examples from Roman interior still life frescoes, among other attempts at the visual destruction of the immediate confines of its supporting surface; rather, what is notable here is the competition for the spectator's body—the dynamic, haptic space of the architect, against the frozen, singular viewpoint demanded by the painterly construction. The virtual static space created by the painting privileges the stationary viewpoint demanded by the perspective construction, and it consequently attempts to disinherit the spatial conditions of its immediate surroundings.

Through the conceptual trajectory of easel painting, the canvas leaves architecture behind, its spatial construction independent of its environment. It is in the large freestanding artwork, as shown in Duchamp's *The Bride Stripped Bare By Her Bachelors, Even* (1915-23), and approached later in sculpture by Calder's linear wire pieces, that the plane of modernist art acknowledges and engages its surrounding space. In large scale abstract expressionism, the flatness of the canvas was no longer simply, transparently flat, working as the illusory window to a fictional world, but instead became a material object, dividing and constructing space. Mies reversed this condition in transforming the wall into a

painterly surface, by employing the bookmatched striations of marble veining to introduce pattern to the wall construction, and the reflective properties of glass to layer an additional, optical depth to his static volumes.⁸⁵

While Blake explicitly copied Mies for the basic premises of the Pollock museum project, the uniqueness of Blake's scheme lies in the way it willingly collapsed the differences between painterly space and architectural space. Mies' 1942 museum collages worked towards a similar spatial conflation, but the final result yielded architecture in favour of the two-dimensional image, where painting and material pattern became equivalent on the lithographed page. In contrast, the Pollock museum produced a dynamic oscillation between the two and three dimensional, with the viewing spectator as its moving center. Both pictorial and architectural spaces are physically static and conceptually fluid. The murals serve a dual function: they extend through space by the reflection of the mirrored supports, and also work their own non-perspectival phenomenal space beyond and through the canvas. For Blake, Pollock's murals were less openings into a dimensionless, abstract void, than about paint on pure surface, through which one could view the landscape beyond. The Pollock sculptures in the museum then acted as fulcrum points around which the viewer could reengage from one localized space to another.⁸⁶

Though the 1949 Parsons show was perhaps Pollock's most financially successful, the enticement of the model in the gallery failed to generate much in the way of sales for the larger works, with one noteworthy exception: Blake had brought Marcel Breuer to the gallery in December (presumably to show the architect his model as much as the work of the artist), and was suitably impressed enough to commission Pollock to paint a mural for the dining room wall of a house he had designed in Long Island.⁸⁷ Breuer's

85. Much more of course, has been said about the Barcelona Pavilion than could be repeated here. Among one of the more noteworthy essays, recalling the 'theatrical' qualities of the building, is recounted by Jose Quetglass in "Fear of Glass: the Barcelona Pavilion," in *Architectureproduction*, ed. Joan Ockman (Princeton: Princeton University Press, 1988), 122-151 (the Blake model incurs its own sense of theatricality in its museum function). As a conceptual model, Blake's scheme lacks the detailed specificity of a built work, comprised of floating planes and readymade materials. The result is a studied elementarism, roughly akin to the plastic and metal constructions of Constant's New Babylon, though here any sense of a subversive *dérive* has been replaced by the measured bourgeois stroll and optical consumption of the museum goer's promenade.

86. In a 1947 article, Gibson Dane echoes Blake's reading of sculpture's function in architecture: "Sculpture can serve as a catalyst of the space-mass-volume relations because it enriches and amplifies its spatial ambient as well as exerting its own independent existence. By its character, dynamic and lithe, or monumental and weighty, sculpture can, with its emphatic use of profile, texture, color, and movement, provide a three-dimensional counterpoint to the whole architectural ensemble." In Blake's case, sculpture also serves as a foil to painting, working the play between three and two dimensions, volume against plane. Dane's article also serves to highlight the particular formal and epistemic conjunction between the disciplines that will be discussed in the next section. Gibson Dane, "Architectural Sculpture Today," *Magazine of Art*, May 1947, vol. 5, n. 4, 175.

scheme for the Geller House, a bi-nuclear plan with a butterfly wing roof, separated private sleeping functions from public living and dining spaces by way of a glassed entry hall (this physical division not only exposed a simplistic functionalist determinism, but also underlined in architectural terms the cultural shift towards the domestic acceptance of modern art by the postwar leisure class, in its conception of the living/dining space as a separate exhibition pavilion). Breuer installed the six by eight foot wide canvas flush against an existing full height bookcase divider, separating the living area from the dining space. In this manner, Breuer realized the vision Blake had initiated through Pollock, of a wall surface that was simultaneously opaque and translucent, optically reflective and facturally dense.

If Mies had been the invisible host to this process, the only time Pollock came close to a direct involvement with the architect came in a group show in the newly constructed interiors for the Chicago Arts Club in October 1951. Far from the de Stijl tendencies of his earlier work, Mies had by this point adopted a relatively somber and symmetrical classicism for the Arts Club project, thereby returning the paintings in the exhibition to the space of a more conventional gallery interior, and restoring the traditional roles of architect and artist. Mies did have a significant effect upon Pollock's subsequent work however, at least through the secondary lens of Blake's particular interpretation: Pollock had retained the model after the end of the Parsons show, and brought it to his Long Island house, where, according to Naifeh and Smith, it "sat conspicuously on a worktable in the corner of the studio, its miniature murals and mirrored walls a continual reminder of the possibilities of scale."⁸⁸ Whether Pollock's concern with questions of scale would have been an inevitable part of the artist's development, or if Blake and Tony Smith were significant factors in propelling Pollock's move towards the 'death of easel painting,' can only be conjectural. One argument in favor of the latter lies once again with the model, which only displayed the largest of Pollock's works, double functioning as both painting and wall. While any simple causal explanation is dubious at best, Naifeh and Smith claim that Pollock spent considerable time examining the model in his studio, and it is clear that the question of scale occupied his thinking in painting some of his largest works in the wake of the Parsons show: *Number 31, 1950 (One)*, painted in the summer of 1950, stood 8'10" high by 17'6" wide, while *Number 30, 1950 (Autumn Rhythm)*, measured nine feet high by almost eighteen feet across [fig. 13]. In contrast to the 1949 show which presented a scattering of placement and scale in the artwork, the murals for the 1950 Parsons show completely dominated the gallery walls; indeed, Pollock had the dimensions of the gallery explicitly in mind, with the murals almost precisely covering its walls, acting as a replacement, a *substitute* for them, as the Blake

87. Naifeh and Smith, 600, 607.

88. *Ibid.*, 613.

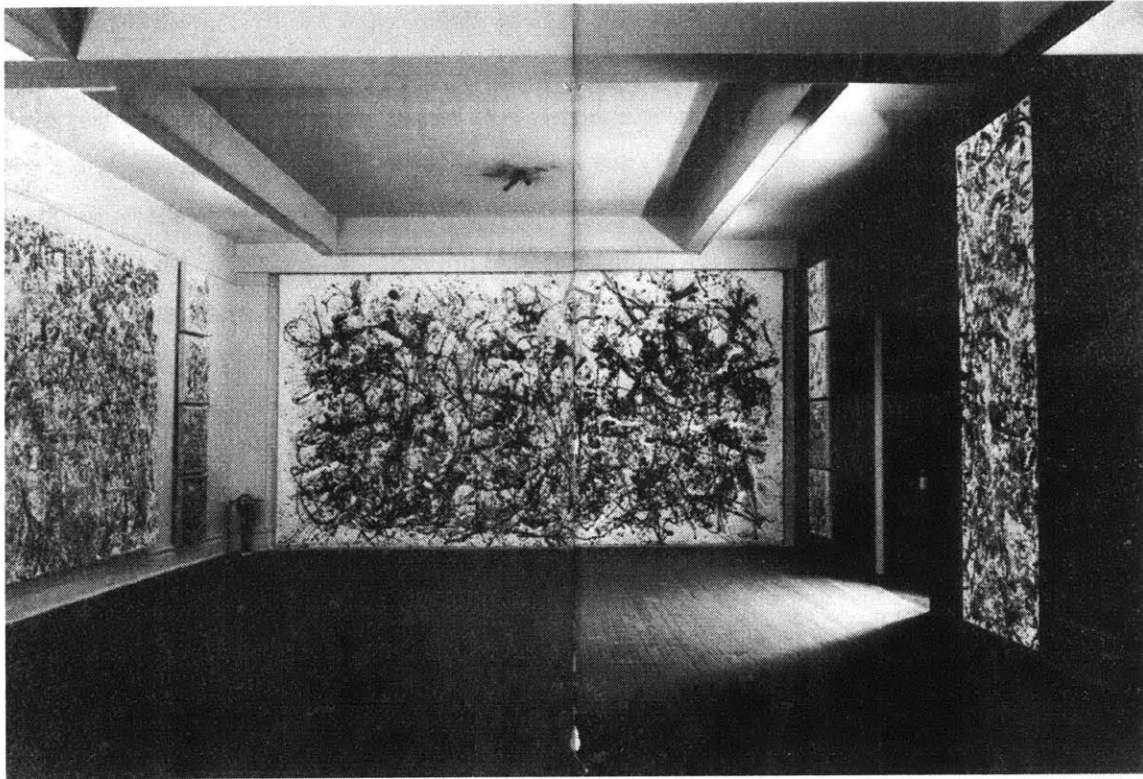


Figure 13: Jackson Pollock show at the Betty Parsons Gallery, 1950

model originally presented. William Rubin aptly summarized this condition in reading how Pollock's work "forms a new category in which the intimacy and environment of the cabinet-size easel painting is preserved while the picture—drained of illusion—achieves the size of a mural painting *independently of that genre's social and esthetic implications*. The 'window' which has the traditional easel conception, has become the 'wall.'"⁸⁹

The Muralist and the Modern Architect

Samuel Kootz, a prominent board member of the Museum of Modern Art and noted gallery owner, disliked Pollock's work and found the artist personally even less appealing for his drunken episodes and explosive behavior. Nonetheless, he understood the market implications of making connections between the work of prominent architects and American abstract art, as he had seen in Blake's model at the Par-

89. William Rubin, "Jackson Pollock and the Modern Tradition," *Artforum*, March 1967, 36.

sons Gallery show. As early as June of 1946, Kootz had already explored this incipient relationship in one of his shows, “Modern Painting for A Country Estate: Important Painting for Spacious Living,” implying the importance of the new art as an integral part of the domestic environment of the postwar leisure class.⁹⁰ The new cultural class became a new market to be exploited for both a new domestic architecture, along with the progressive art that accompanied it; modern architecture required modern paintings for its walls.

A year after the Parsons show, Kootz also attempted to exploit this emerging relationship between modern art and architecture, with his October 1950 show “The Muralist and the Modern Architect,” where he initiated a series of collaborations between artists and architects that were designed to demonstrate the integral connection of the heroic scale of American abstract mural painting to the blank surfaces of the International Style. In the exhibition catalogue, Kootz stated how in order to “encourage the use of modern artists by architects and builders, we have secured the cooperation of a group of distinguished modern architects who planned projects for the artists and made models showing the use of.”⁹¹ The collaborations exhibited—between Adolph Gottlieb and Marcel Breuer on a dormitory at Vassar; David Hare and Frederick Kiesler on Kiesler’s ‘Endless House’ project; Hans Hoffmann and Jose Luis Sert for a civic center in Peru; Robert Motherwell and Walter Gropius’ Architectural Collaborative for a series of public schools in Attleboro, Massachusetts; and perhaps most interestingly, William Baziotes and Philip Johnson presenting one of the original schemes for the architect’s New Canaan glass house⁹² [fig. 14]—were intended to show how the blank expanses afforded through modern architecture were natural canvases for large mural painting: “The modern painter is in constant search of a wall—some large expanse upon which he can employ his imagination and personal technique on a scale uninhibited by the average collector’s limited space.”⁹³

The allusion to limits referred as well to the collector’s financial constraints, highlighting one of the variegated contradictions underlying the exhibition: while Kootz demonstrably aimed to “encourage the use of modern artists by architects”⁹⁴ by illustrating how mural work could be incorporated within

90. See Guilbaut, 122.

91. Kootz Gallery, *The Muralist and the Modern Architect*, exhibition catalog, Oct. 3-23, 1950.

92. This preliminary two-storey scheme incorporated the glass house as a piano nobile, sitting atop a ground storey rubble wall; the final scheme clarifies its aspirations towards geometric purity by separating it into two objects, the masonry guest house detached from the main residence. Johnson later returns to a version of the original scheme for the Wiley House, also in New Canaan, but there rotating the living room pavilion at a ninety degree angle to its base.

93. *Ibid.*, 19. In spite of being the source of inspiration, Pollock is noticeably absent from the show.

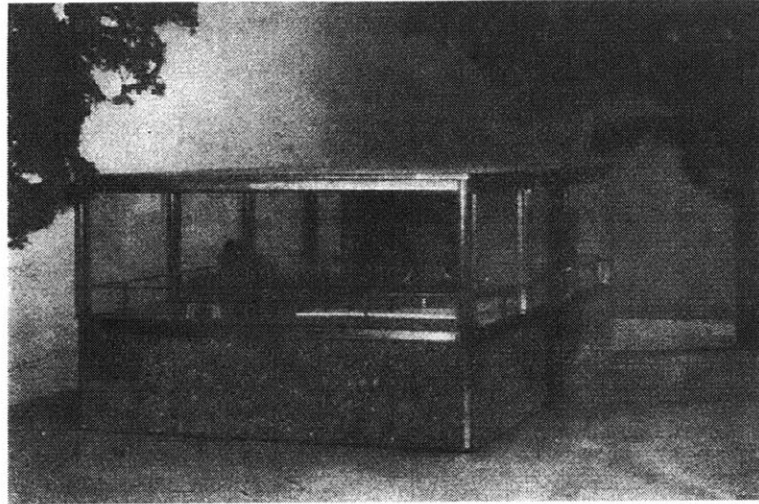


Figure 14: Philip Johnson, early scheme for Glass House

modern architecture—and thereby increasing the public awareness and acceptance of abstraction as the accepted visual vocabulary of high culture—at the same token the work as salable commodity could not exist outside of the gallery structure that determined its financial worth. While Kootz attempted to portray mural painting's function in the public sphere, its economic and cultural value could be determined only by returning to the space of the private market. Similarly, architecture as realized construction could not be exhibited without being a necessary representation of the work in situ.

Kootz attempted to reconcile these issues by having the work presented at two scales: at the level of the architectural model, the province of the architect is shown as the site for the artwork, presented in miniature form. Conversely, the large size of the mural works (for example, Hans Hofmann's mosaic was to be 50 by 24 feet) necessitated a corresponding reduction to the scale of Kootz' relatively modest gallery space; only in Philip Johnson's house project could the mural be presented at anywhere near its original scale, the organic forms of William Baziot's floor to ceiling abstraction here substituting for the tectonic opacity of Mies' onyx and traventine slabs.⁹⁵ The draftman's and modelmaker's craft here entered the arena of the artworld somewhat in the manner of a trojan horse, carrying the artwork within its shell—or rather here, the innocuous, overlooked item is the shell, the architectural object; only much

94. Ibid.

95. The problem faced here, as with Pollock's mural for the Geller house, is that the mural is inherently *one-sided*, and that something needs to occupy the obverse. Blake somewhat deflected the issue by suggesting the transformation of Pollock's work into three-dimensional sculpture.

later would New York galleries such as Rizzoli and Max Protech come to vie for architectural documentation as artwork (and correspondingly, the architect presenting process and documentation as gallery art). Because the architectural models here were not for sale (nor at this point would there have been an audience for such objects), Kootz relied upon the artists to fulfill their market function, by providing reductions of their intended full scale work—the artists' own models or mockups—for sale in the show. While architecture reduced could no longer fulfill its 'useful' function, the mural reduced reverted back to the scale and setting of the easel painting, and thereby more easily absorbed by the postwar art market.

Perhaps more disturbingly, however, the show inadvertently highlighted the formal disparities faced between artist and architect. With perhaps the exception of the Kiesler/Hare collaboration, there seemed to be little in the way of a common visual language that united the two disciplines: one wedded to the rectilinear, ascetic doctrine of the International Style, the other just as determined to depart from its grasp by a willful exploration of variegate form and color. This enforced marriage resulted in, not surprisingly, the artist's work appearing as mere decorative embellishment, functioning as visual variety to relieve the blank slate of high modernism's vertical surfaces. Moreover, there seemed to be an interminable gap between them, in spite of efforts such as this to revive a unity of form and praxis. In distinction to Blake's earlier attempts at combining painting and architecture, the artists and architects here were more interested in incorporating aspects of the reciprocal disciplines in relation to their own, rather than working in a truly collaborative process. If the visual arts were to have a stronger role within the building process, and thereby reinstall the role of public art in architecture, then it needed to somehow reengage with the contemporary dialogue in architectural design; conversely, architecture needed to work towards an understanding of contemporary currents in painting, if it hoped to develop any more than a cursory incorporation of art beyond its use as decorative pattern.

'How to combine architecture, painting, and sculpture'

Inadvertently, rather than displaying the new mid-century synthesis among the arts, the Kootz show inadvertently emphasized the general divide between contemporary painting and architecture, with painting seemingly oblivious to its surroundings, while architecture saw modern painting for the most part as ornamental distraction. At the same time, Philip Johnson did recognize the imaginative promise held out by the Blake/Pollock museum project, and how painting could make a significant contribution to architectural design. With these two diametrical examples in mind, he organized a symposium at the Museum of Modern Art in March of 1951, in order to highlight the problems and prospects involved in attempts at a closer collaboration between the arts. 'The relation of painting and sculpture

to architecture' thereby became an attempt to heal the rift between the disciplines, and if not return to an artificial unity (which could not have been a desirable goal in any case, in light of the specific economies of the postwar art market),⁹⁶ then to somehow reconcile the disparate tendencies of *informe* painting and organic sculpture, with the austere formalism of International Style architecture.

Johnson's interest in integrating the arts stemmed from his reading of architecture as a formal discipline, marked by his proclamation of the new style of architecture in 1932. His own interest in abstract art came about during his trips to European galleries in the late twenties and early thirties, while in the process of acquiring a significant personal collection of modern painting and sculpture. The nascent formal vocabulary that he had witnessed in abstract art and architecture held the promise of a common artistic language (even if each one—cubism, purism, Constructivism, de Stijl, *neue Sachlichkeit*, and so on, spoke a distinctly different individual dialect), a sort of visual Esperanto that united the work on a formal and cultural front—if anything, his single lifelong loyalty had been towards this classical vision, the notion of architecture as an integral part of the visual arts. In this sense, the need to organize this symposium pointed out how far apart, at least according to Johnson, the visual arts in America had drifted in the present, and that some measure of reintegration needed to occur.

He began the symposium in reiterating his stand on architecture as fundamentally a fine art, arguing against the technocratic tendencies of mid-century American architecture (against Pietro Belluschi explicitly, and more generally Gropius' team approach to design). Architecture was not about simple functional utility, he contended, but only came into being through the superfluous, the surface embellishments that elevated it beyond mere building (recalling Nikolaus Pevsner's classic distinction between the bicycle shed and the cathedral). Painting and especially sculpture were two disciplines that traditionally aided building in its quest towards the status of architecture.

In sculpture, he outlined two general approaches to working with architecture: one was to simply juxtapose the two together, in the manner of the Egyptian Sphinx with the pyramids, or more recently, the Kolbe statue in the Barcelona pavilion. The other method was what he termed the 'integrated' school of design, here pointing to classical Indian religious temples as the early example, and Gaudi and Kiesler as more recent instances. In the first method, architect and sculptor play separate, if hopefully mutually compatible roles, whereas in the second the architect also acts in the role of the sculptor. The former has the advantage of specialization, with the concomitant danger of each ignoring the other

96. As Kootz aptly demonstrated, art at a public scale fell out of the province of the gallery system; moreover, the publicity gained through modern art's relationship with contemporary architecture could only be financially realized by returning it to the economy of the private sector.

(Johnson here giving the example of the frail Lippold sculpture failing to hold as an effective central axis for TAC's Graduate Center at Harvard); whereas the latter may benefit from a single design vision, with the downside that it may merely result in awkward sculpture or ponderous architecture, or both (later Breuer or Stone here comes to mind).

Painting also carried similar issues: at its best, as he asserted with the example of Van Doesberg's Cafe L'Aubette, painting could transform a quotidian space into an exceptional work of architecture; at worst, it reverts to mere background surface decoration or, as in the case of the *Guernica* in Sert's 1937 Spanish Pavilion, art and architecture become wholly ignorant of one another. In Johnson's own case, he could point to his recent experience with Baziotes as typical of the difficulties in working contemporary abstract painting into an architectural space:

The other day I was asked to collaborate with a painter whom I admire very much. I think I own his best painting. It was just an abstract problem—the model of a house. The painter didn't understand the problem at all. He did a very good painting, but you can't just say, 'Here is a wall, now start in.' Is it my fault or the painter's fault or both?⁹⁷

For Johnson, Baziotes had simply not considered the problem of the material presence of the painting, or its specific architectural relationship to the rest of the house; the autonomous abstract painting here implied more of a return to the heroic scale of nineteenth century neoclassical mural painting in a traditional gallery setting, than to a real and active engagement with the fluid dynamics of a modernist space. On the other hand, he also acknowledged that the painter had participated only after the architectural design had already been completed (the Glass House had been built by the time the Kootz project came along, so that the model was entirely speculative; the circular brick bathroom unit was the only full height interior element in the actual house, while the single extant painting was a large freestanding Poussin, mounted on a metal stand).⁹⁸

The traditional professional and formal affinities between art and architecture, then, seemed to have serious issues in the contemporary context. How could it be possible to return to a more synthetic process among the arts; indeed, was this tenable or even desirable at this point? While the art market had its own rationale for such a collaboration, artistic and philosophical motivations were less forthcoming. In this sense, the symposium became a forum to reinvigorate old alliances, to renew old vows among disciplines that now had little, if any, formal or professional relationships with one another. The art critic and Guggenheim museum director James Johnson Sweeney began the list of speakers, in attempting to

97. "A symposium on how to combine architecture, painting and sculpture," *Interiors*, August 1951, 101.

justify the continuation of this affiliation by deferring to a neoclassical architectural model that incorporated painting and sculpture as the imaginative extensions of the basic art of building.

The combination of painting, sculpture, and architecture *is* desirable.

Why?

First, from the viewpoint of the individual arts, because the conception of any one of these in isolation is a limitation. Interrelated, as they have been in all the greatest periods of art, they contribute to one another. Isolated they dry up, lose their associative values, become inbred, spiritually dwarfed.

Second, from the viewpoint of the public, a failure to interrelate them is a deprivation, a limitation of the full emotional stimulus their orchestration provides—for the whole of these arts properly combined is greater than the sum of its parts.

Finally, from the viewpoint of architecture, the discouragement of their combination would be a fatal impoverishment, for painting and sculpture in architecture are an extension of its imaginative factor just as representation is an extension of the imaginative factor in painting and sculpture.⁹⁹

In distinction to Greenberg's claim that, as with abstract expressionism, art approaches its highest expression by reaching within its internally specific material and formal parameters rather than imitating the effects of others, Sweeny here argued the opposite, that the arts needed to work with each other in order to create a common vocabulary, a unifying *Kunstwollen* that rejoined the disparate arts. Like Greenberg, however, Sweeny did believe in a single discipline as the flag bearer for the others—the art critic saw music as the leading artform of the nineteenth and twentieth century through its disciplinary autonomy, whereas the architect saw architecture as the eternal mother art, giving rise to its progeny in painting and sculpture. For Sweeny, architecture provided the framework on which the expressive arts

98. Eleanor Bittermann claims that the Poussin does indeed act as a partition here, and argued for the further use of large murals as a contemporary architectural device: "Many, many possibilities for adapting large paintings to mural use are suggested by this screening panel [referring to the Poussin]. Following this hint, architects might well employ some of the many excellent American paintings that still remain in the artist's studios." Eleanor Bitterman, *Art in Modern Architecture* (New York: Reinhold, 1952), 76. While the Poussin may indeed have been the original impetus leading to Johnson's collaboration with Baziotes, nonetheless its modest size relative to the interior volume of the house, along with its freestanding, elevated position, make this a questionable assertion. Indeed, a painting on the order of the Baziotes mural would have been in contrast to the freestanding elements situated throughout the rest of the house, and would have distracted from its volumetric purity. With the plan at present, the painting (and painter) is relegated to a minor role along with the Nadelman sculpture, both working as spatial pivots in the same manner Blake had envisioned with the Pollock sculptures for the Pollock museum project.

99. "A symposium on how to combine architecture, painting and sculpture," 102.

could hang; without them, as he implied, the International Style became subject to a fatal self imposed denial of the subjective imagination shown by the other arts.

The limits to which Sweeney imposed the role of painting and sculpture for the building arts bluntly demonstrated the distance between the subordinate position assigned by architecture for the other arts (and in this sense there was little progress shown between Beaux-Arts classicism and the International Style), versus the aspirations of postwar painting, which, as exemplified by the Blake/Pollock project, had its own designs on both its relation to architecture and as architecture proper. The American painter Ben Shahn voiced some of these concerns in following Sweeney's comments: architecture had lost its expressive spirit in the modern era in its emphasis on scientific functionalism, he claimed, so that it fell to art to claim a greater degree of individual expression. The architect in his description functions as the bureaucratic technocrat, whereas it is the artist's role to act as the vanguard interpreter. Thus according to Shahn, the social responsibilities of the modern artist conflicted with his limited tasks as assigned by the architect. The artist could no longer be asked merely to provide ornamental distraction for architecture, but the work needed to stand on its own merits in order to hold true to his position as artist: "If the artist is called on merely to keep his work subservient to the architecture, to create something ornamental but nothing more, he is in effect being asked to take leave of himself for a period, to depart from his role."¹⁰⁰ The fresco, once seen as an integral part of the artist's oeuvre, now became viewed as a confining limitation and financially impractical in relation to the portable commodity nature of the modern easel canvas.

Between architecture's desire to subordinate the other arts, and painting's intent to release itself from the economic and physical boundaries imposed by the fresco, the two disciplines seemed to hold little in common at mid-century. Jose Luis Sert lamented this condition, in remarking how "the whole thing is that we are divorced. A lot of time has passed since architecture and painting were together, and we have lost the habit of collaborating in this matter."¹⁰¹ The particular postwar economies of the two professions—one necessarily dependent upon portability and easy convertibility for its exchange value, and the other inherently tied to the land values of a specific location—created a situation in which their economic and cultural worth became directly related to their ability to produce distinctly separate commodities. This separation asserted itself not only through the economies of each discipline, but also by way of an increasingly separate visual vocabulary.

100. "A symposium on how to combine architecture, painting and sculpture," 102.

101. *Ibid.*, 105.

Sert argued that modern painters treated the architectural commission as a blank surface devoid of site or architectural specificity, to be handled no differently than a raw canvas in creating the self-contained, individually expressive work of art that was independent of its immediate context. Conversely, architects ignorant of contemporary issues and developments in modern art, chose artists without regard to the suitability of the particular commission. What was needed, he asserted, was a 'community of ideas' shared among the disciplines, that enabled a common ground of understanding in developing a team approach for the architectural collaboration.

Towards this goal, Sert outlined three possibilities of combining painting and sculpture with architecture: the ideal 'integral approach' would be one in which the architect takes on the role of the artist, or where there is a similar intimate sense of unity between art and architecture. While Sert was thinking here of Renaissance or Art Nouveau work, Suprematist and de Stijl collaborations were also significant modernist examples. The architect ideally also becomes the sculptor and/or painter, subsuming the minor arts under an architectural foundation, binding the arts towards a common artistic goal. Though architecture still had an ostensible claim to artistic sovereignty, paradoxically it also had to acknowledge its debt to painting and sculpture in order to achieve this position: "Without them [the architect] would produce buildings, but the buildings would not be architecture."¹⁰² Specifically, it is architecture conceived of as sculptural form, that gives architecture its sense of 'plastic values', alluding to Le Corbusier's reclamation of sculptural form for modern architecture.¹⁰³

The second, 'applied' approach accepts the building as given, and painting and sculpture are subsequently added as secondary decorative elements to merely enhance the architectural design. A collaboration of this sort requires the iron hand of the architect dictating the style and tenor of the artwork. In this case the visual language of the artist is preordained by the architectural design, so that "they speak the same language."¹⁰⁴ In this instance, as Sert acknowledged, this type of enforced unity often led to unsatisfactory results, owing to the 'unwillingness' of the painter to cede to the architectural idea. Where the architecture treats painting as ornament, the artist's work and conviction become compromised, as

102. Ibid., 103.

103. Sweeny later argues that modern painting correctly applied, can also aid in enhancing the sculptural aspects of architectural form: "if the architect feels, as Le Corbusier did, that he 'can make his composition with the *a priori* desire to bring out, at a given moment, the great song of plastic realism,' painting can be called in to his aid and an aesthetic fusion can be achieved productive of a more complex order without any sacrifice of unity in expression." Sweeny here most likely has Le Corbusier's own painting and architecture in mind. See *Vision and Image* (New York: Simon and Schuster, 1967), 160.

104. "A symposium on how to combine architecture, painting and sculpture," 103.

in the case of Pollock's commission for the Geller House; conversely, where the artist works solely with the painting in mind, as in the case of the *Guernica*, its architectural setting becomes irrelevant. In the case of the abstract expressionists, this condition seemed incorrigible, as the formal concerns of American painting became increasingly separate from those of a native architecture still in the throes of attempting to clarify its identity.

Other than the convenience of the blank wall surfaces afforded by the International Style, there was little in the way of a common visual style linking the new painting to the new architecture; there seemed to be no easy solution to the thorny issue of relating the intensely individual, introspective, spontaneous and messy vitality of the abstract expressionist palette, to that of the rectilinear geometry and spare vocabulary expressed by American modern architecture. The artist Irene Rice Pereira succinctly stated the situation in saying how

unlike architecture, most painting today has no underlying structural framework within which to construct an object. Inasmuch as structural and form-giving properties are essential for conveying meaning and content, it would seem to me that representation in the visual arts has become a pictorial expression of a flat concrete expressiveness.

More precisely, contemporary art, in most cases, fragments the object and negates space. There is merely dynamism in action and a dissolution of structural form.¹⁰⁵

As an implicit acknowledgement of this foregone situation, the resolution to this separation was its acceptance, and the outcome of the attempt to merge the arts resulted not in a common visual vocabulary, but rather, the understanding that the American variation of the *Gesamtkunstwerk* meant the celebration of their independent tendencies. In addition, the notion of a democratic modern culture that allowed differing viewpoints also played well into the Cold War cultural politics of the fifties. This last approach saw how "architecture, painting, and sculpture may be simply related to one another, each work standing alone...The whole becomes greater than the parts."¹⁰⁶ Sert held up the Piazza della Signoria in Venice as one such historically sanctioned instance of a sympathetic and autonomous relation between historically disparate styles, while Johnson had previously mentioned the Kolbe statue in the Barcelona Pavilion as a contemporary example of how modern architecture and sculpture could agreeably cohabitate.

105. Irene Rice Pereira, from "Views on Art and Architecture: A Conversation," published in *The Visual Arts Today*, ed. Gyorgy Kepes (Middletown, Conn.: Wesleyan University Press, 1960), 63.

106. *Ibid.*

By presenting this model, Sert also implicitly acknowledged the contemporary impracticality of returning to any crafts-based unity between painting, sculpture and architecture, aiming instead to promote a formal autonomy within a mutually sympathetic relationship. In this manner, the notion of ‘cooperation’, with its vague taint of socialist sympathies, could then be fortuitously replaced by the idea of a mutual ‘independence’, in which personal ideals could be accommodated within an overall framework. It also solved the more immediate and thorny problem of relating the austere ethos of Bauhaus design, against the decidedly anti-academic, wilfully autonomous stance of American painting. In the light of the independent direction of abstract art and architecture, this approach seemed to hold the most promise for contemporary work. For an artist such as Mark Rothko, painting created its own world, neither of pure illusory pictoriality nor planar object-form, but one which questions the epistemic limits of the mural format. Rothko’s work traces a trajectory which begins to explore painting as a self-sufficient architecture, but winds up negating both the idea of the autonomous singular work of art, and painting as a substitute for architectural form.

Painting / Architecture: Mark Rothko

In place of the traditional fresco, the mural served to satisfy the large scale ambitions of the modern painter; apart from its relative portability, it could not only separate itself from its traditional dependence on architecture, but it also had the capacity to act as self-sufficient form, to delineate real over pictorial space. It is in this sense that Mark Rothko spoke at the symposium, in describing how he intended his paintings to have a direct and immediate effect, rather than imposing the illusion of an artificial distance on the viewer: “I realize that historically the function of painting large pictures is painting something very grandiose and very pompous. The reason why I paint large pictures, however—and I think it applies to some of the other painters I know—is precisely because I want to be very intimate and very human.”¹⁰⁷

More precisely, Rothko was interested in returning the spectator to the engaged specificity of the act of viewing, to reconstitute the notion of *presence* in the postwar work of art. This position is manifest if we compare Rothko’s statements with that of Walter Benjamin’s disciplinary analogy between auratic ritual and scientific vision: “Magician and surgeon compare to painter and cameraman. The painter maintains in his work a natural distance from reality, the cameraman penetrates deeply into its web.

107. “The relation of painting and sculpture to architecture,” March 19, 1951. Symposium transcripts, Museum of Modern Art, New York, 42.

There is a tremendous difference between the pictures they obtain. That of the painter is a total one, that of the cameraman consists of multiple fragments which are assembled under a new law."¹⁰⁸ In distinction to Benjamin's declaration of a distanced illusionism as the province of the painter, Rothko instead claims the position of the modern surgeon, the cameraman who selectively enters and dissects the recesses of the visual frame. Nonobjectivity stands in place of the unified, reified representational form. By appropriating the instrumental properties of the camera, Rothko is able to absolve painting from its fate as mere technical mimesis, and capture what no lens could see. The work retains an undoubtable presence borne of its specific identity, but it is not concerned with a totalizing vision of objective representation; the dimensions of the canvas are not intended to capture and retain vision at a distance, but instead works the opposite, in the particularities of a near-sighted, haptic exploration of the visual field:

From my point of view, at this particular time, to paint a small picture is to sort of place yourself outside your experience, that is, to look upon an experience as a stereopticon view or with a reducing glass. However you can paint the larger picture, you are in it. It isn't something that you command or control, but you are having a completely intimate experience, and perhaps it is impossible for people today to paint grandiose pictures, and perhaps it is a very good thing that they can't paint grandiose pictures.

I think these large pictures, mine or those of some of my contemporaries, can go anywhere where people are interested in human and intimate experiences.¹⁰⁹

To be 'in' the picture in this manner radically shifts the viewer's understanding of the traditional perceptual role of painting, i.e. not as an isolated, Kantian experience, but rather one which is dependent upon the physical relationship between viewer and viewed. Rothko would claim of his works, "A painting is not a picture of an experience; it is an experience,"¹¹⁰ indicating his reading of painting as an immediate activity rather than a second hand representation. Rothko's concern with the notion of intimacy reveals how he intended his canvases to embody and enframe the viewer, to act as a projection of the viewing body.

108. Walter Benjamin, "The Work of Art in the Age of Mechanical Reproduction" (1936); translated in *Illuminations*, trans. Harry Zohn (New York: Schocken Books, 1969), 233-4.

109. "The relation of painting and sculpture to architecture," 43. Barbara Rose argues that this attempt to visually bracket the viewing experience by painterly means was central to Abstract Expressionism: "Thus to create an image so large it would take up the viewer's entire field of vision and hence to occupy his entire consciousness for the moment he was looking at it, became a general goal for the artists of Rothko's generation, who wished to make of art an experience as total, as engaging and as real as life itself." Barbara Rose, *American Painting: The Twentieth Century* (New York: Rizzoli, 1980), 73.

110. Dorothy Seiberling, "Part 2: The Varied Life of Four Pioneers." *Life*, 16 Nov. 1959, 80.

In order to elaborate on this aspect of his work, we may look at how Elaine Scarry discusses the reciprocal act of projecting in the structuring of a material artifact, in the way in which the work simultaneously reflects and projects the physical exterior and interior events of the body, and it is in this manner that I believe Rothko's work operates: "The interchange of inside and outside surfaces requires *not* the literal reversal of bodily linings but the making of what is originally interior and private into something exterior and sharable, and, conversely, the reabsorption of what is now exterior and sharable into the intimate recesses of individual consciousness."¹¹¹ The sentient attributes of the work are revealed as mirror and extension of the body: The verticality of Rothko's canvases mimic the upright stance of the viewing spectator, outlining and enlarging the body in its projective aspect towards painting, while the horizontal divisions between color bands demarcate an optical (re corporal) horizon line. Reciprocally, the carefully measured aformality of the luminous fields returns the work to the consciousness of the interior self. By this dual trajectory between artifact and individual, his paintings also highlight the tension between the depthless voids promised by the canvas, and the material immediacy of the painterly object.

If Pollock's murals promised the path towards an architectural self-determination, then Rothko's works are resolutely painterly in that they remain explicitly circumscribed by the limits of the frame rather than probing into the 'limitless depths' residing beyond the edges of the all-over canvas. Fracture and color mark the material immediacy and optical boundaries of a mural plane which lie inert to the contingencies of the exhibition space. It is perhaps this lost opportunity which Philip Johnson sensed, in both his experience with Baziotes, and which he saw in general with Abstract Expressionism. For Johnson, this perceived relapse in modernist painting back to the easel format was not entirely unwelcome, in that the painter's craft no longer threatened to impinge upon the architect's priority. Rothko in turn found the architect's understanding of his work to be limited between conventional notions of easel and mural painting, whereas he was more interested in exploring an aspect of painting outside of these received categories—that is, in a kind of artform which neither made architecture, contained its effects, nor became affected by its physical impositions. The painting for Rothko had to be an encompassing experience, one which accepted its architectural support as a matter of course, but one which also rigorously asserted its independence from the surrounding walls. The following exchange between Rothko and Johnson at the symposium is revealing of the impasse between the artist's anarchitectural trajectory, and the architect's attempt to contain its radical consequences through delimiting terms of meaning:

JOHNSON: I hope all these big painters, from Rothko to Motherwell, are all tending

111. Scarry, 284.

toward more architectural work, but they are still not. They are still in the trend of easel painting. That may be the right answer.

MR. ROTHKO: I don't think it all comes to easel painting.

CHAIRMAN JOHNSON: Well, take away the easel, then. [Laughter]

MR. ROTHKO: No, no, here is what I mean, that the general concept of a mural painting is something either generalized or grandiose, understood for all kinds of symbols and devices and pictures and so on. I feel that view has to be changed, because simply because a picture does not deal with those kinds of concepts and subjects does not mean that it is an easel picture.

CHAIRMAN JOHNSON: All right, then, I say we do away with both the word, 'easel,' and the word, 'mural.'¹¹²

Rothko's reluctance towards these two labels was in large part, I would argue, a critical opposition to large scale painting as architecture. On the one hand, he had no interest in the easel painting's subordination to the localized exigencies of any architectural support. On the other, he also resisted the traditional role of the mural's cultural associations (heroic valorization, monumentality, economic power and social legitimation, etc.), but more directly, he refused to engage in the architectural implications of the mural's insistent object (or in Michael Fried's terms, 'theatrical') properties. In distinction to Greenberg's claims of pure, undistilled planarity for Abstract Expressionism, Rothko's work revels in the oscillation between the factual immediacy of the canvas and the optical implications of an undefined apictorial space outside the province of architectural volume. Rothko's murals do not attempt to optically extend and dissolve the physical boundaries of its settings, as in the Roman or Renaissance trompe l'oeil fresco; rather, they hold the vague promises of an undefined space that is subsequently denied by its obdurate surface plane.

In spite of his difficulties with the architect, Johnson was involved with at least two of Rothko's best known public commissions: the Seagrams murals, and the Houston Chapel. If Johnson found fault with Baziot's efforts at an architectural integration of modern painting, then perhaps he found Rothko's heroic scale to be perhaps more suitable to the scale of public architecture. I want to look at these two projects because they reveal the development of Rothko's understanding and approach towards the role of architecture in relation to his paintings: in the Seagrams murals, which I will first review here, we see Rothko making what seems initially to be a genuine attempt at working the question of combining abstract painting with postwar architecture; by the time of the de Menil commission for

112. "The relation of painting and sculpture to architecture," 44.

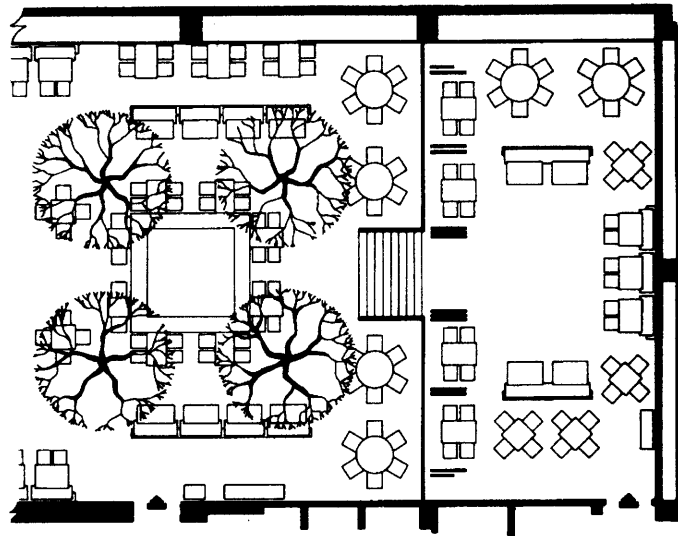


Figure 15: plan of Four Seasons dining rooms at Seagrams Building; Rothko's commissioned room at right

the Houston Chapel the following decade, however, it becomes clear that his paintings deliver a deliberate and obstinate renunciation of any architectural support.

From the original behest of Johnson and Phillis Lambert, Rothko was awarded a contract in the summer of 1958 to produce approximately 500-600 square feet of mural painting for the smaller of the two Four Seasons dining rooms, which Johnson designed as part of the Seagrams headquarters on Park Avenue.¹¹³ [fig. 15] Unlike the carefully controlled conditions in which Rothko normally preferred his paintings to be shown, his charge here was to work with a predetermined space (55' long by 26' wide by 15' high) that was less than conducive to the task of viewing his murals. The long west wall, for instance, was elevated above the diners' heads, which removed the possibility of the work encompassing the haptic field of the viewer. Nonetheless, the commission became a kind of challenge for Rothko to produce that kind of synthesis between painting and architecture which had been discussed at the symposium.

James Breslin's historical reconstruction of the Seagram murals highlights Rothko's continual ambivalence about the project; after two years of work which produced approximately forty canvases,

113. The particulars of the Seagram commission are well documented in Thomas Kellein's *Mark Rothko, Kaaba in New York*, exhibition catalogue, 19 February - 7 May 1989 (Basel: Kunsthalle Basel, c1989). See also James E. Breslin's biography of the artist in *Mark Rothko: A Biography* (Chicago: University of Chicago: 1993), and Michael Compton's introductory essay in *Mark Rothko: The Seagram Mural Project*, exhibition catalogue, 28 May 1988 - 12 February 1989 (London: Tate Gallery, 1988), 8-17.

seven of which were to be chosen for the room, the artist finally turned down the commission after seeing the dining room after its opening. Breslin recounts how the artist's vision of a profane space that would be transformed by the totalizing embrace of the murals, became dashed by the reality of its opulent and disinterested setting. Rather than being able to produce a singular environment in which the cycle of paintings could be experienced as a totalizing unity, it became patently clear that his works were intended to serve as a barely registered backdrop in the context of haute cuisine dining, as fashioned by Philip Johnson's restrained luxury by way of Mies' furniture, a shimmering Lippold sculpture, and verdant interior landscaping. Rothko's conception of the murals acting as the main theme of the room, gave way to the architect's dominating presence, in which the architecture came first, painting as an afterthought.

Rothko from the beginning of the project attempted to invert this endemic condition, by defeating its architectural reality through sheer painterly vision. Rothko was not interested in making background ornamentation for the distracted diner, nor did he find the prospect of making transcendental art for a disinterested and uninformed upper class audience particularly appealing; instead, he wanted to make the paintings replace the architecture as the central focus of the room. Among the New York School painters, Rothko was the one most concerned with expanding the mural format beyond the boundaries of the single canvas. His method of working with architecture came to imitate its effects in order to master it, by extending painting towards the scale and tectonic opacity of the architectural plane. More than just the idea of expanding the physical boundaries of a single painting, or of creating a thematic triptych, these paintings anticipated and thwarted its architectural setting by their instantiation of structure and repetition.

Rather than imitating architectural volumes by the traditional mimetic means afforded to painting, Rothko chose to focus upon the aspatial, form intensive aspects of his work, in order to remove it from any comparison with architectural space. Through the distillation of material parameters to their raw essentials, shape, color, and the relationship with adjacent canvases outline the basic visual structure of the murals. The artist situated painting within architecture not by the traditional trajectory from the occupiable volume of architectural space to a fictional perspectival scene, but instead deliberately and obstinately preventing such a possibility from happening, by recourse to the object facture of the mural plane. Rothko promoted form over space in an attempt to shift painting from a discipline of second hand illusionism, to a practice which would directly challenge architecture as form, as underlined in this passage:

In our inheritance we have space, a box in which things are going on. In my work there is no box; I do not work with space. There is a form without the box and possibly a

more convincing kind of form.¹¹⁴

Rothko's model of mural painting within architecture then became a process of working and extending the physical and conceptual parameters of the architectural object, rather than mutely accepting its fate within a circumscribed frame. In this new role as painted object—that is, as a class of painting that resides within the boundaries of painting rather than sculpture—the mural work then inherits two complementary responsibilities: as architecture, and as painting. Rather than a superficial representation of architectural elements, however, Rothko instead produced a conceptual reading of the dining room that returns it to a subset of the painterly environment; painting subsumes architecture.

Breslin viewed Rothko's method as explicitly drawing upon architectural imagery in order to back away from it, to defuse and deny traditional intimations of space and form. Breslin claimed that by rotating the predominately horizontal bands of color in the early to mid-fifties canvases on their sides, Rothko made a major conceptual shift in his painterly vocabulary for the Seagram project, transforming their meaning from transcendental abstractions into figurative symbols alluding to vertical architectural elements: "While still predominately rectangular, this new imagery, suggesting windows, doors, portals, was simple, classical, architectural. Rothko had moved his work into a whole new dimension."¹¹⁵ At the same time, this architectural figuration refuses entry into a perspectival space by its obstinate foregrounding of the mottled hues, texture, and overall shape defining the object nature of the canvas. As Breslin put it, "Rothko's murals were to harmonize with these architectural features, in order to 'defeat' them."¹¹⁶

The course from nonfigurative to quasi-figuration as Breslin charts it, however, is rather speculative—while the idea of Rothko's turn towards the mimetic holds an obvious allure, it is a somewhat superficial response to Rothkos' intentions, and it is unclear whether the artist himself ever intended such overt references to architectural forms. Indeed, the opposite case could be made for the increasing movement away from literalism in the evolution of the artist's work. If it is plausible as Breslin claims, that Rothko's visits to Michelangelo's Laurentian Library during the fifties unconsciously influenced the Seagram commission to some degree,¹¹⁷ then it is not so much about imitating an architectural scheme—

114. Charles Moritz, ed., *Current Biography Yearbook* (New York: H.W. Winston, 1961), 399; also cited in Breslin, 401.

115. Breslin, 383-3.

116. *Ibid.*, 403.

117. This is cited by others as well; see for instance Michael Compton's essay "Mark Rothko, Subjects of the Artist," in *Mark Rothko*, exhibition catalog, 17 June—1 September 1987 (London: Tate Gallery, 1987), 60.

that of the painted planes standing in for the blind windows set between pilasters—as the artist’s interest in creating a totalizing work of art, one in which the mural planes are able to create an encompassing environment by reason of their object nature.

Anna Chave makes a strong case in making the technical counterargument that the rectangular spaces in the artist’s classic abstract paintings from the fifties are not intended to appear as doors, that is, openings onto a more or less distant landscape, for the simple reason that they have been painted on top of the base color Rothko used for the particular composition, and that therefore they appear to hover over as discrete planes rather than reside as voids behind the canvas ‘wall’.¹¹⁸ This is not to say that Rothko was disinterested in figuration and symbolism; Chave claims that the rectangles in his abstract work act as metaphoric icons in the Peircian sense, descendants of his figurative period from the thirties: “In suggesting that Rothko’s paintings are iconic, I am proposing to show that they are embedded with metaphor, that they function by means of similarity and by exhibiting the structure of ‘a state of things regarded as if it were purely imaginary.’”¹¹⁹ According to Chave, the rectangles are then symbolic metaphors for his earlier paintings, not merely supplanting or standing in for the objects of a realist composition, but rather acting semiotically in fundamentally the same manner as the figurative works; in this manner, the abstract paintings can be understood as wrestling with some of the same philosophical and religious themes he had examined from the beginning of his career. Further, one could say that this iconic status extends beyond the immediate confines of the rectangular forms held within the frame, to the object dimensions of the painting itself. By giving the painted object the status of an icon, Rothko returns his work to that traditional relationship between architecture and the privileged role accorded to the religious icon.

Rothko’s comparison of the Seagram ‘cycle’ with the Sistine chapel,¹²⁰ then, in addition to its aspirations towards an heroic religiosity, also revealed the artist’s attempts to dominate architecture, to instantiate an environment through sheer painting. One of the principle devices in this effort concern the physical relationship between the murals; Rothko’s fastidious efforts to control the hanging of his works

118. “There are reasons why Rothko’s pictures should not suggest doorways, however, including the fact that their would-be doorframes are not in front of their would-be landscapes or open spaces but in back of them, having been laid down first. In addition, the color of the would-be doorframes does not simply surround the unknown space with a discrete rectangle but usually continues into the space itself, filling the interstices between the broad rectangular areas.” Anna Chave, *Mark Rothko: Subjects in Abstraction* (New Haven: Yale University Press, 1989), 74.

119. *Ibid.*, 37.

120. Breslin, 407.

give evidence to the importance with which he attached the physical parameters of their exhibition, as well as to the mural images themselves. Willem de Kooning observed that Rothko's Seagram commission marked "the first time he was making one painting in relation to another painting."¹²¹ Like the Sistine Chapel, the Seagram murals were to be viewed as a continuous frieze, with one wall to be viewed over the diners' heads.

Michael Compton here notes that Rothko's reference to the paintings as a coherent set of panels indicates that the murals were not meant to be seen or installed as autonomous individual works, but instead mounted flush together as sections of a larger mural conception.¹²² In setting up this condition, the mural work began to take on architectural proportions, developing an environment by the artist's use of form, shape, and color. While Compton compares the Seagram series to Monet's Water Lily murals installed as a circular arena inside the Jeu de Paume, the essential difference between Monet and Rothko's conception lies in the distance between the traditional notion of the canvas as transparent scrim, veiling a more or less distant landscape, versus the immediate and obstinate blank presence of the Rothko panels. Interestingly, it is the impressionist frieze that recedes into the architecture, giving the impression of a decorative veneer that skims the vertical surfaces, whereas the Seagram panels actively resist this reading by stopping the eye at the surface, by forcing an engagement with the factual plane.

While Rothko's work refuses entry into any spatial illusionism borne of perspectival depth, the Seagram panels bring into focus an understanding of space which concerns the immediate relationship between painting and viewer; rather than retreating into the fixed and imaginary spatial construction controlled by an invisible grid and vanishing point residing behind the picture plane of the traditional realist canvas, Rothko's murals instead highlight the real and elastic spatial relationship between artwork and spectator in front of the canvas. Breslin here speaks about this production of a 'local' space, taking phenomenal precedence over its generic architectural space:

In his paintings of the 1950s, Rothko, focusing on the interaction between the viewer and the painting (rather than conceiving of the painting as a self-contained object), wished the 'space' of the painting to extend into the 'real space' occupied by the human figure in front of the painting. His obsession with controlling the hanging and lighting of his work derived from this effort to generate, out of the physical presence of the work and the physical presence of the viewer, a spatial environment.¹²³

121. Breslin., 378.

122. Compton, 62.

123. Breslin, 402.

In this sense, the physical limits of the architecture of the exhibition space are absolutely critical to the conceptual and haptic understanding of the murals; this local space engendered by the interaction between art and viewer becomes an intrinsic part of the mural work. The determination of architectural form and volume enter into the province of the artist, in the work of dividing generic volume into perceptible space. If, as Rothko claimed, his work was about object form over mimetic reproduction, involved experience over illusionism, actual spatial relations over its secondhand representation, then he needed to not merely dominate the local space of painting, but to develop and control the tenor of the overall environment as well. To be 'in' his paintings also meant, ultimately, to be in his space. The Seagram commission failed for Rothko because of his inability to transform its specific spatial relations from that of an inward, isolated dining experience, to that of an experience focused on its periphery, towards a personal intimacy between painting and vision developed out of planar form, imbedded color, and lived space.

Though Philip Johnson had complained of William Baziotēs' ostensible lack of cooperation on the house mural for the Kootz exhibition, neither was the architect willing to cede any true collaborative responsibility for that project, or for that of the interior design in the Seagram dining room (to be sure, Johnson's own role was tightly circumscribed in relation to Mies' overall direction). This lay at the crux of the problem for Rothko: the artist's conception of mural painting demanded at the very least an acknowledgement of the work's material presence and spatial provisions; ideally, the mural work had to form the basis for the surrounding architecture rather than the traditional converse, as applied decoration, the modernist equivalent of architectural ornamentation inside the ascetic space of a predetermined volume. His course of action then became a reaction against the given, the painter's task of illusionism inside the architectural shell. In its failure, we can glimpse the artist's attempts to recapture the space of the viewer through the insertion of an alternative architectural schema honed from the factual weight of hue and dimension, the structure of formal rhythm and repetition, the space of a painterly light hovering in front of the picture plane.

Loss and Redemption

If Rothko had serious questions regarding the collaborative efforts between architecture and painting, then neither was it clear for architects or critics how precisely to incorporate postwar art into modern architecture. While many writers attempted to celebrate the common sensibilities relating abstract expressionism to the International Style, the wide range of their often conflicting arguments exposed the quagmire in attempting such a model. It seemed clear however, that postwar visual culture

could not match the collaborative harmony between building, painting and sculpture set during the Middle Ages, or even more recently, by the work of the early twentieth century avant-garde. The literature of the period reveals a sense of loss that pervaded a fall from grace, from that of earlier, more unified periods in art; and concomitantly, how current work carries within itself the possibility for their renewal.

For many, the separation between the arts became an inevitable consequence of postwar culture; the French art critic Paul Damaz claimed that the beginnings of this separation could be traced back to the Cartesian split between rational thought and intuitive feeling in the seventeenth century.¹²⁴ In this model, the development of a modernist architecture, driven by engineering and utilitarian function, becomes increasingly divorced from the extraneous concerns of the visual arts. Here, Damaz quotes the poet Paul Valery, who couches the situation in classical, tragic terms: “Painting and sculpture are children who have been abandoned. Their mother, architecture, is dead. While she was alive, they had their place, their role, their restraints.”¹²⁵ This nod to Victor Hugo’s assessment of the demise of architecture’s rhetorical role in the face of the modern printed press, viewed the visual arts as without the parental constraints of architecture’s guidance, now free to run wild, without form or regulation. Damaz’ slightly more optimistic metaphor on the other hand, compares modern architecture to an adolescent body, abandoning the arts in favor of the physical pleasures of pure structure:

It is a fact that modern architecture, as it is commonly practiced, cares little for the other arts. It is a young and vigorous architecture. It resembles a young athlete, proud of his newly developed body, who as yet has had little concern for his mind. It has developed following the precepts of a narrow and wholly material ‘functionalism,’ and everything that was not absolutely necessary to its organization or efficiency was set aside. And thus, it has come to pass that art—superfluous but indispensable—has been ignored by our architects, who were hypnotized by the technical exploits of engineers.¹²⁶

Between its death in Paris at the beginning of the nineteenth century, and its consequent rebirth in America some decades later, architecture would outline the same course that modern painting—at least according to that model constructed by Clement Greenberg—would follow for the New York art market beginning in the forties. That is, the demise of traditional mimetic representation in Europe, foreshadowed by cubism and surrealism, would be supplanted by painting as an autonomous activity, working a visual field comprised of pure formal structure. It is in this way that Damaz was able to reclaim the commonality of the visual arts, this time not through the invocation of representation, but rather by pointing

124. Paul Damaz, *Art in European Architecture* (New York: Reinhold, 1956), 9.

125. *Ibid.*, 7

126. *Ibid.*

to the modernist *Kunstwollen* of abstraction: "Painting and sculpture, now abstract, find themselves for the first time in intimate communion with architecture, an art which itself is essentially abstract."¹²⁷ Thus, the appearance of platonic geometries in painting is identified with the elemental forms of modern architecture, the simplicity of composition compared to spare Bauhaus aesthetics, even the abandonment of subject matter of the external world in the abstract canvas could be seen in the obsession with the formal composition of the architectural object. Through the new found medium of abstraction, painting and architecture could once again find a common visual ground in which their work could be understood as part of a larger and progressive artistic culture.

However, this claim of a unified formal sensibility seemed hardly verifiable, much less able to claim the stability of a coherent movement even within the group of contemporary critics who wished to promote some kind of alliance between architecture and the other arts. Victor Pasmore, for instance, asserted that "Whereas in the past artist and architect combined as specialists in their own particular media; today they can function in terms of the same formal language,"¹²⁸ implying that the legacy of cubism and futurism lay behind the specific formal elements of postwar modernism (invoking once again, Giedion's cultural determinist model of architectural history). Yet, this shibboleth of abstraction itself became so vague in its abstractness as to hold any or no meaning whatsoever; the label of the 'abstract' held together such diverse works as Arp and Miro's biomorphic shapes, Pollock's loopy splatters, and Mondrian's rigid compositions, and in turn asked to be compared to a spectrum of architectural forms ranging from Niemeyer's curvilinear vaults, to Mies' severe rectilinear asceticism.

Within this spectrum, abstract expressionism stood out not only as the dominant postwar artform, but also because of its resistance towards any easy translation into architectural form. Here, Clement Greenberg's formalist reading of postwar painting situated painting and architecture within the progressive ideals of an industrialized economy. In reviewing a 1951 exhibition at the Frank Perls gallery that included contemporary artists such as de Kooning, Gottlieb, Hofmann, Matta, Motherwell, Pollock, Reinhardt, Rothko, Still, and Tobey, Margaret Sorzano acknowledged that the de Stijl artists had more in common with modern architecture than present day painters, in the way the early avant-garde were able to incorporate painting and architecture into a unified work of art. This argument suggested that the specialization of the abstract expressionist's task precluded the contemporary artist from any architectural possibilities. However, unlike Damaz, who proclaimed a correspondence by reason of an overarching 'abstraction' that encompassed everybody from Pollock to Mies, Sorzano intimated the material

127. Ibid., 39.

128. Victor Pasmore, "Connection between Painting, Sculpture and Architecture, *Zodiac*, no. 1, 66.

relationship between large scale painting and its architectural potential: “The abstract expressionist can, with complete truth to his objectives, create a mural or a sculpture whose shapes, colors, moods and images will be related to the architecture and objects of contemporary design. These paintings can evoke two kinds of reality: empirical reality and mystical reality. Despite the evasive quality of these paintings, there is a necessary link between the artist and material reality.”¹²⁹ By relating abstract expressionism to an empirical reality borne of construction, Sorzano could not only link painting to architecture, but she also managed to deflect from the populist reading of their work as unbridled mysticism, and instead steered the discussion towards the specific material conditions and object qualities surrounding the work of art.

William Brice expressed a similar sentiment in *Arts and Architecture*, in exploring the relationship between painting and architecture, claiming that “there has been a repeated phenomenon in painting described as a tectonic mode and much of contemporary painting with its emphasis upon material, scale and the two-dimensional surface falls into a category not far removed from it.”¹³⁰ In its rediscovery of the material realm through absolute flatness, painting was able to claim some measure of similitude to the tectonic objectivity of modern architecture.

If a claim to congruence could be attached to the primacy of medium among both modernist buildings and paintings, however, then in part this occurred because of the relative lack of correspondence in their interpretation of abstraction; painting heading towards an interiorized, highly specific (read marketable) measure of individual gesture, with architecture aiming at the anonymity of the public sphere. In order to account for this disparity, the art critic Jules Langsner argued that it was precisely because of the dichotomy between abstract expressionism and modern architecture that made them ideally suited to one another:

This kind of painting, with all its Dionysian delirium, belongs, oddly enough, on the pristine walls of modern architecture. Here is ornamentation, conceived in an idiom of our times, to clothe these often dispirited surfaces. The pure almost mechanically impersonal modern building and the highly personalized, spontaneously executed painting require each other in spite of, or perhaps because of, their position at opposite poles of visualization.¹³¹

129. Margaret Sorzano, “17 Modern American Painters: A Recent Exhibition at the Frank Perls Gallery,” *Arts & Architecture*, Jan. 1951, 26.

130. William Brice, “Concerning Painting and Architecture,” *Arts and Architecture*, August 1953, 20.

131. Jules Langsner, “More about the School of New York,” *Arts & Architecture*, May 1951, 20, 46.

In spite of artists such as Pollock and Rothko who strenuously objected to the reading of their work as decoration, nonetheless its reception as such accounted for the popularity of postwar mural commissions awarded in the arid volumes of countless postwar office lobbies. If Langsner saw the abstract expressionist canvas as a visual relief to modern architecture, however, then the downside to this state of equilibrium would be the mutual negation of their respective effects: painting acting as a surface remedy, masking the underlying formal poverty in postwar building; and conversely, the neutralization of abstract expressionism's heroic aspirations by delegating it the function of decorative ornamentation. This situation worked against much of what the New York School attempted to accomplish in the large scale mural, in separating painting from its architectural support, and developing its tectonic autonomy. The artists had to maintain a fine line between the public context of the mural work, while asserting its formal independence.

In contrast, if modern architecture were to somehow retrieve some tangible measure of meaning from the lessons of abstract expressionism rather than retaining an improbable alliance between two increasingly disparate visual disciplines, then it needed to relinquish its traditional role as backdrop for the mural work, and instead work towards a sympathetic adoption of a radically different visual language than that posed by the early European avant-garde. The critical acclaim given to abstract expressionism begged the question of what the architectural analogy to this radical visual style could possibly be. While architects such as Peter Blake and Tony Smith were among the first to recognize the architectural implications of Pollock's painting, they also found its translation to be both liberating and problematic: if architecture was indeed an artform, what would an architecture of abstract expressionism be like?

An Architecture of Abstract Expressionism, Part I: The Smithsons

As the diverse range of conflicting opinions in the previous section revealed, the difficulties of reconciling the individual expressiveness of painting with the industrial modularization of postwar architecture proved to be a central hurdle for any clearly defined strategy of integration in American building. Ironically, European attempts were able to generate a more convincing response, by way of the nascent pop/brutalism of the Independent Group in London and the Situationist attack on high culture and postwar capitalism on the Continent. For their part, the Smithsons explicitly acknowledged the influence of Pollock's canvas splatterings in regards to their conception of a new urban landscape as an intricately connected megastructural net of activity and traffic circulation [fig. 16]. Guy Débord and Constant's

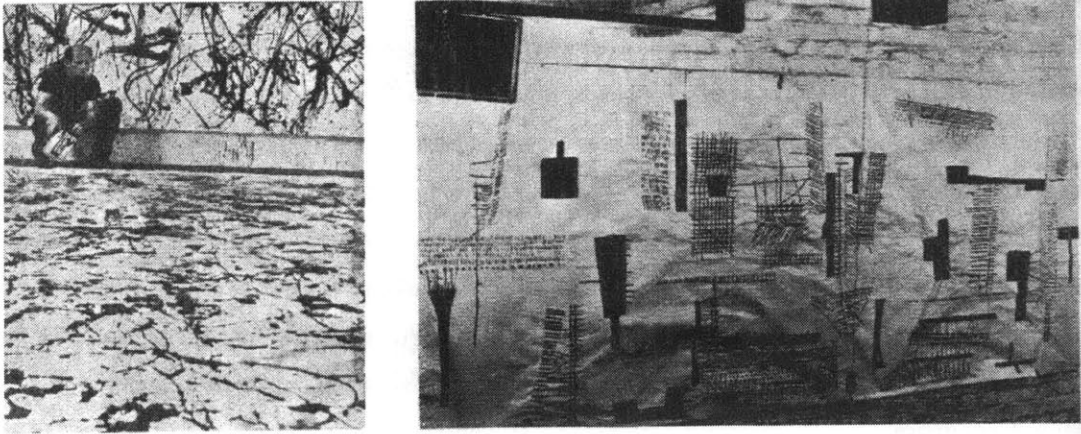


Figure 16: From A. & P. Smithson, *Urban Structuring: Studies of Alison and Peter Smithson*, 1967

Situationist *dérives*, on the other hand, took inspiration from the aleatory trajectories of the *informe* canvas, translating these movements into a prescription for a radical urban architecture.

While advanced American art for the most part did not exhibit in Europe in the immediate post-war years, the New York school of painters began to gain recognition across the Atlantic through publication in the critical and popular press beginning in the late forties. Pollock, most notably, gained international notoriety through a 1949 *Life* magazine article, appearing as an incarnation of the American rebel breaking from academic artistic convention.¹³² The Smithsons were also concerned with dismantling a hegemonic order—but here however concerned with that of the canons of CIAM urbanism—by returning precisely to those elements which had been discarded by *The Functional City* (the theme of the 1933 CIAM conference)—namely, that of quotidian life in the neighborhood community.

As part of the circle which formed the core membership of the Independent Group, the Smithsons were exposed to an incipient pop culture sensibility comprised of figures such as the artists Richard Hamilton and Eduardo Paolozzi, and the photographer Nigel Henderson. Far from its American incarnation as a glossy sendup of commodity culture, the British version of pop art retained a grittier edge that owed its allegiance to dada, surrealism, and French existentialist thought, revealing populist sympathies in its critical awareness towards the practices of everyday life. For the English, the differences

132. "Jackson Pollock: Is He the Greatest Living Painter in the United States?," *Life*, 8 August 1949, 43. In his article "The Idea of Architecture in the 50s," Peter Smithson mentions Pollock's appearance on the European scene around 1949; since Pollock's first European exhibition was not until 1952 in Paris, it is likely he was referring to this widely known article. See "The Idea of Architecture in the 50s," *Architect's Journal*, v. 131 (21 January 1960), 121-26.

between pop art, art brut, and abstract expressionism could be resolved within an overall order of post-war realism—that is, a visual order marked by a messy vitality, the cacaphony of mass produced commodity culture, the spontaneity of the immediate gesture in distinction to the formally planned construction (no matter that the movements of the former were as preordained and considered as those of the latter).

Thus, in addition to pop art, the Smithsons were also able to incorporate contemporary abstract art practice both as a means of challenging the formal status quo inculcated by an increasingly institutionalized modernism, and as an autonomous ordering device that could act as a viable alternative visual structure. As they stated some years later, they explicitly looked to a contemporary visual model to use as a basis for a new building and urban design syntax: “It was necessary in the early ‘50s to look to the work of painter Pollock and sculptor Paolozzi for a complete image system, for an order with a structure and a certain tension, where every piece was correspondingly new in a new system of relationship.”¹³³ Through such an ‘image system’, modern architecture could once again be retrieved from the myth of transparent functionalism, and thereby develop an architectural and urban design method based upon a “freer, more complex yet quite comprehensible idea of ‘order.’”¹³⁴

It is such a statement that must therefore contradict the popular reading of their first major project, the Hunstanton Secondary School dating from 1950, as an example of extreme Miesian reductionism as sponsored by the Welfare State,¹³⁵ and instead understand this work within the orbit of an artistic sensibility driven by an afunctionalist system of order. In this light, New Brutalism was not so much about the raw elementarism of material and constructive technique, as a call to recast the elements of common construction into found objects, as the bricoleur-artist reassembles existing elements into an art of the most nascent patterns.

Similarly, Reyner Banham’s insight that the Smithsons were deeply influenced (along with a generation of others) by Wittkower’s *Architecture in the Age of Humanism* lead to a superficial homology between the formal symmetry of the Palladian villa and that shown in the Hunstanton school plan. However, Hunstanton does not display that primacy of volume, mass and axis around the center of the plan that the Renaissance palazzo demonstrates; instead, the focus of the school plan dissipates to its

133. Alison and Peter Smithson, *Urban Structuring: Studies of Alison and Peter Smithson*, (London: Studio Vista, 1967), 34.

134. Peter Smithson, “The Idea of Architecture in the 50s,” 124.

135. See for instance Philip Johnson’s judgement upon the Hunstanton project as “good Mies van der Rohe,” in “School at Hunstanton,” *Architectural Review*, September 1954, 148.

peripheral courtyard wings, so that it is not so much a tripartite scheme as a binary one—or rather, the central foyer reads in the same order of importance as its companion volumes on either side, making for a three celled division of elements, with central voids within each section. Add to this the separate gymnasium and caretaker's facilities removed from the main body of the school, and one is left with a willfully assymmetrical plan made up of individually self contained elements. It is precisely this cellular schema which marks the two recurrent themes in the Smithson's architectural and planning efforts: the invention of a generative cellular module, and its development into a larger scale project, a process they asserted, was akin to that of Paolozzi or Pollock's thematic working of the individual brushstroke into a cohesive overall visual system.

While the spectre of Hilberseimer's antihumanist vision is resurrected here in the Smithsons' reclamation of the building cell (and more specifically, the dwelling unit) as the basis for a postwar urban strategy, it is not to the urban planner's construction of a relentless serialized repetitiveness in *Groszstadtarchitektur* that is invoked here; in Hilberseimer, we glimpse the absolute erasure of the subject and the absence of auratic presence, significant meaning or origin, in a wholly reproducible world without inflection.¹³⁶ The 'allover' effect that is presented here thus concerns the kind of patterned repetition which ultimately negates any significance in the individual act, whereas the Smithsons utilized the cell in terms of its generative and inventive possibilities, that is, as the germ of a fundamental proof of concept which could then lay out the basis for larger scale structures beyond the confines of its initial form.

Though it was Hunstanton which established their reputation as the architects of the New Brutalism, it was their 1952 entry for the Golden Lane housing competition that more clearly demonstrated their interest in incorporating aspects of postwar art into architectural design. [fig. 17] Ostensibly a large scale building system designed to remedy the housing deficiencies of war torn Coventry, the Golden Lane project did so by wholly ignoring the particulars of the existing urban fabric, and instead acted by literally sitting atop the traditional city with a second layer infrastructure of streets and blocks. In its relentless fractal-like dispersion over the face of the old city (a strategy that would be repeated in Constant's New Babylon projects), it presented a radical challenge to the neatly zoned functionalism of CIAM urbanism—but also, more significantly here, situated its strategy around an aesthetics of dispersal, in which the matrix of the allover canvas could be remapped onto the scale and constructive dimensions of the city, the painterly fiction of the 'endless' canvas here ironically translated into an urban sprawl of postwar reconstruction.

136. See K. Michael Hays, *Modernism and the Posthumanist Subject* (Cambridge, Mass.: MIT Press, 1992).

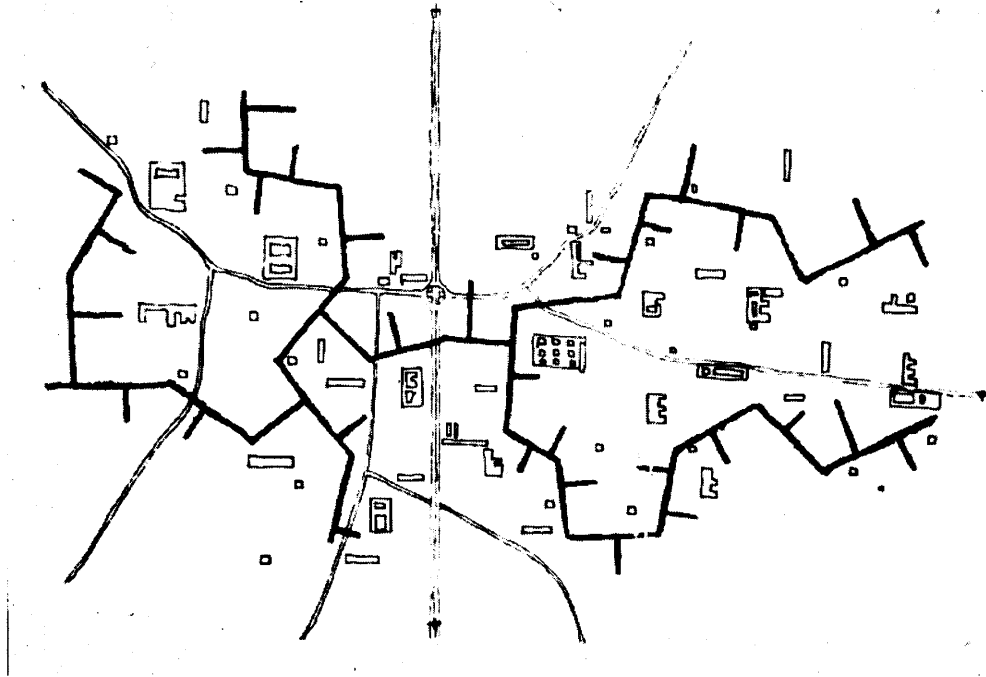


Figure 17: Alison and Peter Smithson, Golden Lane Housing System Applied to Coventry, 1952

The aesthetic syntax to which they were referring could be seen at the London ICA exhibit “Opposing Forces” held in January of 1952, highlighting work by Pollock, Sam Francis, and the French painters Henri Michaux and George Michaux, thus bracketing several disparate visual strategies and styles—abstract expressionism and art autre—within a general order of the all-over canvas.¹³⁷ The Smithsons thereby read Pollock’s work in the context of Art Autre and Situationist strategies, so that they were able to conflate the drip painting with a radical politics (which Pollock had no interest in relating to his work) and a neo-Miesian architecture, into one encompassing order. It was thus in 1955, with some amount of justification, that Banham would be able to claim both the European and American artistic avant-garde for the service of the new movement: “Non-architecturally [New Brutalism] describes the art of Dubuffet, some aspects of Jackson Pollock and of Appel, and the burlap paintings of Alberto Burri—among foreign artists—and, say, Magda Cordell or Eduardo Paolozzi and Nigel Henderson among English artists.”¹³⁸

137. Diane Kirkpatrick, “The Artists of the IG: Backgrounds and Continuities,” in *The Independent Group: Britain and the Aesthetics of Plenty*, ed. David Robbins (Cambridge, Mass.: MIT Press, 1990), 209.

138. Reyner Banham, “The New Brutalism,” *Architectural Review*, December 1955, 356.

Paolozzi's particular working of the allover canvas, a calligraphic patchwork of inked grids and rectilinear shapes, took Greenberg's reading of abstract expressionism's tendency towards wallpaper decoration at face value, by literally making 'allover' ceiling and wallpaper works, first for the architect Ronald Jenkins, and later in the office of Jane and Maxwell Fry.¹³⁹ [fig. 16] Like Pollock's compositions, Paolozzi's drawings induced the possibility of figurative readings, but rather than the sort of mystical, archaic primitivism that Michael Leja described as underlying Pollock's contemporary reception in America,¹⁴⁰ Paolozzi's wallpaper pieces suggest a primitivism of a different sort: that of the basic components of figural objects and visual structures. The lines and shapes here do not determine any specific scale or figure but instead play on the perceptual ambiguity between small and large, organic (curvilinear) and geometric (rectilinear) shape. Further, they are not reversible, fluctuating elements, retreating into a depthless horizon, but rather maintain their form within a stabilized background. In spite of their aleatory appearance, the wallpaper works were composed out of separate drawing 'modules,' which were then pasted together to form an ensemble of tightly woven elements. Diane Kirkpatrick here observed that "This kind of design, in two dimensions, allowed him to cover areas of any scale and any orientation with a pattern that suggested everything from vines to the lineaments of a human or insect community seen from above. There was no beginning and no end to such patterns."¹⁴¹ It is by this open reading that allowed the possibility of its reception as both abstract allover composition and as the representation of a large scale aerial view, and which the Smithsons employed to their own ends at Golden Lane, the Sheffield University Competition in 1953, and for the Berlin-Hauptstadt competition of 1958.

More specifically, the Smithsons incorporated the armature of the allover composition into an urban strategy that defied the antiseptic zoning logic of CIAM, through a relentless autotelic system driven by the ostensible needs of specific building functions and modular construction. That is, at Coventry the immediate need for postwar housing stock demanded the speed and efficiency of modular construction made possible by the repetitive housing cell; at Sheffield University the architecture was determined as a linear concourse, with the form of the Unité d'Habitation incorporated as the basic building module; in Berlin the allover aesthetic became transformed into the layered skeins of organized circulation pathways: elevated levels freely arranged in a net of pedestrian walkways above, with motorised traffic following the efficient logic of the rectilinear grid safely below. The pedestrian pathways are

139. Diane Kirkpatrick, "The Artists of the IG: Backgrounds and Continuities," in *The Independent Group*, footnote 10, 211.

140. Michael Leja, *Reframing Abstract Expressionism*, (New Haven: Yale University Press, 1993).

141. *Ibid.*, 209.

at once dislodged from and inseparably determined by the hum of the traffic grid, and consequently the palimpsest begins to resemble in plan that vision of frenetic organization which Paolozzi had been interested in pursuing in the wallpaper drawings. In all three architectural projects lay the open ended potential for their continual and endless extensibility, as a reminder of the promise of an endless world beyond the picture frame, facilitated by the constructive extensibility of a modular building system.

Abstract Expressionism, Part II: The Tony Smith Church Project

While the Smithsons were among the first to recognize the architectural and urban implications of abstract expression in Europe in the early to mid-fifties, earlier, if somewhat more hesitant attempts had already been attempted by the two architects in Jackson Pollock's circle: Peter Blake and Tony Smith. Blake's attempts to design an architecture around Pollock's work in 1949, for instance, had neatly substituted Mies' travertine veined walls for Pollock's lavish profusion of strewn colors, thereby mediating the radical implications of a new visual language by returning its precedents to a canonical modernism. Similarly, Smith's project for a Catholic church in 1950-51, [fig. 18] looked to American architectural precedents in his attempt to incorporate Pollock's painterly language with an avant-garde architecture. Though the project in itself was never developed beyond a schematic presentation stage, its significance is found in the degree to which Smith attempted to bring together two disparate visual systems towards some degree of coherence and artistic unity.

The controversial issues relating to Smith's church project, as first presented by E.A. Carmean,¹⁴² and subsequently debated by Lee Krasner and Rosalind Krauss,¹⁴³ principally concern the iconographic patrimony—or lack thereof—surrounding Pollock's black paintings, done from about 1951, and the consequent extent to which the artist participated in the ceiling murals depicted in Smith's architectural design. Krauss' refutation of the Christian imagery of the black paintings, as well as their questionable relationship to church windows or ceiling murals, lend credence to the argument that Pollock's actual involvement in the church design had always been severely limited, finally ending upon the project's lackluster reception to a group of prominent Catholic patrons in the summer of 1952.

Rather than concentrating upon the questionable particulars of Pollock's intended participation concerning the chapel, what is known and more pertinent here is Smith's interpretation of the allover canvas in an architectural setting, as recorded in the extant plan and section drawing. In this case, what

142. E.A. Carmean, "The Church Project: Pollock's Passion Themes," *Art in America*, Summer 1982, 110-122.

143. Rosalind Krauss, "Reading Jackson Pollock, Abstractly," *Art in America*, Summer 1982.

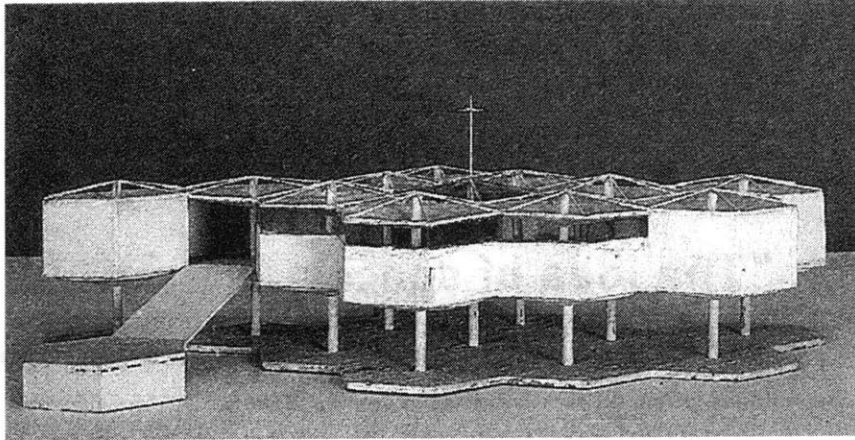


Figure 18: Tony Smith, Church model, 1951

I will concentrate upon here is not the extent of Pollock's participation towards the design, but instead Smith's particular translation of abstract expressionism in the service of an architectural vocabulary. Like the Smithsons' use of the basic cell in developing an architecture, Smith here also incorporated a repetitive unit—here a hexagonal module—as the basis for the church design. In its relentless use of a hexagonal geometry to generate the architecture, he is significantly indebted to Frank Lloyd Wright's vision of organic architecture—whom he worked for at Taliesin East from 1938-9—as demonstrated notably in its polygonal configuration by the Hanna House of 1936 (although it shows little of the integration or complexity of detail and material in the latter). Rather than a strict adherence to Wrightian doctrine, Smith tempered his interpretation of Wright's organic principles with his formal training at the Chicago Bauhaus in the mid-thirties. In addition, Smith stated that his interest in generative geometric pattern systems was also influenced, as with a generation of artists and architects, by D'Arcy Thompson's *On Growth and Form*.¹⁴⁴ The genealogy of the hexagonal unit also points to Buckminster Fuller's technologically sophisticated if formally awkward 1927 Dymaxion house, although Fuller's design was that of a self-contained single cell divided into separate areas, whereas Smith's conception rested upon the multiplication of the basic module.

The hexagonal geometry in the Smith church is also repeated in section, punctuated by their isolation from the ground plane by the use of mushroom columns at the center of each module; Le Corbusier

144. D'Arcy Thompson, *On Growth and Form* (Cambridge: University Press, 1917; new edition 1942). This text also appeared in the core reading lists ranging from the Chicago Bauhaus to the classes taught by Rowe and Hoesli at Austin in the mid-fifties.

is invoked here in the use of pilotis to separate building from ground, but the forms are perhaps architecturally more reminiscent of Wright's inverted columns in the Johnson Wax Company Building of 1936-9. For Smith, however, the heart of the design lay with the undulating ceiling plane: in plan, the floor plane is a seemingly random collection of modules, any potential symmetries dislodged by additional peripheral modules. In doing so, the traditional symmetrical arrangements of the Christian church seem to have been disrupted in favor of a distinctly asymmetrical, dispersive plan with biomorphic overtones.

By looking to the ceiling however, a measure of symmetry and traditional clerical hierarchy returns by way of a central skylit dome, surrounded by six companion domes, on which a band of eighteen triangular paintings (presumably by Pollock, as indicated in Smith's rendering of squiggly lines around the skylight) were to be installed. The scheme thereby returns to an ancient Roman form of the Christian church, with a central altar surrounded by a side chapel, confessional, and baptistery. Similarly, there were to be additional ceiling paintings for the hexagonal side chapel and entrance baptistery, thereby forming three distinct areas of focus within the overall ensemble. Notwithstanding the charge that Pollock had never worked with a triangular format or ceiling murals, Smith used this opportunity to use the artist's work to infuse the project with the sort of visual dichotomy that Jules Langsner had perceived in postwar culture, in this case between the rigidity of a radical modular architecture and the aleatory expressiveness as demonstrated by Jackson Pollock's paintings. Smith's project not only presented this antimony, but also attempted to rework other oppositions—the archaic and the modern, geometric rigidity and abstract expressiveness, the autonomous, self-contained character of the single cell against the open-ended nature of the organism—into an architecture that expressed the separation between the physical, biological plane of the material world, in distinction to the religious plane of the Spirit.

The triangulated ceiling pattern bears an obvious reference to the honeycombed ceiling in Louis Kahn's Yale Art Gallery of 1951 (done in collaboration with Buckminster Fuller), although the Smith project predates the latter by almost a year. Upon analysis, however, there are distinct differences between the two: the perimeter of the art gallery is clearly contained within a rectangular boundary, whereas the church intimates an extensible potential; the open gallery spaces are divisible by means of moveable walls modulated by the gridded matrix, while the main space of the church is permanently fixed around the central altar and emphasized through its honeycomb geometry; the underside of the Kahn/Fuller ceiling structure remains uniformly flat with a polyhedral interior in each triangle containing lighting and mechanical services, whereas the Smith church ceiling accentuates the individual hexagons by splaying each triangle upwards from the center of the modules. The mural works thus do not lie flat, but instead follow the tilted angle of the hexagonal roof structure; the central mural band thereby oscillates vertically as it revolves around the skylit dome. By this simple means, the randomized pattern

of the individual Pollock canvas is given a larger order, literally interweaving it into part of the church design. In turn, the all-over structure of the Pollock paintings are mimicked in a way that the ceiling pattern in the Yale Art Gallery only hinted at; that is, its potential extensibility is given free reign to expand in the Smith church.

As with Blake, what seems to have struck Smith as an architect with Pollock's paintings, was not the potential towards a literal flatness, the facture of the work, or the scalar ambiguities between easel and mural painting, but rather its tendency to evoke space beyond the canvas. Michael Leja here has analyzed the historical reception to the intimation of space and depth in Pollock's work, relating it to both the oneiric, subjective dreamworlds as translated through popular interpretations of Jungian psychology, and the dark vortices of spatial claustrophobia recurrently portrayed in film noir cinema of the fifties.¹⁴⁵ As both Leja and Carmean observe, the 1946-47 paintings *Galaxy*, *Shooting Star*, *Comet*, *Reflections of the Big Dipper*, and *Constellation*, all emphasize the celestial metaphor of the night sky, and it is Smith who underscores this point in encircling the all-over canvas band around the central sky-light, thereby neatly mediating between heaven and earth, the sacred and the profane, nature and culture. Further enhancing this closed/open concept were the clearstory windows, which may have also had plans to be painted in the same manner as the plexiglass *Number 29, 1950*.¹⁴⁶

In its final incarnation for the 1952 presentation, the church design shifted from an open plan concept to a fixed one, in which the central hexagonal room would be installed with six wall-size Pollock murals. While this scheme along with the others never advanced beyond a preliminary stage, its realization may be glimpsed at in the octagonal Rothko chapel in Houston: [fig. 19] in this setting, the painterly environment forms and dominates the viewer's field of view and haptic space, transforming the everyday into a personal vision of the artist's construction. The Rothko chapel, however, emphasizes the closed, insular nature of the constructed environment by its dark tonal saturation and severe granite surfaces, whereas the Smith church 'room' plays upon the opposition between the literal, closed flatness of the canvas plane and the depths suggested in the painterly, pictorial frame of Pollock's metaphorical spaces. In this manner, the architect was able to enrich the original open schema and expand on the metaphor of potential extensibility, by presenting a space that encapsulated both the autonomous and repetitive nature of the hexagonal cell; closure and openness, flatness and depth, contained within the spiritual heart of the church. A homology of scales is thus introduced, from the fundamental relationship between the iconic identity of the individual brushstroke and the hexagonal cell at one level, to the open

145. Leja, *Reframing Abstract Expressionism*, 308-323.

146. Carmean, 114-116.

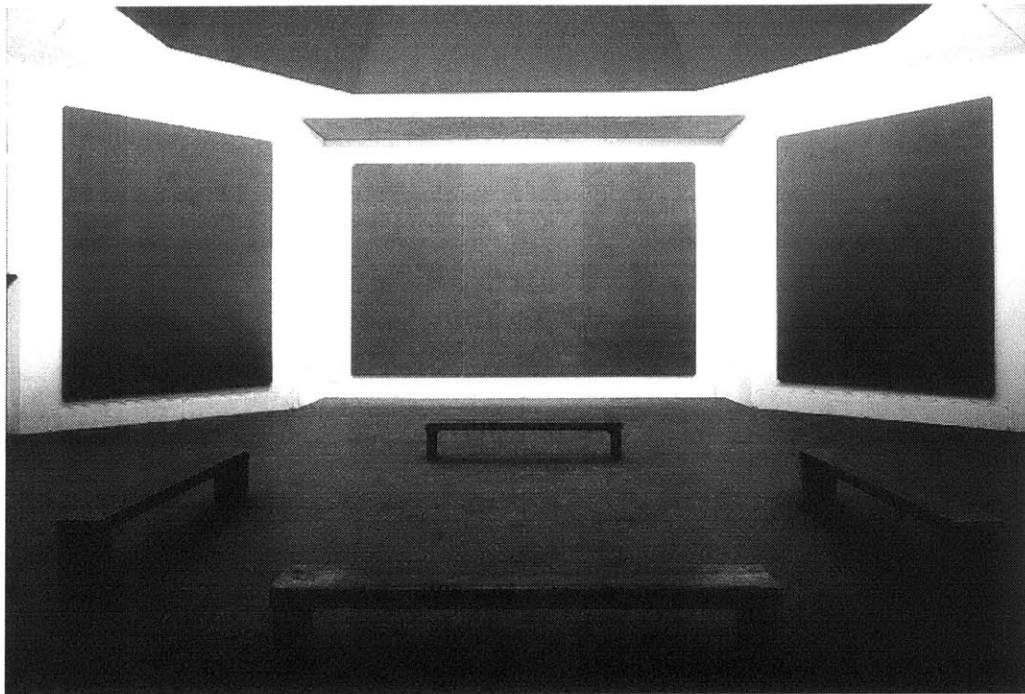


Figure 19: Interior, Rothko Chapel, Houston

extension implied by the all-over canvas and freeform additive composition of the church, as mediated through its potential structures: the mural band, the hexagonal room cycle.

If, in its failure, it could be argued that the Smith church (and here I again emphasize that it is in the final analysis Smith's architectural interpretation of an abstract expressionist environment, rather than Pollock's attempt at an architecture) was the most radical of the native attempts to embody the postwar painterly vision, then it was perhaps because of its inheritance of American models—Wright, Fuller, and the objective microscopy contributed by the biological sciences—and correspondingly, the marked absence of Le Corbusier and De Stijl in its design influence. Or, could one posit that it was precisely because of this absence that such a path could only lead to isolation and rejection?

The Plane as Generator

The Plan is the Generator.

Without a plan, you have lack of order, and wilfulness.

The Plan holds in itself the essence of sensation.

The great problems of to-morrow, dictated by collective necessities, put the question of 'plan' in a new form.

Modern life demands, and is waiting for, a new kind of plan both for the house and for the city.¹⁴⁷

With this declaration, first published in *L'Esprit Nouveau* in 1920, Le Corbusier decisively laid down the mantra of modern architecture: that the basis for any architecture, past or present, had to begin with a foundational diagram which would both fix its course and outline its development in volume and mass. Not that such a statement was original or prescient; indeed, this assertion has a particular history in the development of French modernism, from Choisy to Viollet-le-Duc, J.N.L. Durand and Guadet. Le Corbusier incorporated the iconic presence of the plan as a conceptual bridge between the lessons of the past and the possibilities of the present, simultaneously legitimating his work by evoking historical evidence, and transforming its basis from traditional design by calling for an architecture with the functional structure of a modern machine: the ocean liner, the airplane, the grain elevator.

The plan in this context, according to the architect, "is not a pretty thing to be drawn, like a Madonna face; it is an austere abstraction; it is nothing more than an algebrization and a dry looking thing."¹⁴⁸ It is a statement that intended to distance himself from the institutionalized cult of the neoclassical *parti*, its elaborate patterning of rigid symmetries and decorative *poché*. The plan, he declares, is the germ of a generative idea, rather than a thing in itself to be venerated.

147. Le Corbusier, *Towards a New Architecture*, trans. Frederick Etchells (London: John Rodker, 1927), 45.

148. *Ibid.*, 48-9.

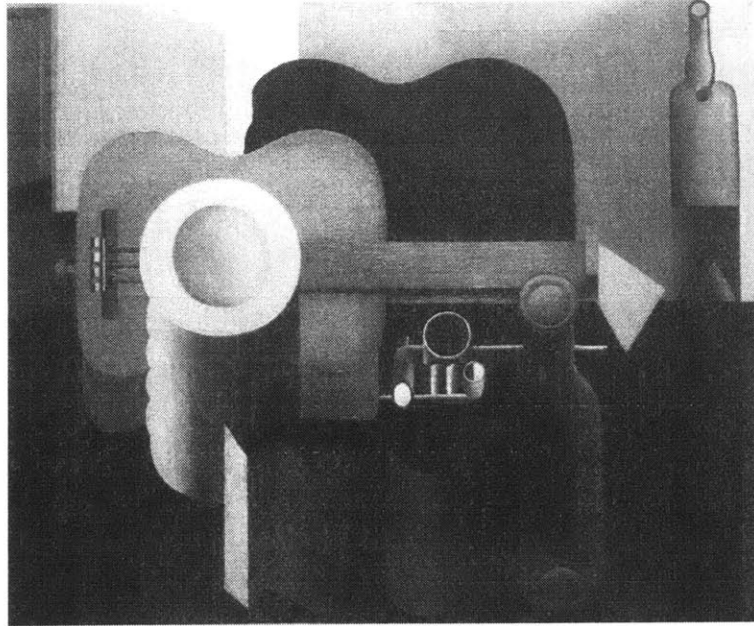


Figure 20: Le Corbusier, *Still Life with Pile of Plates*, 1920

And yet, in its *abstraction*, the Corbusian plan cannot help but allude to itself, and concomitantly to its formal other: that of Purism and the interiorized composition of the painterly canvas, which the architect would practice with his colleague-instructor, Amadée Ozenfant. Arguing that “painting has outsped the other arts,” that “It is the first to have attained attunement with the epoch,”¹⁴⁹ Le Corbusier saw architecture to be in the subordinate position of aspiring to imitate painting’s leading vision, and that an architecture stemming from Purist inspiration afforded a potent logic and clarity.

In *Elements of a Synthesis*, Stanislaus von Moos pointed out the persistent dialogue between the curved and straight line in the architect’s painting, and its concretion in his architectural work: Garches, Algiers, Ronchamps, are all struck with this dialectic, as it passes from the space of painting to that of building.¹⁵⁰ The lozenge, the organs of the body, the sinusoidal wave, all make their initial appearances in the Purist *Nature Morte*, and consequently find their way into the plans of the classic twenties villas.

To be sure, a relationship between painting and architecture can also be found in the neoclassical evocation of the rustic sublime in relation to the classical orders. However, these canvases—from

149. *Ibid.*, 19.

150. See Stanislaus von Moos, *Le Corbusier: Elements of a Synthesis* (Cambridge, Mass.: MIT Press, 1979), 37-56.

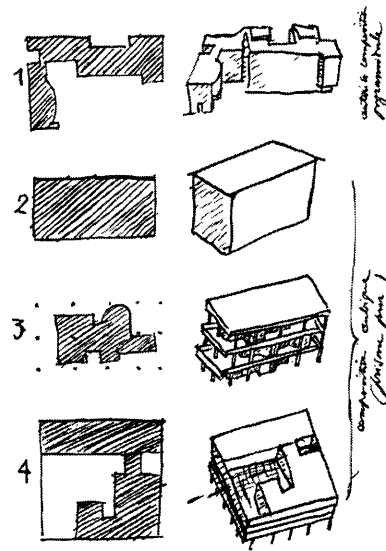


Figure 21: Le Corbusier, *Four Compositions*, 1929

Poussin to David—act as illusionistic depictions of an architectural ideal, with the frame acting as transparent window to a fictional space. The Purist painting, in contrast, compresses and denaturalizes its plastic elements onto a two-dimensional plane, carefully preserving the outlines of the objects as dessicated traces of the depicted elements. The frame and its composition contents act reciprocally to delimit the painterly field; each reinforces the other: in *Still Life with a pile of plates* (1920), [fig. 20] for instance, the double curves of the guitar body and open book symmetrically mark the upper and lower edges of the painting, respectively, while the verticals of the background wall and wine bottle reinforce the left and right sides.

It is hardly any wonder then, that in comparing his painting to their architectural analogies succinctly represented in the architect's four *objet-type* villas, [fig. 21] three are delimited within a rectangular plate: only in the first and earliest example, the *Maison La Roche-Jeanneret* of 1923, is the composition remotely allowed to stray from the invisible limits of a rectangular boundary (and in fact is encompassed within a long narrow site, with early versions of the house containing an additional wing to complete a rectangular and symmetrical end). The second type, the *Villa Garches*, reflects the painterly model most clearly in its representation of organic forms contained by a rectangular frame. The third type as shown by the villa in *Tunis*, is dominated by the rectilinear matrix of the Dom-INO grid; any transgressions (for instance, in the cantilevered floorplate extensions, or the sculptural volumes of the

interior elements) are always set in relation to the defining frame. The Villa Savoye, representing the fourth type as an amalgamation of the others, eliminates the exposed pilotis grid, but retains the hard envelope and the idea of a limited free play within the rigid body of the exterior walls. Represented most clearly and self-consciously in plan view, these architectural types reveal their allegiance to the secret geometries and absolute proportions of the Purist canvas; the houses begin to resemble the tertiary structure of the painting as much as the flat painting reveals the possibility of its volumetric potential.

While Bauhaus education included painting and color theory as a general prolegomena to a uniform design aesthetic, in Le Corbusier we see the specific translation of the painterly plane into the construction of the architectural plan. The same could be argued of de Stijl activity, although here Van Doesburg's renderings had a particular ambiguity between flatness and depth which the Swiss architect employed in his use of color on vertical surfaces. The use of painting as a research instrument, as a tool by which to gain insight and discipline in the design of the plan, may arguably have begun with Le Corbusier, but its widespread development as a teaching method by others took on varied paths outside of its Purist origins. If a Corbusian architecture could arise out of the analysis of one painterly style, then a reading of other paintings could yield the possibility of other architectural forms.

The other major example of this particular transmigration of media, as introduced through Alfred Barr, Jr. and later propagated by Hitchcock and Giedion, was of course the attributed confluence between Van Doesburg's *Rhythmn of a Russian Dance*, and Mies' brick country house project of 1923, which the architect made an emphatic point of disavowing (this comparison is even repeated *prima facie* in Frampton's *Modern Architecture*).¹⁵¹ The architect's repudiation may be justified in light of the project's insistence on the centripetal dynamics of the box, pointing closer to Wright rather than Van Doesburg; as such, its movement is from the inside out, from the interior position of the inhabitant to the open landscape beyond. In distinction, the Van Doesburg painting is at once contained by its frame, and its compositional energy occurs explicitly within and in relation to its surrounding structure.

In both Le Corbusier and Mies, then, even if (or perhaps, because of the fact that) the architects themselves did not propagate the practice or interpretation of painting as a design tool, this more or less deliberate misreading by historians and design critics of this relationship became adopted in postwar design education as both pedagogic instrument and cultural sanction. That is, between Cubism (as well

151. See Alfred Barr, *Cubism and Abstract Art* (New York: Museum of Modern Art, 1936), 156-7. Yve-Alain Bois relates an interview with Mies (by Peter Blake) on this point, in "A Conversation with Mies," ed. Gerhard M. Kallmann, *Four Great Makers of Modern Architecture: Gropius, Le Corbusier, Mies van der Rohe, Wright* (New York: Columbia University, 1961), 101-2; see Bois, "Mondrian and the Theory of Architecture, *Assemblage* 4 (October 1987): note 5, 124.

as its diluted Purist descendant) and de Stijl—the twin poles of high formalism for the early modernist avant-garde—modern architecture in America could claim to legitimate itself by equating its forms with those of an already institutionalized European art practice, thereby becoming both ‘modern’ and acceptable at the same time. The shibboleth of reading and/or making paintings as a precursor to architectural form became a means of reclaiming the artistic component of a dominantly functionalist sensibility in postwar design. It is indeed the implicit challenge laid down by the authors of *Painting Toward Architecture* in its frontispiece of a 1925 Purist still life by Le Corbusier: by looking towards painting, architecture could be discovered.

Colin Rowe and Robert Slutzky took up the task some seven years after the publication of Hitchcock’s book, bringing together Warburgian formalism, Gestalt theory and Cubist aesthetics into a reading of the Swiss architect’s Villa Stein and Palace of Nations project. Was this not, after all, what constituted the underlying intent and locus behind “Transparency: Literal and Phenomenal”? In spite of their explicit denial—“a floor is not a wall and...plans are not paintings”¹⁵²—a continuous elision between plan and facade remains: “we might still examine these horizontal planes in very much the same manner as we have the facade, again selecting [Leger’s] *Three Faces* as a point of departure.”¹⁵³ Here, Robert Somol points in this passage out how “Despite typology’s apparent commitment to the horizontal plan, it is plan first conceived as vertical, as *facialized*.”¹⁵⁴ In this manner, *Three Faces* is exemplary because of its ability to occupy the median between plan, facade and painting. By propping up the plan to the vertical plane, two complementary functions are served: the horizontal is able to be *read* in the same formal manner, employing the same analytical instruments, as an architectural facade; and consequently both horizontal and vertical planes are able to be understood in their conceptual abstraction as on the same order as Cubist painting, imbued with the optical fillibrations of phenomenal transparency.

Bernhard Hoesli and John Hejduk exploited precisely this Gestalt ambiguity as a design problem: one of the more remarkable studio projects (remarkable not only for its prescience but also its continuing existence as a pedagogic tool in architectural schools today) presented in Austin involved an exercise in reading and converting a plan in terms of a section, and consequently back into plan again.¹⁵⁵ As a two dimensional diagram, it could then be entirely possible to understand the immutability of the traditional plan in terms of a fluctuating Gestalt condition, substituting the horizontal plane for the vertical.

152. Colin Rowe and Robert Slutzky, “Transparency: Literal and Phenomenal,” in Colin Rowe, *The Mathematics of the Idea Villa and Other Essays* (Cambridge, Mass.: MIT Press, 1976), 169.

153. Ibid.

154. R.E. Somol, “Oublier Rowe,” in *ANY*, no. 7/8, 1994, 13.

Hejduk would later write how “A plan is a section—and when sections are put together they make space.”¹⁵⁶ Rowe had already grasped this possibility as early as 1947 in “The Mathematics of the Ideal Villa,” when he stated how “the quality of paralysis which Le Corbusier noticed in the plan of the solid wall structure is, to some extent, transferred in the frame building to the section...In other words, free plan is exchanged for free section....”¹⁵⁷ By exchanging plan for section and back again, the essential diagrammatic nature of the architectural parti is exposed, and this elision between painting and architecture could then be implied and justified.

Hoesli, who had also read *Painting Toward Architecture* after graduating from the ETH,¹⁵⁸ together with Rowe helped to outline a new teaching program in the Spring of 1954 which would begin to introduce some of these nascent ideas into an educational setting. Caragonne here has outlined how Rowe’s inaugural lecture at Austin introduced De Stijl and Purist painting as the transition by which the conceptual implications of Wright’s explosion of the box lead to Mies’ and Le Corbusier’s development of modernist space.¹⁵⁹ Other lectures served to emphasize the central importance of Cubist aesthetics to the development of modern architecture.¹⁶⁰ As such, this history became both descriptive and prescriptive in its implication that the techniques of reading painting were equally applicable to reading plan and/or facade, and that further, the plane of the canvas could reveal the hitherto hidden possibilities lying dormant in the plan. Unlike Bart van der Leek’s belief in a fundamental equivalence between De Stijl painting and architecture by way of the flat plane (the canvas and the architectural wall),¹⁶¹ or Mondrian’s notion of a neoplastic unity between the arts, here it is abstract painting in general (not just

155. Caragonne, 202-4. The fascination with the section for Hoesli, Caragonne points out, may have come from his work with Le Corbusier on the Villa Curutchet and the Unité d’Habitation, both of which contain L-shaped sections. As traditional plan, the L is merely a typical corner condition; however, when transferred to section, the shape transforms into a double height volume, and a new, modernist spatial condition is realized. See Caragonne, 72-5.

156. John Hejduk, “Out of Time and Into Space,” originally published as “Hors de Temps dans L’Espace,” in *Architecture d’Aujourd’hui*, (September/October 1965), reprinted in *Mask of Medusa*, 73.

157. Rowe, “The Mathematics of the Ideal Villa,” in *The Mathematics of the Ideal Villa and Other Essays*, 11.

158. Caragonne, 76.

159. *Ibid.*, 104.

160. A significant series of Junior-Year lectures, entitled “The Origins of Cubism,” “Developments Since Cubism,” and “The Influence of Painting Upon Architecture,” were most likely developed by Slutzky, with architectural contributions by Rowe and Hoesli. See Caragonne, 196.

161. Bois, 108-9.

De Stijl, but also Cubist, Purist, and at a remove, Surrealist painting) that plays an originary, didactic role in architectural design.

This prescription can be seen in the context of a generation of studio coursework in Europe and America beginning in the early forties, incorporating abstract design thinking into the curriculum of introductory design classes. While drawing and painting had always been part of a traditional Beaux-Arts architectural education, the curriculum consisted of the classical *analytique*, shadow studies, formal rendering, and life drawing.¹⁶² In distinction, postwar architectural education attempted a direct isomorphism between the visual structure of abstract painting and the architectural parti: for instance, Marcel Breuer's Harvard studio included precisely those exercises into replicating De Stijl painting as a means of introducing problems of pure form.¹⁶³ The color courses that Slutzky and Lee Hirsche (both students of Albers at Yale) taught in Austin reflect an approach dating back to Johannes Itten's experimentally based foundational *Vorkurs*. Similar exercises were also carried out during this period at the Chicago Institute of Design and the Cooper Union in the States, as well as the Architectural Association and Cambridge in England (stemming from Rowe's return to Britain in the late fifties).

The loss of authoritative classical models associated with the Ecole des Beaux-Arts thus became replaced by a contemporary visual model that also held the historical currency of a legitimated precedent (by way of Giedion, Hitchcock and Barr) from its leading disciplines in the visual arts. The indoctrination of classical orders were in this manner superceded by a modernist academicism, in the form of Cubist and De Stijl art precedents that lent themselves readily to the design and production of architectural space represented within the bounds of a two-dimensional format. Thus, in spite of whatever claims made to the contrary by postwar design educators, architectural pedagogy steadfastly remained a process of formal imitation; if not one based on classical ornamentation, then alternatively one that looked to the forms of the early modernist avant-garde. In this context, the appearance of abstract expressionism could be seen as no more than a novel curiosity, rather than a legitimate movement carrying the weight of historical precedent. While the major movements of the European avant-garde had at least some architectural component, this affiliation if any, seemed far more tenuous for postwar American art. As Hejduk mentioned in retrospect, his view of modernism (and it would be fair to include Hoe-

162. See Diane Boas, "History V: 1939-1959," in *The Making of an Architect: 1881-1981*, ed. Richard Olivier (New York: Rizzoli, 1981), 148.

163. "We were given the task to create, in one week, a painting about forty-by-forty inches large that would show what imagination we could muster in our sister art. True to my feelings of fifty years ago, I did a 'strict Mondrian' diamond shape with heavy black lines running vertically and horizontally." Philip Johnson, "An Artist in Architecture," *GSD News*, Fall 1995, 33.

sli, Slutzky, and Rowe in this as well) went no further than Mondrian; beyond this point was the *mis-en-abyme* of the contemporary.¹⁶⁴ In the case of the Texas Rangers, the further irony was that their ostensible critique of Gropius' team approach at Harvard led them further back to return to the foundations of Bauhaus aesthetics and education.

As a consequence, if the emphasis on rectilinear geometries comprised one defining aspect of post-war design and education, then its formal opposite was not to be found in the aleatory heroics of American abstract expressionism, but rather in the Surrealist-inspired organic forms that occasionally surfaced in Le Corbusier's volumes. The biomorphic shapes that characterized the curvilinear plans of Aalto, Niemeyer, and the Corbu of Ronchamp, however reflected not merely the capricious nature of the unconscious, but also found its visual parallel in contemporary science, in the photographic capture of the natural world, ranging from microorganisms and soap bubbles, to smoke, clouds, and the movement of the stars. Developed by Moholy-Nagy and Gyorgy Kepes in Chicago and Cambridge from the late thirties onwards, this marriage of science and art presented a new visual vocabulary that did not depend upon a Cubist ideology, but instead attempted to rationalize the surrealist legacy by presenting the organic as science.¹⁶⁵

Under the tutelage of the painter Henrietta Schutz and the sculptor Albert Radoczy, the biomorphic image predominated student work—including that of John Hejduk's—at the Cooper Union (among other schools) in the postwar era: sweeping curves, animal shapes, the thematic repetition of circular forms, reveal an allegiance to a picturesque organicism, posing a Surrealist challenge to Bauhaus rationality, and in so doing, also masking a relative unwillingness to introduce the more radical visual aspects of New York School painting into the applied arts. Radoczy for instance had experimented with both the rectilinear and organic styles in commercial design, first in a Mondrian inspired exhibition structure for the 1946 International Textile Show in New York (itself an adaptation of Frederick Kiesler's 1925 *City in Space* exhibit in Paris, and Edoardo Persico and Marcello Nizzoli's 1934 lattice matrix for the Italian Nautical Show in Milan) and later on incorporating his own organic sculptural pieces as product display

164. "I start with the modern paintings—Mondrian—and work backwards. Modernism ends with Mondrian. I don't go beyond that, as I have told you. So there's only one way to go. So now I'm back into the fourteenth century, from Mondrian to Ingres, Hopper, Sassetta and the Italian primitives." John Hejduk, *Mask of Medusa* (New York: Rizzoli, 1985). This is similar in tone with Hoesli's rather startling 1955 statement that "Since 1923 nothing new has been introduced into architecture. Its basis was then formulated and has remained intact, modified but neither questioned nor weakened." Caragonne, *The Texas Rangers*, 234.

165. In turn, it is altogether remarkable how Rowe and Slutzky managed to deflect the scientific and biomorphic aspects of Kepes' argument in their "Transparency" article, and instead limit his observations to a reading of Cubist composition.

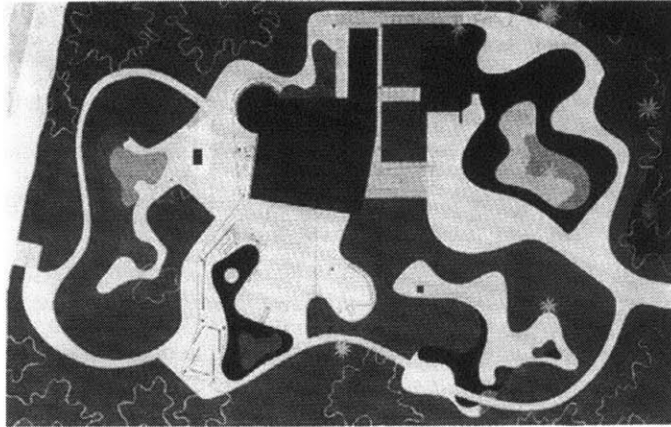


Figure 22: Roberto Burle-Marx, landscape plan for Tremaine House

platforms for Macy's store windows.¹⁶⁶ Thus, the straight and the curved, Mondrian versus Arp, Mies against Wright, demarcated the discursive formal range for architectural education and design at the Cooper Union and other architectural schools which had inherited the legacy of first and second generation Bauhaus visual training.

These extremes were succinctly captured in a 1948 joint commission between Oscar Niemeyer and Roberto Burle-Marx for a weekend house in Southern California for Burton Tremaine, Jr., whose corporate collection formed the basis for the *Painting Toward Architecture* exhibition and catalogue; the unrealized house project is one of the relatively few architectural works represented in the book. [fig. 22] In this instance, their two approaches take on the character of a binary opposition, in which the oneiric forms of abstract surrealism as reenacted through Burle-Marx's carefully meandering landscape, are set in distinction to Niemeyer's relatively sedate rectangular box set on pilotis; architecture here becomes Apollonian high culture dominating over the unrestrained, aleatory female ground. The serpentine porch at the rear of the house becomes the fulcrum point by which one makes the transition from nature to culture, outside to inside, lower to upper. In its insistent painterliness, Burle-Marx's landscape not only makes explicit formal comparisons to the Surrealist avant-garde, but adds to their legacy in its own right, by subverting the natural to be distinctly *unnatural*, domesticating painterly color and facture by means of the found object in nature.

166. See "A Mondrian-like composition, projected in 3 dimensions, does an efficient merchandising job under trying conditions," in *Interiors*, (August 1947): 74-77; and "Blueprint for sculpture: on integrating sculpture with architecture", *Interiors*, (October 1947): 86-91.

Hitchcock in contrast read the landscape architect's contributions on a predictably more formal and secondary basis, viewing his work as a more or less transparent translation from one medium to another. He writes: "The gardens designed by the painter Burle-Marx, so effectively associated with most of the best new Brazilian buildings, are of course less 'psychological' than the reliefs of Arp and the paintings of Miro... They seem, however, to be as direct a translation of non-mechanical abstract painting into gardening terms as the English parks of the 18th century were of the classical landscape painting of Poussin and Claude."¹⁶⁷

Hitchcock's reading here reveals one of the manifest limitations in the incorporation of the organic model in architectural form—that of its emphasis on the plan: in distinction to De Stijl practices, which were easily and commonly translatable into a three dimensional architecture (witness for instance Radoczy's 1946 exhibition structure), the Surrealist inspired environment was, with few exceptions, limited to the simple extrusion of a two dimensional plan. Conversely, however, this restriction lent greater clarity and force to its intended relation: as painting rather than sculpture, its compositional aspect was closer and more adaptable to the diagrammatic essence of the architectural parti.

Notwithstanding the previously mentioned misreading between perspectival illusionism in neo-classical painting and the obstinate materiality of the abstract canvas plane, Hitchcock's argument also effectively defused any potentially subversive aspects of a Surrealist model, by returning its scope to the realm of autonomous artifact: as painting and only painting, the vocabulary of biomorphism operated as the product of found objects (reflected in nature as well as high culture) endowed with the status of legitimized typological precedent, devoid of any political or cultural associations. Form follows form, tracing a thread from the natural world and the individual unconscious, to painting, sculpture, landscape, and architecture.

By this dessication of origins, Le Corbusier's original dictum gained new meaning, as the exacting geometries of Purist painting resolved into the 'dry abstraction' of the architectural plan, and in turn subjected itself to a transformation into facade and section. If this was hardly his intention—or if it perhaps was—then there remains a history of this crucial relationship between the painter and the architect which has yet to be written. In any case, it remained for others to exploit its converse implication, that of returning the architectural object to the realm of the two-dimensional plane.

167. Hitchcock, *Painting Toward Architecture*, 42. A separate review of the project noted how organic shapes had already become a commercial design style: "The free-form, cloud shape, or Arp, as it is variously called, has been popular in landscape, furniture, rug, cove-lighting, and display design for more than a decade now." See "Design for a vacation house by Oscar Niemeyer," *Interiors*, April 1949, 96-105.

The Painted Wall

While abstract painting became a means of generating the modernist plan, the architectural facade became its most common initial application. Indeed, in contrast to the relatively obscure means by which abstract painterly concepts could be transferred to the utilitarian function of a floor plan, the relationship between a De Stijl composition hanging on a wall and its transformation into an architectural elevation was more immediate and conceivable. A facade could more readily mimic the flattened state of abstract painting, especially with the planar aesthetic dominant in early modernism; the earliest examples came from the De Stijl group itself, for instance in the facade of the Cafe de Unie, or the interior walls of van Doesburg's Café L'Aubette.

By the time of Mondrian's arrival to New York in the fall of 1940, the original neoplastic movement had by that point been long abandoned and its aesthetic influence in painting marginalized. However, the Dutch painter's immigration to the United States spurred a new generation to the neoplastic legacy, ushering in an American revival of De Stijl principles, most notably in the work of Charmion von Wiegand and Burgoyne Diller (who would later teach at Yale along with Albers). While Mondrian's post De Stijl group 'architectural' work was limited to the painting of his midtown studio and the 'urban' paintings series (beginning with *Trafalgar Square* in 1938, followed by *Place de la Concorde*, and *New York City I and II*) architects and educators were actively looking to Mondrian, among other members of the European avant-garde, for an alternative aesthetic to borrow in an attempt to move away from the sterile dictates of the International Style.

One of the most telling signs of the acceptance of modern painting into the mainstream literature is shown in that most canonical of freshman architectural texts, Steen Eiler Rasmussen's *Experiencing Architecture*, in which the author devotes a chapter to 'Architecture Experienced as Colour Planes.' Demonstrating his proof by means of historical examples spanning from the Doges Palace in Venice to the Villa Savoye, Rasmussen here asserts how "Today...the architect can also solve those problems which are best and most naturally answered by buildings composed of light planes."¹⁶⁸ It is around this statement that the turn from theory to practice occurs, that is, from perceiving architecture as a series of light planes, to the deliberate design of buildings in terms of the progressive layering of colored surfaces.

Marcel Breuer, for instance, had investigated the possibilities of a De Stijl palette in his postwar work: the Neumann House in Croton-on-Hudson, New York from 1953, with its incorporation of colored panels for the exterior facade, was one albeit superficial attempt at integrating avant-garde paint-

168. Steen Eiler Rasmussen, *Experiencing Architecture* (Cambridge, Mass.: MIT Press, 1959), 2nd edition 1963, 103.

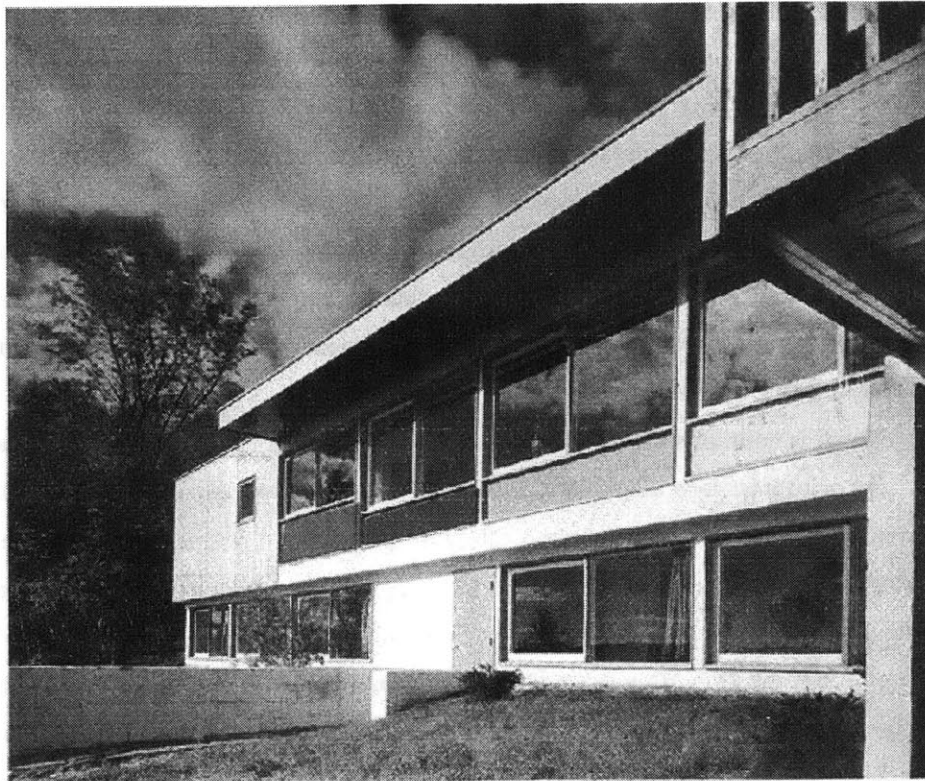


Figure 23: Marcel Breuer, Neumann House, 1953; infill panels below windows painted red, blue, yellow, and white

erly practice with Bauhaus domestic design. Or more correctly, Breuer applied an essential *signifier* of neoplastic production, as pared down to its three primary colors (leaving out black and white), with any connotations of a critical and totalizing practice deflated to the status of chromatic ornamentation, to the reproduction of a sympathetic style. This superficial application of neoplastic color reoccurs not only in other architectural work of the period, but in postwar commercial and industrial design as well, from furniture and exhibition design, to magazine covers and clothing.

The American architect Paul Nelson also attempted to incorporate principles of abstract painting into modern architecture: having spent most of his professional life in France, Nelson knew the French artistic scene firsthand, and much of his work attempted to incorporate architecture directly in the path of avant-garde artistic production. Nelson's best known work, his suspended house project from the late thirties, had included sculpture by Calder, Léger, and Miró as a means of directly relating surrealist form to the organic plan of the house. In its fascination with technologically advanced materials and details however, the form and structure of the project looked as much towards the engineering innovations of Buckminster Fuller and Jean Prouvé as it did towards modern painting and sculpture.

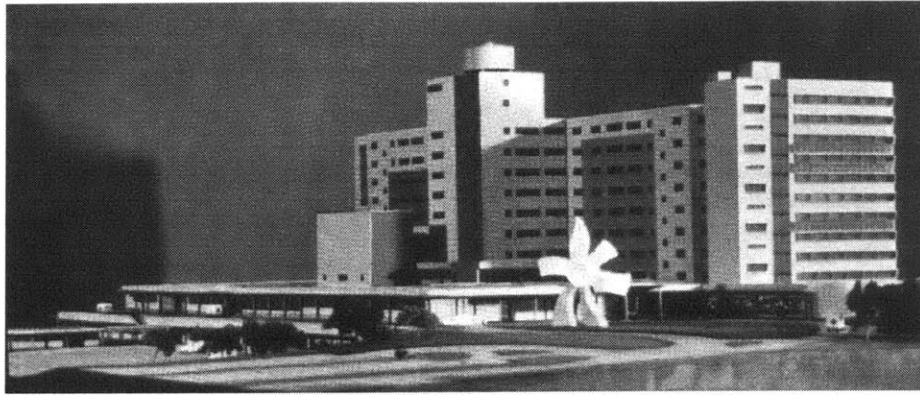


Figure 24: Paul Nelson, Franco-American Hospital, Saint L , 1954; facade painted red, yellow, blue, and white

Nelson's later large scale projects became increasingly pragmatic in nature, focusing around the problem of hospital design, a field that was already by the forties increasingly involved with the technical and clinical aspects of advanced medical care. However, his design for the Franco-American Memorial hospital in Saint L —commissioned in 1946 but not completed until 1954—reveals a continuing interest in integrating painting with architecture, in his collaboration with L ger for the exterior facade. While the expanse of inset color panels are immediately reminiscent of Le Corbusier's earlier multicolored Unit  d'Habitation facade, here the hospital windows are dominated by a single hue, contrasted with complementary horizontal and vertical striping. [fig. 24] L ger's organic cubism is presented with a strictly orthogonal matrix within which to operate: the brise-soleil grid organizes the underlying color field on one face, while the ribbon windows of the side wing mark the horizontal determination of colored stripes on an adjacent side.

L ger's characterization of his own painterly work as 'flat, colored architecture' is literalized in this attempt at manipulating and transforming purely through the use of color, what was essentially a straightforward illustration of International Style design. Here, the illusionism of the traditional canvas is entirely replaced by the material presence of the architectural construction, as color serves not to denote the intimation of depth, but instead foregrounds its immediate, planar surface. L ger succinctly outlined his approach towards architecture in an 1954 article in which he presented mural painting as a contemporary condition, opposed to the traditional cultural and spatial values of easel painting. It is a dialectic which recalls Greenberg's teleological crisis of postwar easel work, though L ger sees its path heading towards an ineluctable, architectural condition:

Our era finds two demands before itself: the individual easel painting (worthy in itself),

mobile by definition and which must find its place on all walls on which it is hung.

The wall painting poses an entirely different problem. It must be opposed to the easel painting. It loses its individual creative origin. It enters into the domain of the collective.

The juror is the architect who can impose the site and even the general conditions if there are grounds. Its realization is in the hands of the craftsmen. At its origin three people meet and go to collaborate in the realization of the work.

In my opinion it will be most possible in open colors, as much as possible without modulation (in order to avoid the destruction of the wall) and to associate it with the architectural space. It can even accentuate the feeling of a new space; we are thus concerned with an apparatus opposed to easel painting that 'destroys space' while fixing interest only on itself.

The present era should be able to achieve this new order.

Many easel painters are unable to understand the adaptation to the wall. There are two distinct roads. And there, it is necessary to be conscious of their separation.¹⁶⁹

The notion of pure, unmodulated color is crucial for Léger because it serves as the transition between painting and architecture; the flat planar architecture of painting finds its corollary in the unmodulated colored planes of the architectural object. The common element is the wall plane, reading both as mural work and architectural construction. In opposition to the illusionistic space of the easel painting, Léger claims, the mural is able to be associated with the real space of the architectural volume.

169. "Notre époque se trouve devant deux demandes: tableau de chevalet (valer en soi) purement individuel qui est mobile par définition et doit pouvoir être à sa place sur tous les murs sur lesquels il se trouve accroché.

Le peinture murale pose un problème entièrement différent. Elle doit s'opposer au tableau de chevalet. Elle perd son origine de création individuelle. Elle entre dans le domaine du collectif.

Le demandeur est l'architecte qui peut imposer l'emplacement et même la tonalité générale s'il y a lieu. La réalisation se trouve entre les mains d'artisans. A l'origine 3 personnes se rencontrent et vont collaborer à la réalisation de l'oeuvre.

A mon avis elle sera le plus possible en couleurs libres, sans modulations autant que possible (pour éviter la destruction du mur) et s'associer à la l'espace architectural. Elle peut même accentuer le sentiment d'un nouvel espace; nous sommes donc dans un dispositif contraire au tableau de chevalet qui «détruit l'espace» en fixant l'intérêt sur lui seul.

L'époque actuelle devrait pouvoir réaliser cet ordre nouveau.

Beaucoup d'artistes de chevalet sont dans l'incapacité de comprendre l'adaptation au mur. Ce sont deux routes distinctes. Et cela, il faut en être conscient au départ."

Ferdinand Léger, Paul Nelson, Emmanuel Auricoste, "Reflexions sur l'integration de la peinture et de la sculpture dans l'architecture," *i 4 Soli*, (Jan. 1954): 8-10. My translation.

And yet, this other space, and the new quality he alludes to, resides in its very equivocality due to its attachment to the flat surface—the material presence which the artist praises is also the principal cause, to paraphrase Rowe and Slutzky, of the fluctuating ambiguity between the reality of deep space and the implication of shallow space, of the “continuous dialectic between fact and implication.”¹⁷⁰ Their example of Léger’s *Three Faces* is thus crucial precisely for being a canvas plane which is also able to yield “an equivocal depth reading” not by means of perspective construction or chiaroscuro, but rather through the “compressed disposition of highly contrasted surfaces.”¹⁷¹ It is from this vantage point that Rowe and Slutzky are able to move on to the compressed, phenomenal layers of Le Corbusier’s League of Nations project, by reading the plan vertically, in terms of a sectional series of more or less distant facade/face planes.

While it is this rediscovery of equivocal space that argues for painting as a legitimate tool in post-war architectural design, it arises out of that intentional ambiguity which marks the visual investigations of the Suprematist and De Stijl projects, whereby gravity and definite location are set aside in the elimination of Renaissance perspective, displacing the stationary viewpoint of the spectator around a constantly fluctuating, indefinite locus. Van Doesburg’s axonometric architectural drawings, for instance, displace the traditional frontal emphasis of the facade plane in favour of an implied complex and overlapping depth, yet at the same time by its very compression onto a representational plane, creates a third, flattened surface beyond the object residing at the level of the picture plane, advancing an alternative vocabulary based upon the virtual rotation and skewing of the square. Demonstrated in the *Counter Construction* ‘elevation’ drawings for the Maison d’Artiste and Maison Particulière, done in collaboration with Cornelius van Eesteren in 1923, these ostensible axonometric renderings suppress any sense of depth; all forms are depicted as pure shape and color. Any traditional notion of a preferred frontalized facade is removed, substituted for by the ‘compressed disposition of highly contrasted surfaces’ seen principally not as an axonometric drawing in an indefinite space, but rather as a set of geometric planes laid against a paper surface.

The converse of this static surface reading is demonstrated in El Lissitzky’s *Proun-Paintings* dating from 1919, which, as Yves-Alain Bois argued, attempted to play on the ‘radical reversibility’ of axonometric representation, whereby “The protension/retention, or plus/minus effect of axonometry is intensified in almost all of the *Prouns*.”¹⁷² Lissitzky’s later *Abstract Cabinet* of 1926-7 exemplifies this

170. Rowe and Slutzky, 170.

171. *Ibid.*, 165.

172. Yves-Alain Bois, “El Lissitzky: Radical Reversability,” *Art in America*, April 1988, 172.

reversible tendency, by continually dislocating the spectator's fixed viewpoint, moving forward and backward, left and right, up and down, as the eye traverses the individual surface planes (Mondrian also adopted this Proun strategy somewhat in his isometric renderings for the *Salon pour Madame B...à Dresden* project from 1926, though there is much less 'reversibility' here than in Lissitzky's intentionally indeterminate planes). It is precisely this visual fluctuation that outlines Lissitzky's claim for the *Proun* as the 'interchange station between painting and architecture,' in the way it simultaneously presents two-dimensional geometry, three-dimensional space through axonometric projection, and the element of time by continually displacing the viewer's station point.

All these points, of course, would have been relegated to the ossified status of an historical moment, had it not been for the fact that these concepts—from Cubism and De Stijl, most notably—surrounding the equivocal nature of architectural representation, would return as the locus of neo-avant-garde architectural activity in post-WWII America (El Lissitzky's relative absence in the American scene is telling, having more to do with the fear of identifying with a radical politics in the era of McCarthyism, than with his positioning of the Proun work as moving beyond traditional painting on the way to a fully realized architecture).

While the Proun may have been closer to an architectural gesture, it was neoplasticism—or more specifically, the series of signifiers that determined the neoplastic (by way of primary colors, rectilinear lines, the diamond shape)—that became more significant to how painting was to be read as architecture during the fifties: the De Stijl aesthetic easily facilitated a direct translation to plan or elevation (in spite of Mondrian's explicit admonitions against such practices), whereas the Proun's attempt to represent a virtual and constantly fluctuating space left it in the realm of drawing. In its flatness, a Mondrian could be read as phenomenally transparent, whereas El Lissitzky still came across as the literal representation of a spatial construction.

A case in point is El Lissitzky's 1920 *Construction Floating in Space*, a pinwheel Proun work that demonstrated both a surface rotational movement by its swastika form, and an inner rotary dynamic through the disposition of disparate Suprematist elements in a vaguely perspectival space; in distinction, Mondrian and van Doesburg's diamond compositions concentrated its formal energies solely on disposition of the painterly surface in relation to the surrounding frame.

It is thus to the physical immediacy of the diamond composition over its virtual Suprematist counterpart, that Peter Blake would look to in 1952 for his first realized architectural design, his own beach house in Water Mill, Long Island. [fig. 25] This spare white eighteen foot square structure, spun into rotary orbit through the shearing of its exterior wall panels, and lifted off the ground by slender I-beam pilotis and a partially hidden basement half storey, predates the better known work of John Hejduk,

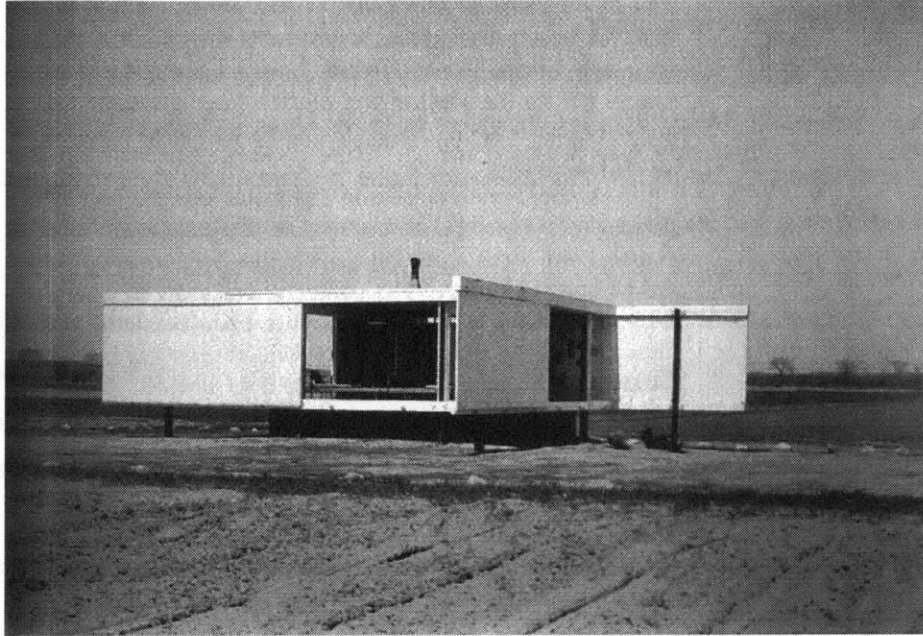


Figure 25: Peter Blake, Pinwheel House, Water Mill, Long Island, 1954

Richard Meier and Gwathmey and Siegel by over a decade in its investigation of frontality and rotation, closure and openness, suspension and periphery—themes that would mark the ascension of American architectural formalism beginning in the mid sixties by way of the Long Island weekend leisure house.

If there remains the radical trace of Malevich's *White on White*, that nihilistic moment of pure chromatic reductivism in the bare surfaces of the Pinwheel House, then it was a matter of economic and practical circumstance rather than formal intention, as Blake originally intended to incorporate a variegated skein of color by way of Jackson Pollock's murals on the sliding panels. As situated, they could reenact that fluctuating gestalt between the opaque, immediate plane, and the perception of a transparent, limitless depth that emulated the distant vistas of outer Long Island. Through this marriage of mural and wall, painting could become fully integrated into the architecture; in its closed state, the house would be encompassed by a totalizing painted environment—that act which only Rothko would later realize in the Houston Chapel. In its erasure, its absence, however, the white panels foreshadow not only the development of American architectural formalism by way of a return to a mythicized, virginal origin in the International Style (and this could be fruitfully compared to Laugier's rendition of architecture's natural foundations), but more tellingly, intimate that mastery of chromatic and formal minimalism over abstract expressionism in both painting and architecture. In other words, the triumph of New York School painting became eclipsed by its formal opposite almost as soon as it had declared its victory, in

the guise of a new minimalist school that was supported on the foundations of the very avant-garde New York painting had attempted to supplant.

There were, of course, warning signs of this immanent sea change: as early as 1947, the Pinotheca Gallery in New York had held an exhibition entitled 'The White Plane', highlighting the spare canvases of Mondrian and Albers.¹⁷³ Not merely content to emphasize the frontality of the canvas plane, it is this reduction to a single hue that marks a move away from an aleatory brushstroke, emphasizing instead the architecture of the canvas plane. In its *whiteness*, the painting both negates the painterliness of the painted object, and correspondingly aligns itself with its architectural implications, with the cool and unfettered wall surfaces of the International Style. Modern painting thus was able to reach out to architecture not by means of the heroic scale and brava individualism demonstrated in abstract expressionism, but instead by retreating into the private world and intimate scale of traditional easel painting. Ironically, it is from this vantage point that architecture could successfully read painting, in order to transform it back into architecture again; the mural work paradoxically prevented a reading as architectural metaphor since it was itself approaching an architectural condition. Architects were less interested in painting's ambitions towards a material presence than with the inverse possibility of reading architecture as painting; not just in terms of an object of representation, but indeed as a reduced, flattened object itself—an architecture of painted walls. As architecture approached the planar condition of the canvas, painting correspondingly reached out to the wall, giving rise to a diaphanous, fluctuating interval conjoining and eclipsing drawing and construction, painting and building.

173. Cited in *Beyond the Plane: American Constructions, 1930-1955* (Trenton, N.J.: New Jersey State Museum), 1983.

Working the Archework

How, then, do we read this particular phenomena, this more or less intentional gestalt which conflates the work of one activity with another? Rather than defining an intentionally elusive quarry, I wish to address this issue by working through a number of strategies which may present a clearer overall understanding of the architecture/art praxis. The first theme reviews the dichotomy between the flat reality of the rendered object, and the spatial depth that it ostensibly attempts to represent. As discussed, it is a condition which is found throughout the history of western painting, from the Roman mural, to the minimalist canvas. Subsequently, the modernist trajectory of architectural drawing is examined, as it purports to imitate the effects of painting in architectural design. At first glance drawing (delineated by the architectural sketch and finished rendering) and painting appear to be two dissimilar categories. Yet, it is precisely this dichotomy which modernist painting challenges, and which postwar architectural drawing takes advantage of. Thirdly, we review a (historically situated) structuralist approach that attempts to understand the relation between the various disciplines by reading them within a conceptual matrix bounded by their differences. Finally, these differences may be read as a set of mirror conditions, each discipline reflecting the other without an originary referent. In this sense, the notion of authenticity is replaced by a desire for a modern poetics of resemblance.

1. *Flatness and Depth.*

Between painting's architectural aspirations and architecture's attempts to incorporate painterly styles, the dialogue between painting and architecture sets up a continuous oscillation between flatness and depth, between the virtual transparency of the picture plane against the material density of the object world. As one strategy of understanding this condition, I wish to introduce Norman Bryson's essay, "Xenia," in his text, *Looking at the Overlooked: Four Essays on Still Life Painting*.¹⁷⁴ Bryson outlines *xenia* as a class of Roman still life painting with particular self-referential properties: the act of reproduction here doubles upon itself, so that it creates what he describes as an "elaborate play of shifts between differing ontological levels or degrees," creating "an increasingly set of sophisticated fictions-within-fictions."¹⁷⁵ In the process, the original object of representation is put into question, setting it—if

174. Norman Bryson, *Looking at the Overlooked: Four Essays on Still Life Painting* (Cambridge, Mass.: Harvard University Press, 1990).

175. *Ibid.*, 31, 32.

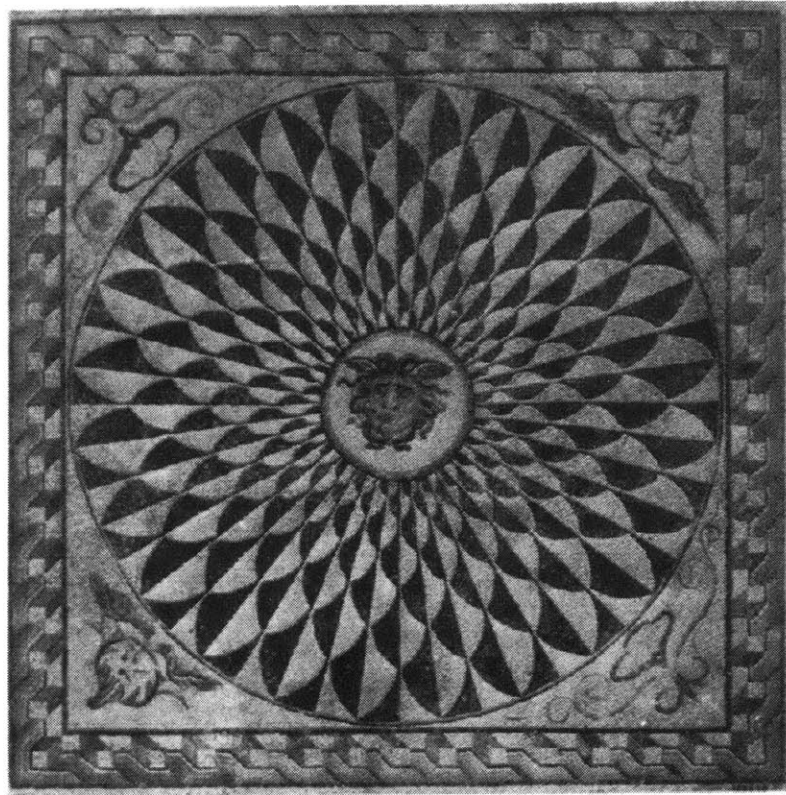


Figure 26: Roman Floor Mosaic

it ever existed—as merely one among a line of self-referring fictions. Representation is passed up in favour of simulation, and shifting levels of reality open up varying degrees of spatial depth.

Bryson describes the Roman floor mosaic, [fig. 26] for instance, as incorporating this double reading, between the ostensible solidity of the tiled floor, against the pulsating inflection of solid-void created by the binary tile patterning. The resultant optical warp sets the field into continual motion, as a virtual space is created beneath the standing observer. In a similar manner, Frank Stella's early black enamel paintings sets up an analogous fluctuation between literal surface and virtual depth. Not a depth created out of perspectival illusionism, but rather a spatial condition produced from the shape of the canvas and the visual shearing of the stripes as it follows the edge of the work, revealing the gestalt voids in the fabric of the canvas.

Bryson goes further to present a style of *xenia* which begins to absorb and take over its architectural support: the Roman interior from the Villa of Fannius at Boscoreale, displayed at the Metropolitan Museum in New York, reveals how the wall murals substitute for windows, revealing the actual land-



Figure 27: Cubiculum from the Villa Boscoreale, Metropolitan Museum of Art

scape outside the villa. [fig. 27] The wall murals encompass varying levels of reality, from the villa itself, to fictional landscapes presented as theatrical backdrops within the structure of the room. The scenes are repeated as mirror images, so that, as Bryson puts it, “instead of the chamber drawing the simulated space back into its own boundaries it opens out expansively onto the fictive space beyond. The narrow parameters of the room, its floor, ceiling and walls, are drawn into a larger space: *representation absorbs the house*.”¹⁷⁶

For the most part, this type of spatial appropriation has no contemporary counterpart; the modernist mural looks to its architectural support as backdrop for the work of art, while architecture treats the mural as a barely tolerable type of ornamentation. What we do find in the example of the *xenia*, however, is the way in which the mural image takes over and appropriates the villa, so that the distinc-

176. Ibid., 36.

tion between referent and copy is blurred; villa and mural act as simultaneous and complementary mirror images of one another. In likewise manner, the strategies employed by postwar architects in order to appropriate painting for architecture, disengages the work of art as original referent. In this example, however, a fundamental shift has occurred, in that the reflexive operation no longer functions within the bounds of a single work, but rather between two (or more) different works—reproduction has been replaced by simulation. In his essay, “The Precession of Simulacra,”¹⁷⁷ Jean Baudrillard argues how this order has become intrinsic to postwar culture, where the real has been replaced by the hyperreal, that is, a reality without original reference; and the copy by the simulation, that is, signifiers void of a signifieds. He describes the simulation as a state where signs travel in fluid equivalence among other signs; here, Walter Benjamin’s work of art in the age of mechanical reproduction which reproduces and thereby erases the auratic by technical means, is now displaced by an art without reference to any auratic point of origin. Baudrillard states the condition in this way:

It is no longer a question of imitation, nor of reduplication, nor even of parody. It is rather a question of substituting signs of the real for the real itself, that is, an operation to deter every real process by its operational double...Never again will the real have to be produced...A hyperreal henceforth sheltered from the imaginary, and from any distinction between the real and the imaginary, leaving room only for the orbital difference of models and the simulated generation of difference.¹⁷⁸

In following this conception of the endlessly deferred visual sign, I wish to return to Bryson’s understanding of the way in which the *xenia* continually displaces and thereby puts into question the notion of the original: “When a representation is placed alongside or against the original, representation is raised to a higher power: it becomes *simulation*...What is distinctive about *xenia* is...a form of image making which is committed to the deletion or erasure of the depicted object at the exact moment when depiction takes place.”¹⁷⁹ In the *xenia*, then, we have a classical type of *xenophilia*¹⁸⁰ in which painting and architecture oscillate between representation and the material realm, between the mimetic sign and its material referent. With the simulacrum, the postwar condition of the *xenia*, the referent disappears altogether, and painting and architecture become one and the same, mirror images of one another. The notion of the avant-garde *Gesamtkunstwerk* is displaced by a contemporary condition where architec-

177. Jean Baudrillard, *Simulations* (New York: Semiotext(e), 1983).

178. *Ibid.*, 41.

179. Bryson, 36, 59.

180. As a riposte to xenophobia, the 1995 Graduate Student Colloquium at the University of Washington School of Art introduced this neologism (‘the love of the other’) as the theme for the conference, where a version of this chapter section was given as a paper.

ture becomes artform through the simulation of the other artform. Flatness and depth coincide, as painting searches for its virtual space, and architecture retreats into the picture plane.

2. *Drawing versus Painting.*

With rare exceptions, architecture did not wholly lose its own properties in the course of pursuing the painterly metaphor (the work of the abstract painter Matta, trained in architecture, could be argued as such), nor did abstract expressionist painting move significantly beyond the boundaries of the traditional canvas structure. It is important to point out that architects rarely represented architecture through painting; at its closest mimetic relation to its sister art, the watercolor wash was the medium of choice for the 'artistic' rendering of architectural form. For the most part, however, technical pencil and ink drawing dominated the representation of modern architecture.

While drawing, especially in architecture, has traditionally assumed the role of projective technique, where lines mark the invisible division between things, modernist drawing attempted to recognize its significance as proto-painting, in which lines would be recognized as a qualitative, compositional force in themselves. Yve-Alain Bois here writes eloquently on this distinction, in the way in which the early modernist painters—notably Cezanne, Matisse and Mondrian—attempted to deconstruct the opposition between line and color. With Matisse, Bois claims, "pictorial (or graphic) practice is not projective: in his work, there is no image—in the classical sense of *disegno*—that is not coextensive with the field."¹⁸¹ Consequently, Mondrian's achievement comes about through the literalization of color, towards an opticality that refuses spatial illusionism; line fuses with plane and mass, foregrounding the status of painting as object.

In the context of Mondrian's dedication to the object nature of painting, it must be ironically acknowledged that modern architecture's imitation of the artist's primary color palette precisely inverts that equation: that is, since buildings are by their nature large scale objects, it is only by the suppression of their mass and volume that architecture is able to approach the reductivist plane of De Stijl painting. Here, the line has always been a wholly illusional fabrication within the constructed realm; it is only through architecture's desire to imitate its sister art, that reengages the fiction in the drafted line and the colored plane. This imitative process did not participate in the De Stijl group's own investigation of a totalizing environment in which color, mass and volume would form an indivisible unity; instead, modern architecture looked to the superficial effects of a painterly palette in the way of primary color, flat rectilinear surfaces, and the suppression of single dominant, convex volumes in favor of overlapping,

181. Yve-Alain Bois, "Matisse and 'Arche-drawing,'" in *Painting as Model* (Cambridge, Mass.: MIT Press, 1990), 28.

fragmentary and sequential spaces. This volumetric suppression was enforced largely through two means: through photographic manipulation (in both models and built structures), and in drawn form, by way of projective rendering in plan, elevation and axonometric; Marcel Breuer and Paul Nelson's attempts at an incorporation of De Stijl aesthetics are examples of such suppressive techniques.

With the latter, Klaus Herdeg here argued that Gropius' tenure at Harvard developed a generation of American architects and educators who emphasized the primacy of the visual diagram in architectural design. Though Herdeg explained this practice primarily in terms of a compositional *parti* that promoted the diagrammatic interpretation of functional activity over human needs, it is the more overtly visual themes that concern us here. For example, while his analysis of Breuer's cursory imitation of Le Corbusier's Errazuris house reveals an obsession with sculptural appearance over a coherent relationship between internal function and external form, it is also significant to note that the theme of the intersecting angles marking the butterfly roof are also found in Le Corbusier's paintings; and that consequently Breuer could be said to be imitating the architect's painting as much as his buildings. In the light of this observation, as well as the way in which he incorporated Mondrian's work in both his teaching at Harvard and in his design practice, a different reading of Breuer begins to emerge, one in which there is a much lesser distance between what originally appears as a canonical functionalism, and the subsequent generation of formalists that ostensibly reacted against its Modernist masters in Texas. Both looked to painting as a means of reinvigorating the work of architecture, by precisely suppressing its volumetric qualities in favour of a two-dimensional reading and re-presentation of architecture as artwork. Anticipating abstract expressionism's formal and cultural lead, Greenberg had precisely predicted the emergence of the flat plane not only in mural painting, but in sculpture and architecture as well.

3. Architecture in an Expanded Field.

If this equation demarcates an historical outline of modern architecture's reinsertion into postwar avant-garde artistic activity, it remains to be shown what its conceptual framework may have been. The possibility of a general *structure* to this condition can be historically situated in relation to a conceptual field that views painting and architecture within a common modernist visual syntax. In this regard, Rosalind Krauss has presented a similar model—between architecture and landscape—which aligns two ostensibly different fields as a means of reworking classical definitions and limits in regards to postwar sculpture.¹⁸² Krauss' model positions the expanded field of sculptural work around a set of binary oppo-

182. Rosalind Krauss, "Sculpture in the Expanded Field," in *The Originality of the Avant-Garde and Other Modernist Myths* (Cambridge, Mass.: MIT Press, 1985), 277-90.

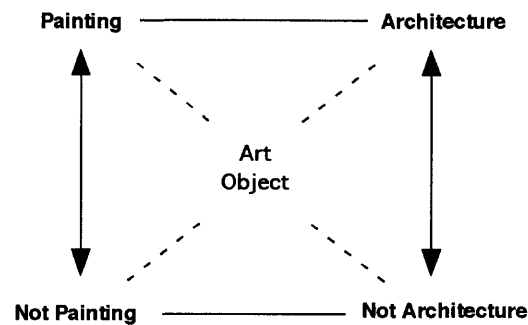


Figure 28: Klein Group model

sitions employing the terms *landscape* and *architecture*, with modernist sculpture occupying the product of their negative terms, not-landscape and not-architecture. The Klein Group model which she has used here implies not only the way in which the new sculpture operates as a function of the nature/culture opposition (landscape/ architecture), but in addition reflects the absolute historicity of its structural frame, of both work and critic. Krauss' own writing, for instance, has come to question and acknowledge her earlier adoption of the Klein Group model as an historically bound and culturally contained system; by incorporating Lacan's L-schema as a visually similar but insidious foil, the static framework of the former is disrupted through the shifting agency of the unconscious, deflected by mirrors and words.¹⁸³

The reinsertion of such a contentious frame in this context, then, is tempered by a recognizal of this double history; in substituting 'painting' for 'landscape', this field of oppositions is set within painting's relationship to modern architecture at the end of the Second World War. Consequently, the structural field introduced through the Klein Group model is simultaneously an archive of a particular historical understanding between painting and architecture, as well as an indication of how architectural work attempted to expand beyond its canonical modernist frame in relation to this model. That is, it becomes a search for work that is both outside of conventional practice, at the same that it admits and defers to its structuring presence.

In distinction to Krauss' reading of the landscape / architecture relation as an opposition between nature and culture, or non-built versus built environment, however, the field 'architecture' in the above matrix [fig. 28] explicitly does not refer to any constructed work, but rather circles manifestly around the built object; in this equation, painting and architecture are both primarily considered as conceptual

183. Rosalind Krauss, *The Optical Unconscious* (Cambridge, Mass.: MIT Press, 1993), 1-27.

terms behind the constructed object. In this historical matrix, architecture is read as that which is not painting, but which can also be read, alongside painting, as residing within the world of the (modernist) artwork. Rather than nature versus culture, painting here occupies a position of the aleatory, expressive agent in relation to its counterpart in the International Style: the machinistic, modular, functionalist Other of modern art.

It is thus within the context of this opposition and the attempts to bridge it, that characterize the postwar work of the Texas Rangers. Their unifying efforts were distinct from any ideal of a neoplastic unity, in that there was never any attempt at a totalizing environment: with De Stijl one could say that their work aimed towards a tectonic solution in which painting and sculpture could be subsumed within an architectural body, whereas the work of the Rangers looked in the other direction, towards the ephemeral, autonomous Logos of the painterly. Not merely a function of the paucity of available commissions (although certainly that condition hastened their eventual direction), their stance became a renunciation of the work of architecture as a function of postwar capital, turning away from the commodification of the art object in favor of its intellectual basis in the realm of the Idea. Through the agency of the architectural drawing, painting and architecture could be reunited outside of its traditional matrix. In this extended field, the architectural drawing admits of its painterly aspirations, but does not succumb to its autonomy; nor on the other hand, does it fall prey to the transparent illusionism of architectural rendering. In John Hejduk's hands, the architectural drawing is no longer a drafting shorthand, but rather its means (the axonometric, the cabinet view) becomes an intrinsic aspect of the architectural work. It is thus both ironic and telling that this effort to return architecture to an intellectual and formal (if artificial) purity should be usurped by the art market three decades later, in the exhibition and sale of the architectural drawing as artwork.

If we continue to extend this matrix, [fig. 29] other positions begin to emerge which characterize the expanded field of the postwar architectural avant-garde. Situated at the intersection between painting and not-painting, synthetic cubism enabled the possibility of moving beyond traditional definitions of the painted artwork. Through collage, a reading of media emerged which admitted of the ready-made, mass-produced, manifold and dispersive nature of modernist culture; in architecture, collage practice provided a metaphor of fragmentation as a formal device against the hegemony of International Style functionalism. Two differing approaches, which will be examined in the next chapter, are present in this axis: one, as exemplified by Graves' early work, collapses the formal techniques of collage against the five points of a Corbusian vocabulary, in order to recreate the promise of cubism's tectonic aspirations within the language of the architectural avant-garde. The other, as initiated by Rowe, conflates the

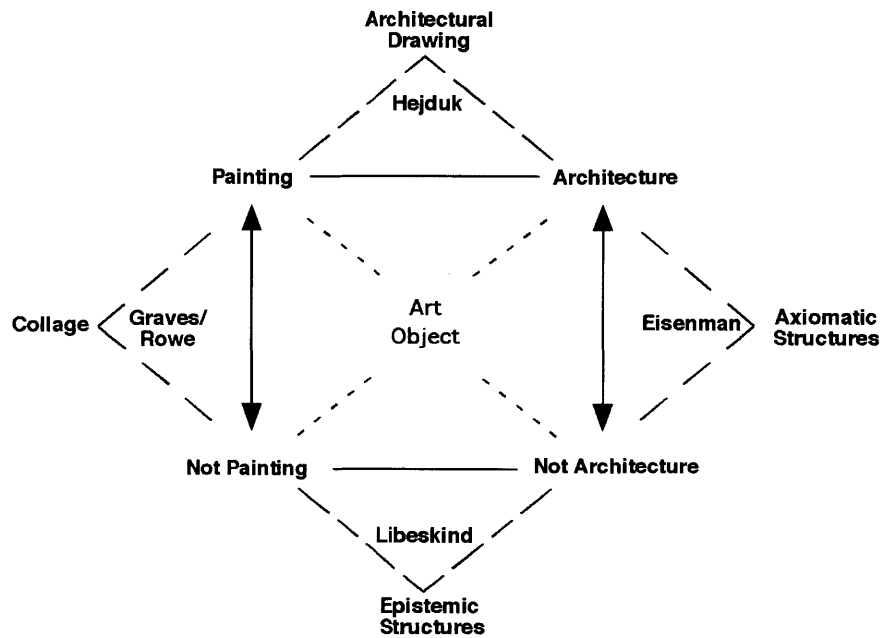


Figure 29: Expanded Klein Group model

spatial layering of the collage work with the historical accretions and geographic exigencies in the urban sphere, again as a means of denying the bureaucratic tendencies of CIAM city planning.

Between architecture and non-architecture lies the axiomatic (in Krauss’ terms) structures of Peter Eisenman; his work is both a negation of architecture—that is, against its historical and modernist notions of habitability, scale, structure, form, and design methodology—and at the same time, a celebration of architecture’s autonomous and absolute existence, a participant in the internal logic of its own being, as well as the teleological myths of an avant-garde culture. It is hardly accidental that Eisenman’s work occupies the same category in Krauss’ text as the artists Robert Irwin, Sol Lewitt, and Richard Serra, for it is precisely their strategies that he adopts towards an architectural methodology.

Finally, that which is neither painting nor architecture is taken up in what I term the epistemic structures of Daniel Libeskind. In his drawings and constructions, Libeskind’s early work through the early eighties is concerned with precisely those boundaries which demarcate the ephemeral limits of the architectural. It is not architecture but rather that which is at the foundation of its episteme—myths, structure, space, the syntax and grammar of architectural elements—that Libeskind’s work explores. While his drawings are not architectural in Hejduk’s sense, nor are they merely formal abstractions; they are not architecture, they do not represent architecture, but rather they occupy a space at the limits of

the discipline. In this manner, by their critical negation, they are able to circle their subject, to impress their presence onto architecture.

All this, of course, has been situated within a cultural logic that posed painting against architecture, a thesis and antithesis with the possibility of resolution in a higher order. At both extremes, as building on the one hand, and drawing on the other, architecture wound up in the most superficial manner mimicking the effects of the dominant cultural discipline. Aspiring towards the freedom expressed by painting, postwar architecture sought to align itself within an extended matrix that continues to assert itself in the present.

4. The Double.

If we pose this situation as a folding of one discipline against another, then we approach that condition Baudrillard recalls in Borges' tale of the cartographic map that, in its exactness, precisely covers the territory it was designed to represent. As recounted earlier, Baudrillard's social critique of postwar (primarily American) capitalist culture discounts the possibility of an original referent, instead substituting the endless reflection of simulacra. His thesis lays out the vision of a hyperrealist culture imitating itself: Disneyland versus America; World Trade Center 1 versus World Trade Center 2; Left versus Right, and so forth. In a society which privileges serial reproduction as the cultural analogue to postindustrial capital, Baudrillard's argument positions the possibility of the simultaneous replication of abstract mural painting and modern architecture in a world of interminable duplications.

Yet, this doubling is not an exact co-reproduction—each copies the other as if their counterpart were its authentic referent; painting towards the material tactility of the architectural surface, and architecture towards painting's domain in the realm of the pure Idea. Neither is this construction a mirror image: between the constructed reality of the building and the finished painting lies that transition in the architectural drawing, a third surface which absorbs aspects of the other two. It is a mimetic process which is not interested in the synthesis of styles, but rather is an attempt to regain a sense of the authentic work of the artist in a world seemingly intent on its erasure. In architecture, looking to the autonomy of the painted plane became a means of critically engaging the serial tendencies of the International Style; for painting, the facture of material and the physical dimensions of American mural painting were in reaction to the academic formalism of the School of Paris. Not exact copies, then, but perhaps mutually sympathetic twins viewing the other in search of its own origin.

It is this process of duplication that marks (and indeed defines) modernist culture, claims Hillel Schwartz, in a mimesis borne of an obsession with surface effect. Schwartz reads Pollock's abstraction

the same way as postwar modern architecture: at a distance whereby all effects of perspectival foreshortening are removed in order to be read as pure frontalized plane:

Surface would be everything—and nothing—to the glass-and-steel corporate skyscrapers designed after the war by Mies van der Rohe, former director of the Bauhaus, and to the explicitly reflective glass buildings inaugurated in 1962 by Eero Saarinen...Glass skyscrapers were meant to be glimpsed from afar or from on high, where they pretended to be invisible, denying community while mirror-mimicking fragments of urban stone and chrome around them.¹⁸⁴

In the glass box we find a mimetic operation at work ostensibly more faithful to its surrounding subjects than any painting could be—only distorted, dispersed, and inverted—in short, becoming a surrealist refraction which Diana Agrest likens to that of Magritte's paintings, simultaneously promising and denying any objective reality.¹⁸⁵

This same obsession with pure color and surface is found in the silent autonomy of Klein, Reinhardt, and Rothko's paintings during the fifties, Schwartz continues, and conversely in the mass cultural references of Warhol and Oldenburg's work the following decade. By precisely removing depth, as Venturi began to do in architecture in the early sixties, the duplicated object takes on a cartoonish, unreal quality; all meaning resides on the surface, as the material aura of the original is substituted for an art that is dependent upon an original, serially produced references. The rendering of a building thereby takes precedence over its finished presence, essentializing the understanding of architectural form as a semiotic, as a process of reading signs against a neutral plane. Thus, it is precisely in this cult of the blank, reproducible surface that ties Rothko to Warhol, Mies to Venturi, across the divide from high culture to mass culture.

There is a similar surface compression in the wall frescoes of the villa at Boscoreale, Bryson points out, whereby the mimetic illusionism of the *xenia* still life is set against the opaque density of the villa walls. Added to this is the kind of optical play between interior and exterior, frame and subject, that Magritte explored in his work: a hyperrealism that contradicts its illusory presence, instead foregrounding its very artificiality and structured setting within an architectural frame. The illusion of depth is juxtaposed against the obstinate opacity of the vertical plane. In Mondrian's work we find precisely this situation, as it occupies that virtual space between two and three dimensions. If we read de Stijl (or for that matter, abstract expressionist) painting as a contemporary form of *xenia*, stripped of figuration, then we are left with an oscillating plane, affirming and denying its own existence. In this instance, however,

184. Hillel Schwartz, *The Culture of the Copy* (New York: Zone Books, 1996), 205, 206.

185. Diana Agrest, "Architecture of Mirror/Mirror of Architecture," in *Oppositions* 26 (1984): 119-133.

the painting is no longer set within and in relation to an architectural volume, but rather makes its own architecture—the gallery space is defined by its presence. Here, architecture does not contain painting, but rather it is the painting that contains and constructs the architecture.

In the postwar period, it is building which increasingly aims towards flatness, towards a degree zero condition of optical and formal transparency which cannot be actualized, leaving instead an object which appears merely vacuous, empty. Conversely, abstract painting, working towards absolute two-dimensionality, finds itself faced with the verso phenomena of edge, depth, space, and tactility. The Roman still life displays reality only defy it, whereas abstraction seeks escape in the fictional autonomy of pure form. Perhaps that is also why through drawing, architects have also found it so easy to occupy this terrain, from the time of Alberti onwards, in reducing architecture to an essence of lines, planes, and symbols.

This isomorphism is not simply between painting and architecture, but more directly, between the process of drawing versus making building. Not that one is any more or less important than the other; rather, they are begun to be thought of as having no essential differences, expressing sympathetic aspects towards a common unity. Through drawing, architecture returns to painting, and the circle is closed: drawing/painting/architecture are once again indivisibly linked in an epistemic chain. The Double, the Other, disappears in the face of the Same. This is the path that Foucault describes in *The Order of Things*, in tracing the movement from a structured taxonomy of order beginning around the middle of the seventeenth century, to a realization of its human origins and limitations at the end of the eighteenth century. In painting, then, the cycle that removed the mural from its ecclesiastical frame, that defines painting as a separate discipline and cultural artifact from architecture, sees its return in the early twentieth century avant-garde, in the form of the *Gesamtkunstwerk*.

There is a kind of madness linked to the confusion between terms, Foucault points out, in relating the story of Don Quixote: unlike the world of the Renaissance which realizes a metaphysical order of undifferentiated resemblances, the Classical Era of the seventeenth century is founded upon a structured taxonomic order in which all human understanding may be set within a tabular grid of meaning. Madness resides in the inability to understand this gridded order, instead reverting to the muddled heterotopic universe of Don Quixote, where resemblance is found everywhere. This old order, which the Classical Era attempted to strip away, returns as *poesis* in the Modern Era:

At the other end of the cultural area, but brought close by symmetry, the poet is he who, beneath the name, constantly expected differences, rediscovers the buried kinships between things, their scattered resemblances. Beneath the established signs, and in spite of them, he hears another, deeper, discourse, which recalls the time when words glittered in the universal resemblance of things; in the language of the poet, the Sover-

eignty of the Same, so difficult to express, eclipses, the distinction existing between signs.¹⁸⁶

The taxonomic order of Durand's architectural system, seen here as the culmination and end of the Classical period, remains as a kind of romantic fiction within the core of the International Style. The deliberate erasure between painting and architecture in postwar art then, rather than a mere confusion between terms, may instead be understood as an attempt to recover the archaic sense of resemblance between words and things. Heidegger's search for original meaning as a method of understanding man (a uniquely contemporary phenomena, as Foucault points out) looks to poetry as the site where the roots of words are dispersed among the world. In this manner, Pollock's architectural aspirations and Hejduk's painterly vision work as sympathetic, symmetrical assaults upon the tabular structure of the functional grid in modernist culture. The madness in their method lies the return to an older visual order founded upon resemblance rather than difference, where things appear the same, where flatness recedes into depth, and plans compress into planes.

186. Michel Foucault, *The Order of Things* (New York: Vintage, 1973), 49.

Collage and Architecture

Introduction

From its modernist inception, collage acted as a distorted surrogate to the traditional conventions of painting, as a deliberate corruption of the pure art of the canvas. The formal and material attack upon the limits of the discipline also occupied a similar role in relation to postwar architectural design, as a conceptual rupture which delaminated and altered the uninterrupted surfaces of the International Style. Collage became a formal device for architecture, acting as both an architectural and urban metaphor, exploring concepts of overlap, juxtaposition, contrast, analogy, texture, and transparency, in design and education. From Gyorgy Kepes' Bauhaus inspired experiments in visual form, to Colin Rowe's transformation of collage aesthetics at the urban scale, the fragmentary nature of the collage work became a critical instrument in moving American architecture away from the canonical orthodoxy of the International Style—a device that ironically originated within the early European avant-garde.

Collage was of course already a significant, if little mentioned aspect of the early architectural avant-garde. In the work of Le Corbusier, Terragni, and Moretti, Colin Rowe found evidence of a collage sensibility already within canonical modernism.¹ We could certainly add to this list Mies, Hannes Meyer, and arguably even Gropius, who was not only aware, but also influenced by the assemblage compositions of Moholy-Nagy and Josef Albers. There is, after all, an aspect of *phenomenal* transparency to the Bauhaus building at Dessau, Rowe's protestations notwithstanding: circumscribed within the narrowly focused bounds of the photographic frame, the ribbon windows of the Bauhaus compound collapse front and back, inside and outside, so that there begins to introduce the possibility of a conceptual reading of multiple surface layers compressed onto the reductivist surface of the image. [fig. 17 on page 269] This intentional, if unconscious, sublation of architectural collage within high modernism became both its rallying point against the disparate and confused excesses of the nineteenth century, and formed the basis for the modernist myth of explicit structure and complete form that Rowe exposed, a quarter century later.

Indeed, within the very heart of *Sachlichkeit's* totalizing sensibility lay its formal obverse in which fragmentation and multiplication reign. The antinomy is hardly contradictory, and may be argued as endemic to the crisis of modernism, in the form of the contradictions brought up by the promise of utopia alongside its concomitant attack against social unity and tradition. These poles defining modern archi-

1. Colin Rowe and Fred Koetter, *Collage City* (Cambridge, Mass.: MIT Press, 1983), 140-43.

ecture, the illusion of unity and the violent wrenching of same, also constitute the essential elements of the collage work.

Within the general category of collage lies a myriad family of related practices that include montage, photomontage, and assemblage constructions, but of which only a small subset came to dominate postwar architectural theory and design. It is this work, done primarily by Picasso and Braque between 1911 and 1914, that constitutes the focus of this section, in that it is their particular interpretation of collage—as an extension of painting—which is the locus of the formal investigation and transformations into an architectural sensibility from the forties onwards. This ‘classic collage’ work, in the form of the *papier collé*, becomes the critical bridge between a ‘pure’ painterly surface and the three-dimensional reality of the architectural object; here, the implications of Cubist space are manifest, made literal, revealing material form, structure, depth, phenomenal space, and a relationship with the exterior world that is not solely based upon mimetic reproduction, but rather begins to participate in the world of commodified objects. Painting thus moves towards architecture in the medium of collage, as architecture is able to divine meaning and justification of its artistic aspirations through collage. Fernand Léger’s comment that his painting was a kind of ‘flat architecture’ reveals how the increasingly shallow plane of modernist depth is finally collapsed onto the material reality of the painterly surface. From this flattened plane, external reality reappears and reasserts itself as collage, assemblage, sculpture, and architecture.²

As much as there was an intense focus upon the formal aspects of collage production after WWII, then, as with painting, it was at the expense of its political and social implications. Instead, a dual and complementary agenda appeared: on the one hand, the emphasis on the myth of pure form in collage participated in and supported the ascendance of the New York School of painting; on the other, the intentional omission or neutralization of the more political instances of avant-garde collage production can be seen as part of the particular cultural atmosphere of Cold War politics, as previously discussed. As early as 1943, at Peggy Guggenheim’s Art of This Century gallery, there was an attempt to integrate, if not co-opt, the formal legacy of collage practice within the environs of an emerging American contemporary art. Here, William Baziotès, Jackson Pollock, and Robert Motherwell, among others, were invited to participate in an exhibition of collage that reflected the recent influx of surrealist activity in New York.³ Out of the legacy of the automatist unconscious, however, instead arose an art which pro-

2. Harriet Janis and Rudi Blesh here point out how “Implicit in the flattest collage and even before it in the Cubist canvas, is the idea of extension outward from the picture plane.” From *Collage: Personalities Concepts Techniques* (Philadelphia: Chilton, 1967), 111.

3. *Ibid.*, 171.

moted form over meaning—or more precisely, where this virtuoso form became the meaning, the central aspect of the artwork. Those crucial aspects which marked collage production—improvisational freedom and the rebellion against traditional painting—also served to define American painting’s struggle to define itself against the School of Paris.

This meant in part the subversion and adoption of those very elements within the early European avant-garde for its own purposes. Against the academicist tendencies of French painting in the thirties and early forties, the Americans looked to the disparate methods employed in Surrealist assemblages as a means of disrupting an increasingly seamless canvas. However, this also entailed the dilution of any covert social-political agenda, instead reframing the Surrealist legacy as merely an unconscious, oneiric response to the forms and materials of traditional painting. The abstraction of dreamlike imagery thereby retreated into a brand of nonobjective, individualistic form-making, referring more to purely stylistic precedents in cubism and surrealism, than to any radical politics or social vision.

The postwar recognition of collage practice, marked by the 1948 retrospective at the Museum of Modern Art in New York,⁴ at once encapsulated, legitimated, and domesticated its radical origins, substituting for it instead a relatively narrow reading of collage as the compression and literalization of form, shape and material. In presenting together a politically, thematically and chronologically diverse group of works ranging from Picasso to Schwitters, Ernst and Miró, under the common banner of collage, the significance of their activity shifted from that of individual works or specific movements, to that of a general formal sensibility embraced and interpreted by a wide variety of artists.

This was certainly Clement Greenberg’s interpretation, who already had begun to construct a teleology around contemporary American painting based upon the increasing object nature of the modernist canvas. In his review of the MoMA show, collage is interpreted as the natural outcome of an increasingly flattened, literalized art object, where the illusionistic depth planes of traditional mimetic painting have been compressed to the point of extrusion on the spectator’s side of the picture plane. With cubism, Greenberg declared, “The fictive depths of the picture were drained, and its action was brought forward and identified with the immediate, physical surface of the canvas, board, or paper.”⁵ As a consequence of this trajectory, Cubist collage was no longer a mimetic object, but rather a thing in itself; accordingly,

4. Sept. 21 - Dec. 5, 1948. Organized by Margaret Miller.

5. Clement Greenberg, “Review of the Exhibition *Collage*,” in *Clement Greenberg, The Collected Essays and Criticism*, vol. 2 (Chicago: U. of Chicago, 1986), 260; originally published in *The Nation*, Nov. 27, 1948, 612-14. The MoMA retrospective was also reviewed by Thomas B. Hess, “Mixed mediums for a soft revolution,” *Art News* 59 no. 4, Summer 1960, 45, 62; M. Breuning, “Tracing the history of collage,” *Art Digest*, Oct. 1, 1948; and James T. Soby, “The importance of collage,” *Saturday Review of Literature* 31, Nov. 6, 1948, 36-7.

content gave way to form as the primary aspect of the artwork: “because it generally fixed the eye at the physical surface, collage, as employed by the Cubists always emphasized the identity of the picture as a flat and more or less abstract pattern rather than as a representation; and it is as flat pattern that the Cubist *papier collé* makes itself primarily felt and enjoyed.”⁶

Greenberg’s reading here is unabashedly formalist, as it totally discounts the political ideology underlying futurist production, the dadaist attack of European militarism, or the surrealist research into the unconscious, among other critical positions held by the European avant-garde. Greenberg seems to be rather incapable or unwilling to acknowledge any relation to social intent, instead redirecting the definition and boundaries of collage ‘proper’ in terms of analytic cubism. Collage is not about representation, Greenberg asserts, but rather about flatness and pure form. For it is here that collage finds its place as a bridge between nineteenth century French painting and contemporary sculpture, at the point where the artwork acknowledges the physical nature of its medium, and discovers the canvas as an independent and opaque surface. In this manner, collage becomes the transition by which painting could see itself heading materially towards an architectonic condition. Read inversely, architecture could see through collage, a means of viewing abstract painting in architectural terms, where space and material are compressed onto the compact density of a single plane. It was Greenberg who became the leading voice of the first position; with the latter not only the Texas Rangers (who would become its best known exponents), but also somewhat ironically the Bauhaus expatriates teaching in America and England made collage an integral part of architecture and design education from the fifties onwards.

Consequently, the simultaneous erasure and delimitation of collage activity had a profound effect upon its architectural reception, by specifically placing analytic cubism in a vaunted relation to the International Style. Thus, European modernism during the twenties and thirties was concerned as much with visual research conducted in Cubist art, as it claimed to be the inevitable result of the technical requirements of building construction. Flat surfaces of color and material, compressed depth, overlapping planes, became the common elements bonding collage construction to modern architecture. The multiple levels of trompe l’oeil illusionism in Cubist collage—painted woodgrain surfaces imitating ‘fake’ woodgrain, real newspaper fragments set against a drawing of same, and so forth—had its architectural analogy in the use of cardboard as a legitimate compositional material. In collage, paper and board were material enough to disrupt the illusionism presented on the picture plane. With architecture,

6. Greenberg, 261. Robert Motherwell’s own collage retrospective at the Kootz Gallery in 1949 displayed this shift from surrealism to a formal vocabulary dominated by flat abstract shapes. Though dada and Schwitters in particular is an obvious influence in the hand-made quality of the work, it is here stripped of its historical context and transformed into ‘pure’ collage, i.e. as abstracted shape, color, and material.

the constructive surfaces of masonry and concrete had to dissimulate their appearance and present the illusion of ephemerality, in order to reconstruct the analogy with collage.

In architectural drawing, however, the relation was more intimate and immediate; even discounting those few explicit efforts at architectural collage among the Suprematists and the De Stijl group, architectural plans and elevations (and to some degree, the section) work similarly to collage, in presenting the compressed and extruded traces of external reality onto a paper surface, stripped of perspective or spatial depth. By this simile, collage subsequently became appropriated as a didactic design instrument in postwar American design schools; its methodology also laid evidence to how the compression of spatial depth and the emphasis on architectural form and color could take place over other factors such as the consideration of materials, construction methods, and social functions. Not that this was some sort of unintended pedagogical error; rather, it was an explicit critique of the increasing anonymity of the sort of American *Sachlich* bureaucratic form making at SOM, TAC, and other large scale design firms during the fifties. Against the formation of architecture as the outcome of technical limitations and scientific technique, painting and collage were incorporated to reinstate the idea of architecture as a fine art. The examples in color and form came by way of painting; material and depth through collage. Le Corbusier was its greatest early exponent, as shown in his buildings and villas of the twenties and thirties, and the American postwar reading of collage came largely as a result of the typological precedents of the Corbusian models: flat colored planes, cut-out vistas, compressed and implicitly layered spatial progressions, all became hallmarks of a collage influence exported to architecture. Not that the master himself participated to any significant degree in working with the collage medium per se; rather, it should be emphasized that the obsessively formal analysis of the Corbusian syntax came to dissect the Purist image into carefully defined, desiccated layers that could be recombined and rearranged as an endless collage.

Collage as Social Critique

The converse of the formalist readings accorded to early modernist collage lay in its power as a rhetorical instrument, in its ability to criticise existing social mores and political institutions. The metaphor of the fragment took on a multiplicity of often contradictory meanings—depending on their context, it took to be either the omen of a decrepit social condition or diametrically, the violent dispersal of same; conversely, the uniform image became associated with rear garde art and culture, or the reconstituted recovery of a society in disarray. Either way, the idea of the fragment in collage came to stand for a society in transition, at the threshold of modernism.

To Levi-Strauss, the fragmented form of the collage reflected the loss of traditional craft skills in the twentieth century, presumably substituted by machine technology. He dismissed modernist collage in saying that “The intermittent fashion for ‘collages’, originating when craftsmanship was dying, could not for its part be anything but the transposition of ‘bricolage’ into the realms of contemplation.”⁷ Levi-Strauss saw the collage as the easy substitute for manual handicraft in the twentieth century, rather than as the deliberate transposition of skills from the manual to the intellectual; and as such, he read collage as the disintegration of craft, in opposition to the ordered and static design logic in traditional (pre-industrial) culture.

Here, Marshall Berman and David Frisby have both outlined ways in which the idea of modernity was presented as a transitory, discontinuous state, set off from the permanence of pre-industrial society. For Berman, modernity is an integral aspect of a Marxian dialectic that reads the wheels of capitalism as dependent upon continuous change and destruction of the old. Capital drives change, and change begins in the metropolis. From Paris to St. Petersburg, the roots of revolution were found in the city, and its artists reflected a continually emerging culture of the modern.⁸ Frisby’s approach to modernism examines how various German social theorists attempted to grapple with the experience of modern urban life.⁹ Georg Simmel, for instance, saw an urban culture that was simultaneously characterised by a dynamic of continual change, set against the inured personality of the urban dweller who became anesthetized to the constant bombardment of exterior stimuli. The fragment for Simmel was an emblem of the dissociated character of modern man, driven by monetary exchange and commodification. Modernism’s foundation, its most permanent characteristic, thus lay in the unceasing exchange of capital. Simmel presented the notion of fashion as an instance of a transitory culture whose aesthetic mimicked the economy of capital: repetitive, circular, fragmentary, and dislocated from its origins.

Sigfried Kracauer saw modernity in similar terms as Simmel, in which capital secularizes, objectifies, and fragments the world. For Kracauer, Frisby asserts, “The world as a coherent totality has been shattered. Only its individual fragments remain.”¹⁰ The urban dweller, dislocated from the stability of tradition and social norms, loses his individuality in return for an identification with an anonymous, serialized mass. The dancing Tiller Girls, the industrial assembly line, the serial repetition of Neue

7. Claude Levi-Strauss, *The Savage Mind* (Chicago: University of Chicago Press, 1966), 30.

8. Marshall Berman, *All That is Solid Melts into Air: The Experience of Modernity* (New York: Simon and Schuster, 1982).

9. David Frisby, *Fragments of Modernity* (Cambridge, Mass.: MIT Press, 1986).

10. *Ibid.*, 115.

Sachlichkeit architecture, are all aspects of a metropolitan modernism that is simultaneously monolithic and disenfranchised.¹¹

Originally trained as an architect, Kracauer read Paris and Berlin as a labyrinthian palimpsest of urban landscapes, foreshadowing Guy Debord's 'psychogeographic' studies. Kracauer's method of literary montage incorporated the fragment as an analytical method, mimicking the disjunctive nature of the photograph and film. In so doing, he found that the fragmentary also acted as a bulwark against social and political totalization, discovering pockets of resistance and freedom in the overlooked, hidden exceptions of the urban structure. Through literary montage, Kracauer was able to mirror the fragmented reality of metropolitan life, reconstructing them into a context outside of instrumental reason.

Like Kracauer, Walter Benjamin used the fragments of the modern metropolis as the foundation of his unpublished *Arcades* project, which was intended as an archeological 'prehistory' of modernism. Benjamin utilized a similar tactic as Kracauer's *White Collar Workers*¹² (which Benjamin had reviewed), in sifting through the detritus and minutiae of everyday life as a means of reconstructing an alternative reading of the nineteenth century city. Yet Benjamin was not merely interested in a conventional compilation of chronological facts and events, but had in mind the larger goal of a radical rethinking of the writing of history: against the inexorable continuum of historical evolution, Benjamin instead presented a dialectical array of images that intentionally disrupted the serial evolution of historical time. His alternative posited the fragment as the nucleus of this new history, in which one could read the signs of the present in the traces of the past.¹³ The historical fragment, Frisby points out, "must be snatched from the false context of the historical continuum in which it is embedded and placed in our present. This wresting of the fragment from its encrusted context requires a destructive intention in so far as the false continuum is reduced to rubble."¹⁴ The political implications of such a critique were clear, in exposing the artificial monumentality of historical meaning. Benjamin was also aware of the way in which

11. Here, Hays sees this as endemic of a posthumanist social and artistic condition, in which serial repetition and a mechanised aesthetic sensibility begins to displace man as the central foundation of cultural production. K. Michael Hays, *Modernism and the Posthumanist Subject* (Cambridge, Mass.: MIT Press, 1992).

12. Sigfried Kracauer, *Die Angestellten* (Frankfurt: Societäts Verlag, 1930).

13. Frisby notes Benjamin's Sigfried Giedion's archeological reading of history: in the same way the architectural historian would "read the basic features of today's architecture out of buildings around 1850, so would we read today's life, today's forms out of the life and the apparently secondary, lost forms of that era." From Benjamin, "N [Theoretics of Knowledge: Theory of Progress]," trans. L. Hafrey and R. Sieburth, in *The Philosophical Forum*, XV, 3; cited in Frisby, 217.

14. Frisby, 216.

Heartfield incorporated photomontage into his dadaist attacks on National Socialism.¹⁵ The literary and photographic montage thus performed a double role: that of historical token, and as a metaphor for a fragmented contemporary social and political state.

By implementing the notion of the fragmentary as emblematic of modern life, the collage image came to signify both the collapse of nineteenth century bourgeois culture, as well as the imminent arrival of a new metropolitan era steeped in perpetual movement and fragmented images. From Picasso and Braque's insouciant insertion of mass market brand names into the hermetic repository of the still life easel painting, to Schwitters' bricolage of urban detritus, a model of contemporary culture emerged which celebrated popular media and the increasingly frenetic pace of modern life. In contrast to Simmel's sociological admonitions cited earlier on the 'nervous life' of the city dweller, the artistic avant-garde preferred to revel in the visual and haptic fillibrations of the disjunctive rhythms in the new metropolis; the dislocated nature of collage signaled the modernist disruption of permanence and whole form in art and culture.

Though Futurism's collage production was relatively limited, their projects and texts revealed a sympathetic sensibility that saw the pluralism of materials as an index of a diverse, rapidly changing world. Reyner Banham astutely observed a relation between Futurist architecture and Cubist collage, citing Umberto Boccioni's manifesto on Futurist sculpture:

One sees Boccioni here in one of his most influential roles, as a codifier and systematizer of *ad hoc* Cubist practices, and their inclusion within the body of Futurist theory, even before they had been systematised and included within Cubist theory.

4. Destroy the purely literary and traditional nobility of bronze and marble. Deny that any one material should be used exclusively for the whole of a sculptural construction. Affirm that even twenty different materials can join in one work to increase the scope of its plastic emotion. We enumerate some: glass, wood, iron, cement, hair, leather, cloth, electric light, etc.

This list, in which it will be observed that concrete makes its return, is an intelligent extension of the principles of Cubist *papiers collés*, composed of various different materials, invented by Braque in 1911.¹⁶

Here, Christine Poggi has cogently outlined Futurism's collage production in relation to its Cubist antecedents.¹⁷ In the face of Futurism's totalizing tendencies, it is their diametrical movement toward

15. Susan Buck-Morss, *The Dialectics of Seeing: Walter Benjamin and the Arcades Project* (Cambridge, Mass.: MIT Press, 1989), 60-4.

16. Reyner Banham, *Theory and Design in the First Machine Age* (London: The Architectural Press, 1960), 121-2; the Boccioni citation refers to his April 1912 *Technical Manifesto of Futurist Sculpture*.

the fragmentary that marks its acknowledgement of a culture that is no longer static, whole, or individualistic. Through weapons of war, the automobile, industrial machines, and an architecture of unsparing functionalism, the future is portrayed as a condition that is splintered and decentered from the uniform regularity of tradition. The city becomes a living dynamo, transforming its occupants into an intrinsic element of the urban machine. In this schema, then, unity assumes a negative, backward cast, as progress instead appears as the wilful disruption of a stagnant status quo.

Similarly, Constructivism and Suprematism also took up the banner of the refracted, recombined image, echoing at once an economy of mechanised production, alongside the visual and haptic dynamism of a new modernist culture. As much as fragmentation was held to be synonymous with the dissolution of a decrepit bourgeoisie, it also stood for the aspirations and attributes of an advanced artistic class. The dissection and dislocation of the body within the Constructivist collage deliberately reduced and mechanically serialized the individual into a minor component of the engine of political and social progress, making man both more (in the socialist sense of an abstract greater good) and less (in the sense of his instrumentalization) than the inert centrality of the humanist body. Its architecture reflected this new social and political order, in which the fragment became read as the breakdown of the old and the constituent of the new.

Collage also acted in more explicit political terms, creating an art of dissent through the violent wrenching of images and words; not only through the mobile pro-revolutionary theatre of the Agit-Prop artists, but also Heartfield and Haussmann's dadaist protests against the onslaught of National Socialism. That both Stalin and Hitler were to suppress these activities, only underscored the radical and volatile potential held in the instability of the collage form, preferring instead the relative inertial safety of a frigid, monumental classicism. More subtly, but no less intensely, the Surrealists' turn from quotidian perception, and towards an interior, oneiric vision was developed out of a common intellectual foundation that came to reject objective reality and linear thought as a means of political and cultural resistance. The fragmented unconscious, the aleatory stream of perception, was not simply a poetic feint, but rather a deliberate posture designed to resist a purely mechanistic, centralised call to authority. This

17. Gino Severini, Umberto Boccioni, and Carlo Carrà were among the Futurists influenced by Braque and Picasso's collage production, but found Cubism wanting for its tendency towards deliberate fragmentation and the found effect; instead, Futurist collage understood the fragmented image as a formal extension of French Divisionism (thus retaining the traditional notion of compositional unity), and as a visual metaphor for the new urban environment. For a detailed analysis of the Futurist critique of Cubist collage, see Christine Poggi, *In Defiance of Painting: Cubism, Futurism, and the Invention of Collage* (New Haven: Yale University Press, 1992).

rejection of materialism, along with its turn from an overt Marxism, ultimately estranged them from the politicised faction of the dadaists.

The lack of a party line ironically became a cultural and political advantage during the thirties and forties for Surrealism in New York, where resistance occurred within the bounds of a stylistic arena. Partisan politics disappeared in favor of the dynamic tensions of the interior psyche; the fragmented photomontage turned from the site of political resistance to a graphic shorthand. The inclusion of mass media which Braque and Picasso introduced into the work of high art returned in a not wholly ironic fashion, so that it was now the fragmented imagery of Surrealism and dada that made their way back into the popular press. Only now the implications of the fragment changed, denuded of any political volatility, transforming instead into the language of advertising. What is interesting here is how the collage technique, so feared by totalitarian states for the power of their fragmented imagery, could be so easily coopted and neutralized by the mass media, and later incorporated into architectural design. That is, the most potent elements driving avant-garde collage work—its power of social and political critique—was precisely what was progressively eliminated on its introduction to America.

Surrealism, Dada

If cubism lay the foundation and set the tone for the reception of collage in postwar architecture, it came at the expense of other avant-garde movements that also incorporated collage. Not that these others were any less applicable or difficult to translate into another field; instead, they were overshadowed by a formalist reading of Cubist collage that intended to be directly related to the rise of abstract expressionism, where the significance of the artwork was inherent in the material state of the thing itself, rather than in its subject or style of representation. The domination of this approach led to the reception of other modernist movements as different variations on a formalist canon, all but ignoring their non-formalist concerns, or discounting their contributions for precisely such interests.

The reception of Surrealism is a case in point: from its inception in the mid-twenties, to its waning influence by the early forties, there was a marked shift from the appreciation of surrealism's variegated juxtaposition of imagery based on dreams, magic, and chance, to Greenberg's summary dismissal of its representational literalness, whereby "The Surrealist image is thus a new object to be posed and arranged, but it requires no fundamental change in the conventions of painting as established by the Renaissance."¹⁸ Reading these works in purely formalist terms left them undeniably lacking, but it also ignored their deliberate renunciation of 'proper' style or composition as an intentional artistic strategy. Surrealist collage thus suffered in relation to Cubist collage precisely because of its lack of interest in

extending the formal innovations in Cubist visuality.¹⁹ Arp and Schwitters were at least partially redeemable because of the relative abstractness of their compositions, though for Greenberg it was clear that “Picasso and Braque are the great masters of collage proper.”²⁰

The architectural upshot of Surrealist collage lay principally in the use of biomorphic elements that hinted only vaguely at naturalistic elements, but rarely presented actual elements into their compositions.²¹ Surrealism’s greatest architectural exponent in American architecture was Frederick Kiesler, who designed Peggy Guggenheim’s Art of This Century Gallery in 1942. For its Surrealist Gallery room, Kiesler incorporated curved walls, biomorphic furniture and display stands to echo the organic style of the artwork, held suspended and frameless, in an attempt to form an integrated environment.²² More commercial instances of biomorphic design appeared in the forties and fifties, from department store window displays and drive-in restaurants, to furniture design, where the surrealist curve reappeared in the chairs and tables of designers such as Charles Eames, Harry Bertoia, George Nelson, and Eero Saarinen.

In similar fashion, Dada’s attack upon traditional modes of art production and political discourse became replaced by its reading as yet another category of visual composition, sufficiently generalized to be applicable towards an architectural setting. As cited in the previous chapter, Hans Arp’s organic imagery was adopted by architects such as Aalto, Nelson, Niemeyer, Burle-Marx, and van Eyck, among others, though in their architectural guise only the barest suggestion of Arp’s curvilinear forms remained, stripped of their representational or compositional context. In plan the collage format became separated into discrete levels of organic shapes, as a kind of anatomical dissection of Arp’s wooden cut-outs.

18. Greenberg, “Surrealist Painting,” *The Nation*, 12 and 19 August 1944; reprinted in *Clement Greenberg, The Collected Essays and Criticism, vol. 1*, ed. John O’Brian (Chicago: U. of Chicago, 1986), 230.

19. “The dadaists and surrealists—except for Arp and Schwitters—saw in it only a means of achieving strange and surprising effects by juxtaposing incongruous images. The result was not works of art—even in Miró’s case—but montages, truly stunts: rectangles littered with small pictures connected by no aesthetic necessity, rectangles that do not delight the eye and whose value is wholly exhausted in literary shock effects that have by now become unspeakably stale.” Greenberg, “Review of the Exhibition *Collage*,” 262.

20. *Ibid.*

21. Le Corbusier experimented briefly with Surrealism, most notably with the 1931 de Beistegui apartment in Paris, in juxtaposing exterior and interior architectural elements, and ‘pasting’ views of the Eiffel Tower and the Arc de Triomphe into framed views for the rooftop terrace.

22. Cynthia Goodman, “The Art of Revolutionary Display Techniques,” in Lisa Philips, *Frederick Kiesler* (New York: Whitney Museum, 1989), 62-8.

Consequently, whether Cubist, dada, or surrealist in nature, the transformation from collage towards architectural form entailed the erasure or superimposition of original meaning, in favor of formal effects and stylistic virtuosity. Thus, cubism moved towards the carefully composed intersection of independent geometries, dada collage turned towards the collision and displacement of disparate elements, and surrealism transformed into the sinuous display of curvilinear forms. Formal research became formal practice, as collage moved from the radical critique of painterly techniques, into an applied methodology.

Kurt Schwitters and the Postwar Reception of the Fragment

The case of Kurt Schwitters' collage practice has a unique relationship to architecture, and is studied at some length by Dorothea Dietrich.²³ The various Merzbau structures as extensions of his collage practices, the first in the artist's Hannover studio, then subsequently in Norway and England, form significant contributions to both modern art and architecture. Indeed, it was Schwitters' contention that the Merzbau was his attempt to create a *Gesamtkunstwerk*,²⁴ in which painting, collage, sculpture, and architecture could find an equal and harmonious relationship. Schwitters' version, however, proposed a far more radical vision than his modernist peers, by treating the conflicts between representation and abstraction, and high culture and mass culture, with equanimity. The history of his collage practice attests to the artist's ongoing attempts in the Merz projects to work the realism of the photographic image against pure form and color, texture with the glossy surface, high abstraction with the everyday banalities of commercial advertisements, so that everything, regardless of specific form, scale or content, could be treated as valid visual material. At the same time, Schwitters' choice of materials or images was not simply random, but instead carefully chosen for their historical context, as well as their personal and social meaning. Fragmentation for Schwitters was both a reflection of his contemporary social condition, as well as a personal statement of how disparate parts could be brought together to form a greater, unitary whole. Pieces of cloth, buttons, newspaper clippings, and other found objects were incorporated into a common union that, by dislocating the elements from their common origins, created a new aesthetic appreciation of both the individual objects, and the overall composition.

As an prescient metaphor of the postwar urban condition, Schwitters' work took on a new found significance in Europe: while the *Merzbilder* were to some degree reflections of his view of the collapsing

23. Dorothea Dietrich, *The Collages of Kurt Schwitters* (New York: Cambridge University Press, 1993).

24. *Ibid.*, 130.

political conditions of the Weimar Republic, they also managed to capture the literal sense of fragmentation in the postwar European city. The Merz in this manner came to stand for the dissolution and ruin of the traditional city fabric, its urban detritus, and the scattering of its collective unconscious. In the wake of the large scale civic reconstruction projects during the fifties, the fragmented city came to stand for both the destruction caused by wartime bombing, as well as the haphazard and unwarranted erasure of the traditional city in the name of urban renewal.

For the Smithsons in England, the fragmented fabric became a backdrop for their architectural proposals, using collage to promote the radical insertion of a new urban vision out of the rubble of the old. In the intentionally jarring juxtaposition between old and new, their work is reminiscent of Max Ernst's disturbing illusionism, through a surrealist vision of modernism that collapses an incipient pop culture against an urban wasteland, in a pretence towards normalcy. In distinction to Mies' Berlin seamless photomontages, the Smithsons welcomed the disruptions between different source material, by mixing media, drawing directly over photographs, collapsing the distinction between building and sky, thus intentionally foregrounding the collage as an independent work above its representative functions. Their urban proposals later approached the condition of large scale collage, as the new structures were constructed as a second layer over and among the rooftops of the traditional city.

In 1954, their fellow members in the Independent Group—John McHale, Eduardo Paolozzi, Nigel Henderson, and William Turnbull—resituated collage practice in terms of postwar popular culture, for the *Collages and Objects* exhibition at the ICA in London. Paolozzi's comic book and detective magazine collages, dating from 1947 in Paris, transform Schwitters' and Huelsenbeck's appropriation of mass culture, from either a formal aesthetic or political critique, and into an increasingly neutral anthropological mirror, auguring the age of pop art culture. McHale, who had studied with Albers at Yale in the early fifties, combined the formal structure of color studies with sensationalist headlines and images culled from American magazines. Henderson, the lone photographer of the group, who constructed his collages out of photograms from found objects, reproduced in his photographic work a vision of working class London that reflected the everyday, proletarian collage environment of the shop front and newspaper stand.

For Situationists such as Guy Debord, Asgar Jorn, and Constant, the fractured city became the leitmotif of a new proletarian struggle, holding the ashes of the past and the promise of the future. Out of the decimation of the old town fabric would come a new urbanism that presented the vision of a dispersed, fragmented, constantly mutating city form, with wandering, mobile nomads as their inhabitants. Collage became a means by which to present the spectacle of a radically altered city as visual manifesto, taking isolated elements of the existing plan and creating a new reading of the city through its selective dislocation. Guy Debord's 'psychogeographic' collages of Paris, as recomposed through a pseudo-ana-



Figure 1: Guy Debord, *Naked City*, 1957

lytic ‘dérive, reconstructed a proletarian city by means of chance encounters and random wanderings, creating an alternate geography that deliberately ignored political boundaries, historical neighborhoods, and urban zoning patterns [fig. 1]. Its artistic genesis points to Duchamp’s aleatory Dadaism, but its political intent squarely aimed at the dismantling of the traditional image of the city and its accompanying social and political superstructures. Constant literalized this map in his *New Babylon* series of drawings, collages and models, incorporating the fragment as the basic unit of the future city, as constructed by the nomadic citizen. Similarly to the Smithsons’ dispersive, fractal-like urbanism, Constant’s vision of urban utopia reduced the traditional city to either pure background texture, or simply erased it altogether, creating a city as an isolated, aesthetic artifact. Constant’s later expulsion from the Situationist group was a recognition of the danger that fragmentation and collage could be transformed too easily as aesthetic impulse over social critique.

As Greenberg’s writings demonstrated, Schwitters’ collages could be successfully interpreted in a formalist context, though the artist had a more complex understanding of the implications of Merz.²⁵ At first Schwitters distanced himself from Dada activities in say how “Pure Merz is pure art, pure Dadaism

is nonart; in both cases deliberately so.”²⁶ For Schwitters, Dada’s foray into political activity through its art tended to negate its artistic foundation, whereas for him the *Merzbau* and *Merzbilder’s* aesthetic autonomy was a political affirmation of independence in its own right, and on its own terms: “Merz stands for freedom from all fetters, for the sake of artistic creation. Freedom is not lack of restraint, but the product of strict artistic discipline. Merz also means tolerance towards any artistically motivated limitation.”²⁷ This ambiguous relationship to aesthetic autonomy reveals the artist’s own contentious relationship with German politics; at first rejected by the Huelsenbeck Dadaists for his lack of political involvement, but then subsequently escaping the Nazis in 1941 for being a ‘degenerate’ artist. In the era of abstract expressionism a decade later, Schwitters’ rejection of politics in art returned in the fifties as a form of aesthetic autonomy, though one based upon the specific material limits of painting per se over any transcendent ideal of artistic unity among the arts.

In this manner, Schwitters could be seen as a means by which to ‘rehabilitate’ and neutralize the more politically charged aspects of Dada production, and insert it into a formalist teleology of modernism. Robert Motherwell’s *Dada Painters and Poets*,²⁸ first published in 1951, claimed a dada and surrealist lineage for the New York School,²⁹ but inverted the emphasis of oneiric painting from a critique of formalism, towards a formal autonomy based upon the creative powers of the individual artist. Motherwell’s own adoption of Schwitters’ collage techniques translated the torn Merz fragment as the collage equivalent of the abstract expressionist brushstroke; against the appearance of randomness and its intimation of social collapse at the end of the Weimar, Motherwell’s collage works celebrated the introduction of chance and the torn fragment as a metaphor for individual rebellion. The *décollage*, or the

25. “On the evidence of the present show it is Schwitters’s earlier works, those executed under the more immediate influence of classical cubism, that excel by far..Though the materials of the earlier collages are as heterogenous as those of the later ones—torn tickets, shreds of cigarette packages, odd bits of cardboard and cloth, and so forth—they assert a superior unity and compactness of surface, texture, and design.” Greenberg, “Review of the Exhibitions of Alberto Giacometti and Kurt Schwitters,” *The Nation*, 31 January 1948, reprinted in *Clement Greenberg, The Collected Essays and Criticism, vol. 2*, ed. John O’Brian (Chicago: U. of Chicago, 1986), 208. See also Dietrich, 185, fn. 28.

26. Kurt Schwitters, “Banalitäten,” 1923, in Friedrich Lach (1977-81), vol. 5, 148; as quoted in Dietrich, fn. 20, 19.

27. Kurt Schwitters, “Merz,” 1920, trans. Ralph Mannheim, reprinted in *The Dada Painters and Poets*, 2nd ed., Robert Motherwell ed. (Cambridge: Harvard University Press, 1988), 59. Originally published as *The Dada Painters and Poets*, Robert Motherwell ed. (New York: Wittenborn, Schultz, Inc., 1951).

28. *Ibid.*

29. “...there is a real dada strain in the minds of the New York School of abstract painters that has emerged in the last decade; painters, many of whom were influenced by the presence of the Parisian surrealists [Breton, Ernst, and Tanguy] in New York during the second world war.” *Ibid.*, xix.

readymade, Situationist equivalent of Motherwell's practice, repoliticized the artwork as a site specific critique of consumerism, reproductive practices, and mass culture. That this strain turned into the neutral reflection of pop culture in American art is as much a testimony to the mimetic neutrality towards visual material as introduced by Schwitters, as to the unwillingness of American artists to participate in a critical dialogue between art and society.

In physical terms, the tear also bared the inherent properties of materials, as the collage equivalent of painterly facture. In distinction to the trompe l'oeil deceptions introduced by mass production prints in Cubist collage, the tear disavows any pretence at material illusionism or perspectival depth; instead it reveals manual handwork, flatness, delimited depth, front and back, the overlapping of discrete layers. From this vantage, an entirely new range of work is made possible, as collage transforms into assemblage. For Jackson Pollock, Schwitters' insights introduced the prospect of adding disparate elements to a naked plane, foreshadowing the addition of found materials (tacks, nails, shells, pebbles) onto his poured surfaces. In this sense, works such as the 1947 *Full Fathom Five* and *Sea Change* perform as assemblages, with paint as their common bonding material. Against the spare and cleanly machined surfaces of modern architecture in the fifties, such work often appeared (as Rothko later realized) as decorative riposte to the somber decorum of its backdrop.

Bauhaus Collage and After: from Fracture to Visuality

As much as Walter Gropius determined the tenor of American institutional design practices from the forties onwards (most cogently demonstrated in the postwar architecture of midtown New York), it was the work of the other members of the Bauhaus faculty emigres that supplied its artistic foundations and its formalist development. Not surprisingly, these figures were not architects but rather artists who were concerned with the optical aspects of modernist form—or rather, whose work revealed an inexorable shift from its architectural foundations based upon the inherent properties of materials, to a design sensibility increasingly concerned with the visual reception of the art object. Art no longer depended upon the individual facture of the originating artist, but rather became a function of an increasingly abstract, purely visual, experience.

In reviewing some of the principal texts of the following four figures—three Bauhaus faculty and a sympathetic Hungarian colleague of a younger generation—it is hardly coincidental that their titles are centered around color and vision, the twin poles outlining the chromatic properties of objects and their visual reception. More than simply an outgrowth of nineteenth century research into optics, their work marked a determined shift away from the fictional logic of pure functionalism at the height of function-

alism's ostensible zenith. As reviewed in the introductory section, all four were involved with the transformation of traditional architectural pedagogy (Itten through the *Vorkurs*, Moholy-Nagy at the Chicago Bauhaus and IIT, Kepes at MIT, and Albers at Yale), becoming critical linchpins in the formalization of architectural discourse, by relating the legacy of modern art (as typological precedent) to modern architecture. Indeed, their texts may be posited as a sort of prolegomena towards that shibboleth of conceptual architecture and the formal polemics of the postwar studio: phenomenal transparency.

That is, beneath the paradigmatic, seemingly unique rupture from functionalism, lies the evidence of a history of multiple fissures already within the uniform body of high modernism, introduced as an invasive strain within the Bauhaus itself. At the heart of Rowe and Slutzky's thesis, one of these fundamental fissures was identified as the conceptual distinction between Moholy-Nagy and Kepes on the subject of transparency, an artificial and polemical separation that dissimulated the integral relationship between phenomenal and the literal aspects of transparent vision. For Moholy-Nagy and Kepes, on the other hand, both forms of transparency were inseparable components of a new paradigm that placed visuality at the center of an emerging modernist culture in the postwar era.

The Art of Color: Johannes Itten

The development of collage as didactic instrument and formal method was institutionalized in the Bauhaus *Vorkurs*, first taught by Johannes Itten in 1919, and subsequently carried on by Moholy-Nagy and Josef Albers. The six month preparatory *Vorkurs* began with basic abstract principles in the general study of form, composition, and material, and progressed on to more specific examinations of materials, before culminating in the (according to Gropius) 'ultimate aim' of the visual arts in architecture. While Itten's contribution to the Bauhaus is known primarily for his research on color theory,³⁰ a major component of the introductory course also involved the understanding of materials and textures (Itten later became director of the Textile School in Krefeld before fleeing the Nazis in 1938).

As Frampton observed, Itten's interest in texture was derived from Franz Cizek, who taught at the School of Arts and Crafts in Vienna.³¹ Cizek, influenced by the Secessionist break from academic tradition, incorporated collage constructions in his teachings as a means of fostering a more individualist

30. Johannes Itten, *The Art of Color; The Subjective Experience and Objective Rationale of Color*, trans. Ernst van Haagen (New York, Reinhold, 1966). For a more detailed analysis of Itten's contribution, see Itten, *Mein Vorkurs am Bauhaus* (Ravensburg: Otto Maier Verlag, 1963), and *Das Frühe Bauhaus und Johannes Itten*, ex. cat. (Berlin: Verlag Gerd Hatje, 1994).

31. Kenneth Frampton, *Modern Architecture: A Critical History* (New York: Oxford University Press, 1980), 124.

approach to visual education. Cizek became a leader in developing an alternative school of childrens' art education around the turn of the century, fostering natural creativity over rote learning.³² Itten incorporated Cizek's experimental approach to the *Vorkurs*, but also combined it with his understanding of color theory from Adolph Hölzel, whom he studied under in Stuttgart.

In Itten's collage and drawing exercises, a variety of abstracted textures were combined to construct a matrix of colors and textures, designed to work in sympathetic contrast with its surrounding elements. Color for Itten was inseparable from the heft and texture of its accompanying support structure; like the textile work with which he increasingly devoted his attention, color and material are intimately interwoven into an integral fabric. Through the grid (that most modernist of formal devices) Itten demonstrated the possibility of a formal order on a seemingly random collection of surfaces and textures. Individual materials and patterns, isolated from their former contexts, were given new meaning and importance. Rather than creating art through the mimetic reproduction of a framed scenario, whether academic or abstract, Itten investigated the inherent formal order and beauty of that more fundamental order comprising the material and factual structure of individual objects [fig. 2].

While Schwitters' transformation of urban detritus into urban art may have been the impetus for Itten's collage exercises, both projects arose from a similar attempt to search for beauty from overlooked, commonplace materials. Situated in the aftermath of WWI, Itten's approach was also shaped by Oswald Spengler's vision of the collapse of western civilization, amid the excesses of a decadent Weimar liberalism. In this sense, Itten's project became an attempt to reconstruct a set of definable formal values out of the waste and destruction left by war and the declining ethos of western culture. While better known for his eclectic foray into Mazdaznan philosophy, Itten's approach also speaks of Kant's phenomenalist return to an aesthetic philosophy outside the vagaries of contemporary fashion. That Itten left the Bauhaus in the face of Gropius' opposition to his increasingly intuitive methods, speaks not only of the director's opposing belief in a standardized process of creation and production, but also of the rift between the haptic and the functional realm within modernism. This rift, temporarily sutured with the rise of the International Style and CIAM, opened up once again in America after 1945, as visual research into form (as initiated by Bauhaus emigres) began to assert its independence from the idea of modern architecture as a result of pure function and structural logic. It is through this renaissance of Bauhaus principles that, ironically, turned against itself anew, on the new American battleground.

32. See Wilhelm Viola, *Child Art and Franz Cizek* (Vienna: Austrian Red Cross, 1936).

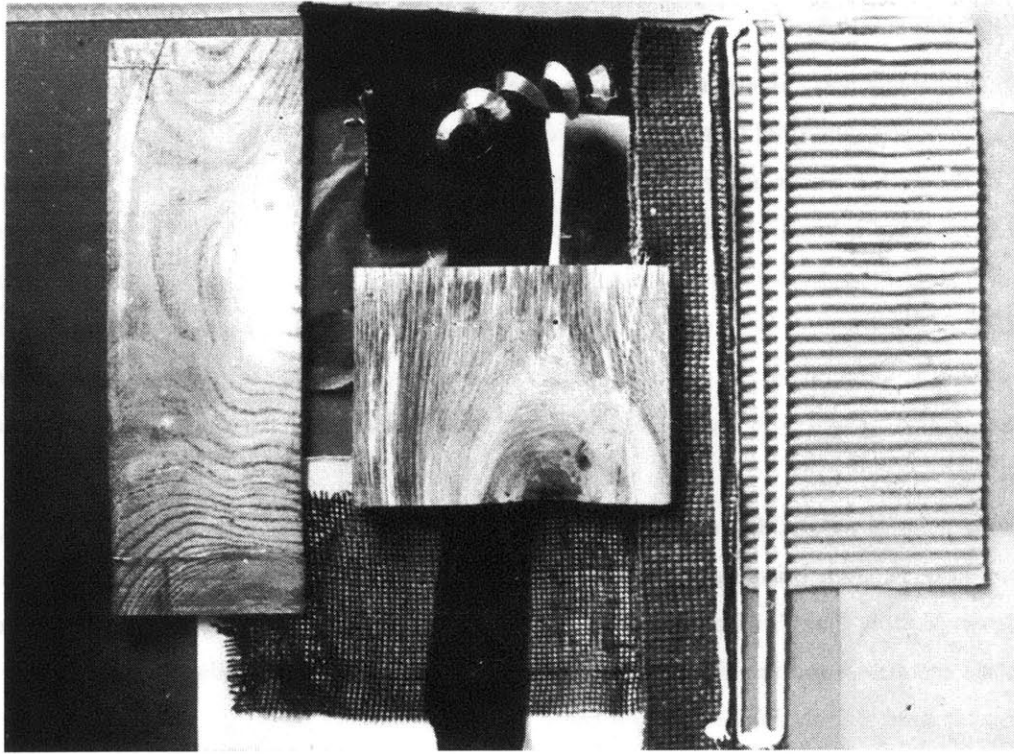


Figure 2: Johannes Itten, *Montage*, 1927

The New Vision: Laszlo Moholy-Nagy

Following Itten's resignation in 1923, Moholy-Nagy transformed the underlying premises of the *Vorkurs* from a hermetic study to that of an exercise that intentionally aligned itself with the visual practices of the modernist avant-garde. Far from posing as pure formal invention, Moholy-Nagy saw cubism as implementing some of the same basic research in the understanding and manipulation of texture and facture as the preliminary Bauhaus course. For Moholy-Nagy, one of the principal lessons to be derived from Cubist collage came in its ability to alter materials, now no longer employed as a transparent conduit towards mimetic reproduction, but rather employed to promote its own specific qualities. Vision and feeling are thereby united in the development of a new form of education:

Picasso has given life to material and facture, though mostly misunderstood and excluded, still has a significant effect in its transmission into our everyday life...The relationship with the elementary experiences of material, 'sensations' and 'facture' are especially clear in his work....Converting the intuitive grasp of these areas from the

optical realm to the realm of cognition and the conscious, forms one of the bases of the new education.³³

Cubist collage was thereby not merely a means of presenting color and form, but also a way of revealing the haptic quality of materials. From this, the understanding of materials became an essential prelude in the path towards an architectural condition. In distinction to Itten's belief in creative intuition, Moholy-Nagy acknowledged the critical role of the modernist avant-garde in the development of his collage exercises, as he reiterated in his postwar text *Vision in Motion*: "The tactile (touch) exercises in the [Chicago Institute of Design] are, for example, derived from cubism and futurism, teaching that rich emotional values can be released on a sensory level otherwise neglected, namely, touch. Cubist and Schwitters' collages have been the godfathers of the texture exercises in drawings, color work and photography...."³⁴

These lessons, which Moholy-Nagy first instituted in Dessau, were adopted at the Chicago Bauhaus beginning in 1937, bringing with them the visual foundations of an institutionalized, European avant-garde. Moholy-Nagy's fellow Hungarian expatriate Gyorgy Kepes led the light and color department at the Institute, teaching Visual Fundamentals, entailing the use of collage, photocollage, photograms, and texture studies. Previous to this point, however, Bauhaus ideas had already been brought to America in a series of exhibitions and book publications: his text *Vom Material zu Architektur*, for instance, originally published in 1928, was translated into English as early as 1930, and republished once again after the Second World War.³⁵ Translated as *The New Vision*, it describes a trajectory, now reconstructed for a new American audience, from the elementary experience of materials, to the understanding and manipulation of volume (aligned with sculpture) and space (aligned with architecture). In this

33. "Durch Picasso haben Material und Faktur eine Verlebendigung erfahren, die in ihren Umsetzungen in unser tägliches Leben, wenn auch vielfach mißverstanden und äußerlich, doch aufrüttelnd eingreift.... Die Verbundenheit mit den elementaren Erlebnissen des Materials, mit den 'Tastwerten' und der 'Faktur' ist bei ihm besonders deutlich greifbar.... Die intuitive Erfassung dieser Gebiete im optischen Bereich—in das Erkenntnismäßige, Bewußte umgesetzt, bildet einen Aufbaufaktor der neuen Erziehung." Laszlo Moholy-Nagy, *Vom Material zu Architektur* (Munich, 1928); cited in Hellmuth Sting, *Der Kubismus und Seine Einwirkung auf die Wegbereiter der Modernen Architektur*, doctoral dissertation, Rheinisch-Westfälischen Technischen Hochschule, 1965, 88; my translation.

34. Laszlo Moholy-Nagy, *Vision in Motion* (Chicago: Paul Theobald, 1947), 65.

35. Laszlo Moholy-Nagy, *The New Vision* (New York: Brewer, Warren & Putnam, 1930); second edition (New York: W.W. Norton, 1938); third revised edition (New York: Wittenborn, 1946). Under the direction of Robert Motherwell, the third edition was part of a series entitled "The Documents of Modern Art," bringing several significant writings on art to the attention of the American public, including Apollinaire's *The Cubist Painters* and Mondrian's *Pure Art and Pure Plastic Art*.

teleology, Moholy-Nagy portrayed cubism's fundamental contribution as enacting the shift from traditional mimesis, to the display of the fundamental architecture—in structure and form—of the art object. According to Moholy-Nagy, although Picasso

continues to paint objects, still lifes, portraits, the 'subject matter' becomes more and more a side issue. His discoveries of surface treatment overreach one another. He uses the brush, the palette knife; he combs or scratches the pigment; he mixes it with sand, cement, or graphite. He introduces new materials: corrugated cardboard, wire mesh, etc. Anything—in order to attain the shimmering color experience of the material. The subject is disregarded.³⁶

While Moholy-Nagy's analysis anticipates Greenberg's writings on the same issues, the artist's concerns lie with collage as an intimation of a fuller, architectural condition. The material nature of the components are acknowledged, but at the same time they remain resolutely confined to the flat plane. Collage here becomes an instrument, a means of compacting disparate forms onto a common surface.

The machine-like connotations of collage are also intimated by Moholy-Nagy, which he noted was "somewhat analogous to the assembly technique of the machine technology."³⁷ Assemblage turns to assembly, as metaphors of industrial (re)production and component manufacture are reinscribed into the collage work. As the three dimensional successor to collage, assemblage enacts not only the transition from plane to volume, but also the shift from the auratic icon to the machine reproducible object—that is, precisely the same transition facing modern architecture. In this manner, collage becomes integrated into industrial and architectural design process, as the intentional comixture of available materials.

The New Bauhaus was set up in precisely such industrial terms, as the research arm of an applied design education, this time in the service of American industry. Modern art in this capacity was thereby not only visually sophisticated, it also held the possibility for the development of an advanced industrial culture. The complex construction of the collage object in this respect became a metaphor for an increasingly complex industrial and/or architectural object; at the same time, it was rooted in the visual precedents of an already institutionalized set of modernist styles.

At the Institute of Design (in contrast to the intuitive approach of self-discovery favored by Itten at the Bauhaus), the construction of collage here was introduced by the analysis of modernist precedents. Cubism could be read in terms of its multiple overlapping of disparate layers, while Schwitter's Merz collages became models of the bricolage of previously unrelated objects and textures. Structure, texture, and facture were studied as means of using "a visual 'tactilism'...in the fight against ornament."³⁸ As in

36. *The New Vision*, 36.

37. Laszlo Moholy-Nagy, *Vision in Motion* (Chicago: Paul Theobald, 1947), 128.

the Bauhaus, texture exercises were integral to the educational process, both for the study of material qualities, and as a substitute for traditional ornamentation. Through collage, representation went beyond mere illusionism, reaching towards an indexical realism in which the collage fragment could be used as a synecdoche of the reconstituted object.

While the Institute of Design's incorporation into IIT in 1952 marked its failure as an independent educational institution, its pedagogical influence carried on at Crown Hall, where it resided (albeit ignominiously in its basement). Though Mies never fully reconciled with Moholy-Nagy's usurpation of the Bauhaus title in Chicago, the material and chromatic investigations begun in Weimar and Dessau continued to be felt in the introductory studios taught at IIT. Walter Peterhans, who originally taught photography at the Bauhaus, was called upon by Mies to teach courses in 'visual training' at IIT, and Peterhans adopted the Bauhaus *Vorkurs* in the service of the architectural curriculum. Collage construction, photocollages, and texture exercises became part of professional architectural training in the post-war era—not only at IIT, but also at other American (and international) institutions that were looking to break from the rigors of the French Ecole.

The Language of Vision: Gyorgy Kepes

With these appointments, a subtle but crucial shift had occurred in the understanding of collage as a design tool: far from its *Vorkurs* roots as a method to understand the inherent properties of materials, the 'new vision' read collage as a primarily *visual* phenomenon. In contrast to the Bauhaus emphasis on the study of material properties as a precondition of any design, the Americanized version of the Preliminary Course translated into research centering around problems of optical properties. While texture exercises continued to be utilized in the coursework, they became represented by photographs and photograms, effectively flattening and negating their tectonic origins. Walter Peterhans produced collages, but represented them (or rather, reappropriated the medium) in photographic terms.

Significantly, Gyorgy Kepes had also written a companion text to Moholy-Nagy's *The New Vision*, entitled *The Language of Vision*,³⁹ in which he attempted to lay out a framework for the development of a modern visual grammar. While initially an attempt to extend Moholy-Nagy's argument into systematic and reproducible terms, Kepes' text ultimately gained greater significance to postwar design education in its emphasis on gestalt perception, influencing a generation of educators ranging from Rudolph Arn-

38. *Vision in Motion*, 134.

39. Gyorgy Kepes, *The Language of Vision* (Chicago: Paul Theobald, 1944).

heim to Slutzky and Rowe. Factice and tactile experience became replaced by the visual perception of texture in terms of light and shadow, pattern, and whole form.

In distinction to a phenomenalist search for the real, there was instead a shift towards illusionism and equivocality, heightened by the oscillation of perception between one optical condition and another. Material overlap, planar compression, and a fixed spatial order in the 'classic' collage work became replaced by an ambiguous, fluctuating space later termed 'phenomenal' for its refusal to demarcate fixed distances or positions. Literal transparency occurs when one plane can be seen in one definite location in relation to another; phenomenal transparency arises in that flattened field (drawn or photographed) which erases such distinctions. Far from being seen as problematic, the shifting optical perception of forms became the hallmark of the new visual grammar, one which alluded not only to new forms of mass media, but also the inundation of imagery facing the postwar consumer. Kepes is explicit on this resituated position of texture and collage, now filtered through the lens of the photographic image:

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...Explorations with macro-, micro-, and aerial photography opened up visual fields hitherto beyond human reach...⁴⁰

Texture is interpreted as shadow, and the ambiguity of scale, form, and location are heightened by the contracted density of the photographic plane. The conflation of images in turn transform quotidian elements into abstract surfaces. This abstraction pointed backwards and forwards: on the one hand, the myriad images presented in *Language of Vision* reveal how the multiplication of abstract forms became an advertising staple as early as the thirties in America, borrowing heavily from the visual precedents of the modernist avant-garde. On the other, Kepes' light photograms predate Pollock's aleatory drips, yet shares their sense of spatial ambiguity, expressive strokes, and surrealist references. What is missing is the sense of facture, the auratic presence of the painted surface; in its place lies the ethereal imprint of photons, tracing time on the emulsive sheet. Pure pigment is replaced by pure light, as the artificial construction of a fictional reality is replaced by the real fillibration of perceptual illusions on a flattened plane. This transition was ironically enabled in the use of collage, and made its greatest postwar advances in the work of Josef Albers.

40. Ibid., 150.

The Interaction of Color: Josef Albers

If Albers' major treatise *The Interaction of Color*⁴¹ is an extension of Ittens's Bauhaus research into chromatic perception, it also reveals the depth of its origins in traditional collage practices. Albers, one of the early gifted students and later himself a Preliminary Course teacher at the Bauhaus, began by using discarded materials, specifically glass, to create panelled assemblages.⁴² These early assemblage works, constructed from scraps found at the Weimar town dump, owe an obvious debt to Schwitters' joyous transformative rediscovery of the found world, although Albers' own production quickly turned towards the geometric, rectilinear patterns characterizing his later work. There is a richness and variety of texture which had been deliberately and systematically erased, in the quest towards a conceptual as well as perceptual purity.

In moving from glass works to more traditional forms of drawing and painting after his emigration to America in 1933, Albers appeared to retreat from the progressive research initiated by Moholy-Nagy and Kepes, who experimented with light, photograms, and plexiglass. In Albers' work there remained however a consistent trajectory towards a purely conceptual basis for color perception, by removing any physical trace of its supporting media. For Albers it was glass that held inconstant, variable qualities subject to the exigencies of natural lighting, texture, and variations in handicraft, while the paper collage could be utilized as a more suitable surface for optical research, being uniformly produced and chromatically stable. The shift from glass marked a transition from a literal transparency, to a phenomenal transparency set against an opaque surface.

Transparency, as Kepes had already argued, did not reside within the optical properties of a transparent medium, but rather occupied a conceptual framework in which forms could be read simultaneously in differing states. Albers carried the ambiguity of the gestalt phenomenon further, in drawings and etchings that deliberately questioned the conceptual stability of lines, forms, and volumes. In manipulating the draftsman's repertoire of thick, thin, and dotted lines—the latter being that standard convention designating a hidden edge—Albers exposed and questioned customary expectations about the visual function of lines and their accompanying spatial relationships. The illusion of depth, formerly taken as a given, was now presented as an intentional feint, initially poised to create the appearance of a defined spatial order, only to continually deny the sense of any object representation or fixed perspective.

41. Josef Albers, *The Interaction of Color* (New Haven: Yale University Press, 1963. All following references are to the 1975 revised edition.

42. Josef Albers, *Glass, Color, and Light*, ex. cat. (New York: Guggenheim Museum, 1994).

In the collage artifact, however, a visible layering occurs, according to its physical order of construction; forms lie on top of, or behind other forms. Cubist collage began through imitation, substituting material world equivalents and their recessive (if abstracted) representation of space on a flat surface; the later Cubist assemblages in contrast abandoned spatial illusion for their inhabitation in the physical world. Schwitters' collages in turn emphasized the flattened plane as that last refuge of the easel work, now no longer read as a transparent membrane into a recessive space, but instead as a neutral ground upon which things are attached and overlaid.

This is how Albers treated the legacy of collage in his constructions dating from 1940, in collections of brightly colored autumn leaves placed upon a paper background. Natural facture, color and texture are present, in contrast to the flatness opacity of the man-made paper background. What Albers discovered here in the natural modulation of color in the pressed leaves, was the continued illusion of overlap and distance caused by shift of color tones. The interaction of colors, through the simple incorporation of autumn leaves, implied a chromatic and spatial order rooted in the observation of the natural world. Colors gained meaning and value through their relation to other colors; distance and overlap are also implied in the shift from one chromatic interval to another. In these final remnants of Schwitters' legacy, facture is replaced by the illusion of depth; the relation of forms replaced by the relation of colors.

The *Homage to the Square* series, that compressed culmination of Albers' aesthetic reductivism, gives up any pretense at the bravura originality of the formal composition, instead opting for a rigid, standardized format of three or four imbedded, successively smaller squares painted on masonite board. In spite of masonite's inherent grain, Albers' careful overpainting worked to eliminate its texture, in favour of pure color readings.⁴³ Bereft of line or brushstroke, the modular repetition of the square format focused attention on the interaction between colors and their relationship to the frame. Weighted almost exclusively on the lower edge of the work, there is an implication of gravity and a traditional reading of perspectival depth—although its direction is intentionally ambiguous, being either (or both) forward or backward from the picture plane. The initial appearance of distance, followed by its obstinate inertia on the plane surface, creates a virtual set of volumes which invert on inspection; forwards,

43. Albers' studies for the *Homage* series, as well as the class work conducted at Yale, were implemented as paper cutouts, culled from magazines, posters, and other mass reproduction sources. In addition to the pragmatic aspects of not having to deal with paint, Albers asserted that "color paper permits a repeated use of precisely the same color without the slightest change in tone, light, or surface quality," and also "protects us from the undesired and unnecessary addition of so-called texture (such as brush marks and strokes, incalculable changes from wet to dry, or heavy or loose covering, hard and soft boundaries, etc.)." From *The Interaction of Color*, 7.

backwards, overlapping in front of or behind its adjacent hue. Looking further, the illusion of volume again collapses into a series of flattened planes, one overlapping the other and vice-versa, in a continual gestalt. The interior and bounding squares give the impression of overlapping, or being overlapped by adjacent squares, thereby forming intermediary color fields. While each field is painted as a distinct and separate hue, the intermediary colors give the impression of having been formed by the overlapping of its neighboring fields. It is a conceptual layering system, founded upon the real mixture of transparent colors created by the assemblage overlaying of colored glass planes in Albers' earlier work.

Here, Albers discovered, the intermediary fields gave no indication of which plane was in front of the other; dominant colors in some cases that gave the impression of being in front were actually behind; similarly, recessive hues could give the opposite effect. In similar terms, intermediary planes could be read as more or less distant to one or the other color, occupying a perceived spatial location in relation to the other color planes.⁴⁴ The illusion of space, of discrete volumes, of a fluctuating series of color fields in a conceptual space—conceptual because of its intellectual malleability as well as its status as a purely intellectual construct—could reside on a purely flat ground that no longer depended upon traditional means of spatial illusionism in painting. In this sense, the one point perspective implied in the *Homage* series can be seen as both the remnants of traditional mimetic painting, and as a deliberate feint intended to frustrate precisely such expectations. Illusionistic depth is confounded by a literal flatness, that only then opens up to a fluctuating reading of space that recognizes its fictional character.

Is it hardly surprising then, that the possibility of a phenomenal transparency could arise from the experimental manipulation of colored paper planes on a common surface, where an implied reading of depth and volume could be interpreted as a function of contrasting color intervals? Rather than through the traditional device of painting, significantly it was by means of Albers' paper collage research that led to a fundamentally different conception of space (as an intellectual rather than an haptic, inhabited construct), demarcated by the gossamer materiality of paper sheets. Thin, flimsy, yet obstinately present, perhaps the postwar reconstruction of a 'paper' architecture and its attendant conceptual foundations in transparency, layering, the substitution of phenomenal space over *Raum*, chromatic planar surfaces over the baring of 'natural' materials, could be traced at least in part to the basic collage work carried out by Albers and his students at Yale, disseminating into the formalist taxonomies of post-Brutalist design in the sixties.

44. For a more detailed analyses of these respective phenomena, see *The Interaction of Color*, chap. XI, "Transparency and space-illusion," 29-32, and chap. IX, "Color mixture in paper-illusion of transparency," 24-6.

Collage Architecture

The Collage Metaphor

If modern architecture's connection to modern painting has a rather complex and difficult history, then its incorporation of collage could be seen to be even more abstruse and contentious, in its reliance upon fragmentation and disparate imagery. Yet, in many ways, collage practice came closer to architectural practice than painting ever could, by way of its insistence upon the articulation of dissimilar materials towards a common construction. Indeed, collage became incorporated precisely for its ability to act as a transitional metaphor between formal concepts portrayed in abstract painting, and its realization in the architectural realm.

The collage metaphor acted on several levels: first, as mentioned, its function as a constructed extension of analytic cubism became the basis of synthetic Cubist assemblage. As a model of Giedion's proclamations on space-time theory and visual culture, synthetic cubism became an ideal vehicle for the development of a new architectural vocabulary, translating the visual language of simultaneity to the static realm of the building arts. Yet, collage was more than simply a stepping stone from two to four-dimensional space; as Schwitters so explicitly demonstrated, collage production intimated the mechanistic assemblage techniques of industrial production, amassing a bricolage inventory of disparate, seemingly disconnected elements. Collage in this manner spoke of the detritus of popular media, of the infiltration of everyday life into the sacrosanct space of art. These reconstructed elements demanded a dual charge: on the one hand, that their contexts, their history, be erased in favor of their new role within a new composition; on the other, that their histories be returned or at least alluded to, through a process of transformation that left fragments of memory lodged within the body of the new. In this manner, the dialogue between ruin and reconstitution, absence and memory, erasure and rewriting, formed the essential dialectic between past and present in the modernist collage.

If this profusion of allusions marked collage practice in painting and sculpture, then it was to be equally operative if modern architecture were to participate in the dialogue with modern art. What is perhaps surprising is that the introduction of collage into postwar architecture was not championed by an artist, or an architect better known as an artist than a builder, but rather a figure whose body of work was marked for its considered attention to the raw physicality of materials, construction technology, and building details. Or rather, as a consequence of an era steeped in the heroics of large scale postwar construction, Mies van der Rohe's awareness and appropriation of modern art procedures had been overlooked in favor of a reputation as master builder; indeed, only recently has a reconsideration of this

‘other’ Mies begun to emerge.⁴⁵ Even more surprising is the fact that collage as a prolegomena towards architectural design was formally instituted within IIT, that supposed bastion of pure construction. In rereading Mies as master collagist, then, we are led to reconsider on the one hand, the way in which Venturi and others used the figurehead of Mies to represent an anti-artistic orthodoxy emblemized by the corporate incarnation of the International Style, and on the other, how much the depths of the break from such were already present in the extensive activities of the early European avant-garde. That is, the ostensible ‘postmodern’ break from the Bauhaus canon disguised a return to an earlier condition in which questions of mass culture, plurality, and history, were already posed in the collage work.

Mies van der Rohe and the Architecture of Collage

The relationship between the constructive absolutism of Mies’ buildings set against his use of collage and photomontage seems initially incongruous; how is it possible to reconcile a stance which “refuse[s] to recognize problems of form, but only problems of building”?⁴⁶ Mies’ personal collection of Schwitters’ collages⁴⁷ also seems at odds with the architect’s design practice—smooth versus rough, finished versus unfinished, classical symmetry versus random placement, and so forth; what ultimately conjoins the two, however, is a common appreciation of the inherent nature of materials and the manner in which they may be joined. In its attitude toward the baring of materials and honesty of form, the collage and photomontage works shared the same ethics of structure and construction. Mies’ photomontages also reveal the architect’s interest in setting his drawings in relation to the realm of reproducible media, and demonstrate his fascination with the process of unifying disparate media such as photographs and magazine reproductions, onto an ascetic, ink rendered surface. Mies’ collage renderings occupies a significant place in his work; however, Mies’ built structures are also capable, in spite of their dogmatic single-mindedness towards a prismatic uniformity, of being read as assemblage, as the compression of disparate surfaces into a single coherent object.

45. See for instance Rosalind Krauss, “The Grid, the /Cloud/, and the Detail,” in *The Presence of Mies*, ed Detlef Mertins (Cambridge, Mass.: MIT Press,); and K. Michael Hays, “Abstraction’s Appearance (Seagram Building),” in *Autonomy and Ideology*, ed. R.E. Somol (New York: Monacelli Press), 276-291.

46. Mies van der Rohe, *G 2* (Berlin, 1923); cited in Schulze, 106.

47. According to Franz Schulze, Mies owned a fairly wide ranging collection of modern art, which included works by Klee, Picasso, Munch, and a collage by Braque. Interestingly, in spite of his rectilinear predilections, he did not own anything from Mondrian or van Doesburg. See *Mies van der Rohe: A Critical Biography* (Chicago: University of Chicago Press, 1985), 30, 313.

The notion of architecture as assemblage was popularized in its postwar brutalist strain by the Smithsons, by way of their 1956 *This is Tomorrow* exhibition at the Whitechapel Gallery. In collaboration with Nigel Henderson and Eduardo Paolozzi, the architects presented a postwar version of the ‘primitive hut’, in the form of a roughly constructed wooden shed containing a wide ranging collection of collaged, assembled, inscribed, and readymade objects. In the catalogue, they stated how the “patio and pavilion represents the fundamental necessities of the human habitat in a series of symbols,”⁴⁸ with the sand-covered patio symbolizing human rootedness in place, and the pavilion standing for the need for basic shelter. In its explicit rawness, they were implicitly presenting a critique of the utopian architecture and the overprescribed urbanism championed by Le Corbusier and CIAM, returning instead to the pragmatic realities of postwar Miesian construction. As a collection of disparate artifacts, *Patio and Pavilion* recalled the assemblage environment of the Merzbau, although here the attempt was to reconstruct a symbolic anthropology of human nature rather than to create a personalized aesthetic space.

Between the prismatic density of Mies and the rough unfinished detritus of the Independent Group, then, lay a common fascination in the reconstitution of contrasting materials. For Mies, brick, stone, metal, concrete, glass, leather, silk, wood, played specific, independent and sympathetic roles towards the construction of the architectural object, the Barcelona Pavilion being the best known instance.⁴⁹ Where the object is of a uniform element, as with the 1919 glass office tower in Berlin, then the contrast is in relation to the surrounding context, in this case, the stone facades of the Friedrichstrasse. This collage attitude towards design is wholly reversible; not only is the building a product of a collage sensibility, it is also represented in terms of collage. Jose Quetglas reminds us:

After all, did not Mies demonstrate throughout his life a taste for collage, for the interaction between heterogeneous pieces deriving from diverse materials and different formal contexts? From his years as an apprentice in the office of Peter Behrens, when he pasted behind a window the cropped photograph of a zeppelin, making it appear to be aloft in the skies of Berlin, to his drawings incorporating photographs of works by Maillol, Rodin, and Picasso, there is in Mies a constant taste for difference, for the discontinuous landscape, for insertions.⁵⁰

48. *This is Tomorrow*, ex. cat. (London: Whitechapel Art Gallery, 1956), unpaginated.

49. Jose Quetglas observes how “The German pavilion is one of these collages constructed. In fact, one could make a representation of it as such. In the lower left foreground of the kit would be the cutout of the colonnade; in a corner to the right, the cutout of the statue by Kolbe; in the center, between the parenthesis of both these presences, some vague indications in pencil of vertical planes and columns. An inked grid would be the floor.” From “Fear of Glass: The Barcelona Pavilion,” *Architectureproduction*, ed. Joan Ockman (New York: Princeton Architectural Press, 1988), 126.

50. *Ibid.*

This sensibility, which he also brought to his American work, displays the demonstrative rupture of the collage procedure. More than simply the transparent sophistry employed in photographic manipulation, Mies' photocollages forces the acknowledgement of the magnitude of the interrupted surface: from the antiquated presence of a nineteenth century lamppost dividing the perspective of the Alexanderplatz office building, to the vertical mullions cutting the panoramic frame of the Resor House, or the anomalous insertion of the Maillol sculpture into the interior perspective of the Chicago convention center (set in the backdrop of a wartime airplane bomber plant), collage is employed to remind the viewer of modernism's dislocative power.

At the same time, they do not set up an alternative, isolated vision of the new modernist city (as with Le Corbusier's *Ville Radieuse*), but rather are always poised as a radical insertion within the body of the old city (the photomontages for the Friedrichstrasse skyscraper and the Alexanderplatz competition demonstrate the skill with which Mies hid his buildings within the realm of the everyday, lived city). Also, in distinction to Haussmann, Hoch and other Dadaist photomontages—whose power, according to Hays, is dependent upon its intentionally disjunctive procedures⁵¹—Mies uses photomontage almost as a surrealist operation, its radical shock value due as much to the pseudo-illusion of a unified, seamless photographic surface in the manner of an Ernst collage, as to the disjunctive opposition of a radical architecture set within a prosaic context.

Modern architecture thus works as collage in a dual and reciprocal fashion, Mies intimates: as either built object or as its representation. Just as the building reveals evidence of collage procedures, their representation is symmetrically driven by avant-garde collage practices. The one informs the other in a mutually sustaining relationship: the juxtaposition of form and material facilitates their representation in collage; conversely, through collage, new formal procedures are initiated in the practice of building.

Collage informs Mies' architecture in this doubled manner at two basic scales: at the urban level and at the immediate level of the architectural object. Urbanistically, collage disrupts and overlaps the existing context: collage's destruction of traditional painting finds its corollary in modern architecture's violent insertion into the context of the traditional city. The introduction of modernist forms into the old

51. "By showing reality sequentially and decomposed—one thing after another and one thing external to another—dada destroys the image of simultaneous presence that is a metaphor for the integral psyche. Dada montage exhausts, overwhelms the individual subject by constituting another place, another history, another way of thinking beyond the self, more powerful than the self. Exteriority, then, is this displacement of sense outward; and dada photomontage is precisely this exteriority given form, a topos of negation and estrangement." Hays, 280.

city is intended to display the same shock value as that of the chair caning oil cloth set within a traditional still life painting. Secondly, the collage process also occurs within the composition of the architectural object: each of the elements in Mies' collage-architecture are individual, discrete surfaces, separate materials, occupying distinct, overlapping planes. No longer the uniform body represented in classical architecture, modernism now appears as the assemblage of disparate elements. These two forces, the external and internal conditions of the architectural object, are evident in both building and drawing: collage becomes the common element in portraying the visual rupture in the representation and construction of modern architecture.

As Mies demonstrated in both his practice and teaching, collage was the linchpin between the purely graphic world and the material density of architectural construction; it aligned his vision with that of an artistic avant-garde increasingly concerned with the flatness of the picture plane, but at the same time also presented an absolute, indexical relationship with the depicted materials. It became associated with the research of the painterly avant-garde, at the same time that it served as a transparent conduit to the architectural object. Thus, the introduction of collage into the American architectural academy, like that of painting, happened surreptitiously, in the guise of an instructional heuristic. In so doing, the radical elements underlying collage were transformed from a politics of dissent, to an American expression of democracy and diversity. Like abstract painting, the collage work became neutralized in the service of architecture.

Mies as Bricoleur

If architecture can be described and constructed as a species of collage, then, like Picasso, the architect acts the role of *bricoleur*, as the figure who assembles disparate objects with available means into new configurations. Architecture, following Levi-Strauss' interpretation of the anthropologist's task, does not fit strictly into the category of the purely scientific—that is, the transparent construction of building by means of an existing and immutable body of engineering knowledge—nor as pure bricolage—that is, the ad hoc development of structures arising from a limited world view. The bricoleur is distinguished by an ability to incorporate the available scope of materials and tools, against the engineer's penchant for prior calculation and technological mastery.⁵² The architect in this respect, in the

52. "The 'bricoleur' is adept at performing a large number of diverse tasks; but, unlike the engineer, he does not subordinate each of them to the availability of raw materials and tools conceived and procured for the purpose of the project. His universe of instruments is closed and the rules of his game are always to make do with 'whatever is at hand', that is to say with a set of tools and materials which is always finite...." Ibid., 17.

guise of the artist, “is both something of a scientist and of a ‘bricoleur’,”⁵³ that is, one who retains the engineer’s sense of logic and technical considerations, while working within the limits of the given world.

Though collage has the taint of a piecemeal, ad hoc approach towards architectural design, it is not solely the author of the picturesque or the deliberately disjunctive work. Especially in its Bauhaus inculcation, collage took the form of the grid as a means of introducing an ordering function into the patchwork tendencies of the collage artist. Thus there are two sides to the architectural collage, only one of which has garnered attention. The other, hidden behind the surface appearance of rational function and Sachlichkeit polemics, reveals a penchant for the luxury of dissonant materials and asymmetric forms. There is a certain irony in recalling that the figure most associated with the postwar institutionalization of the International Style, was also responsible for introducing collage as a pedagogical and design tool into American architecture.

While much has been made of modern architecture’s historical attempts toward a scientific, functionalist logic, its desire to align itself with contemporary developments in art, engineering, and physics, reveals the extent to which modernism is steeped in a specific mythic construction. This intellectual grafting also demonstrates the way in which the architect-bricoleur gathers constituent building elements according to this world view. When we recall that the materials used for the Barcelona Pavilion were based upon available materials, and its height determined by the largest obtainable size of onyx slab,⁵⁴ or the architect’s use of standard rolled steel beams in his skyscrapers, Mies seems more akin to the bricoleur than the scientist. Indeed, the closer one delves into the supposedly immutable logic of Mies’ structures, the more they appear as the work of a master bricoleur, working the limits of available materials.

The conventional reception of Mies’ architecture as the result of the pure technics of construction has given way recently to a view which has demonstrated the highly personal, nonrational, and fragmentary nature of his work. Robin Evans, for instance, compares Mies’ illusionary visual logic with Gaudi’s engineering precision in the construction of the Sagrada Familia, arguing how the Catalan church “is a rational structure. By contrast, the structure and construction of the Barcelona Pavilion is piecemeal and inchoate.”⁵⁵ In the wake of the International Style, Evans continues, there is a mythos that tells us that “squarish, simple things are tokens of rationality in some wider sense, and that curvaceous, complicated things are tokens of irrationality.”⁵⁶ In the world view of western culture, Mies’ rectilinear masses signify

53. Ibid., 22.

54. See Peter Carter, “Mies van der Rohe,” *Architectural Design* 31 (March 1961): 95-121.

the height of rationality and coherent, stable form. Yet, curiously, none of the architect's collage renderings are entirely symmetrical. If the square signified rationality in Mies, then his deviation from symmetry must also be considered. Like Mies' hidden reflections within his asymmetrical compositions, looking closer reveals the inverse, where the superficial absolutism of the rectilinear forms give way to an improvisational dynamic more akin to the work of bricolage.

Even in the most symmetrical of the architect's postwar work, for instance with the New National Gallery in Berlin, the classical monumentality of the exterior pavilion gives way to the introduction of an asymmetrical axis in the interior and a rotational dynamism at the exterior plaza level, exploiting the particular restraints imposed on the site. The lower level gallery is broken up further from its symmetrical base, in accommodating various clerical and storage functions beyond the view of the museum visitor. By the repetition of themes and elements, the architecture of *Beinahe Nichts* returns to the mythical order of the bricoleur, as a strictly determined game based upon a limited set of objects. Its intellectual foundation, based upon the modernist transformation of a classical order, determines the limits of the Miesian vocabulary; in its carefully measured violation of classical principles, it all the more clearly determines the strict outlines by which the game is played out.

There appears to be, on the surface, a curious inversion between Mies' early European work conditioned by a dynamic exterior asymmetry balanced against hidden interior symmetries, and his later American production, which moves more towards a strictly symmetrical, Hellenistic taxis. Yet this is not entirely accurate, if we recall the strict repetition of the Reichsbank or Weissenhof projects, or the poetic declination of the Farnsworth House. Instead, there seems to be a careful balance between the dynamic and the static, so that the work of the bricoleur is always tempered by that of the engineer.

The self imposed material and formal limits Mies placed on his work is also a central aspect of bricolage, as Levi-Strauss points out: "the 'bricoleur' also, and indeed principally, derives his poetry from the fact that he does not confine himself to accomplishment and execution: he 'speaks' not only *with* things, as we have already seen, but also through the medium of things: giving an account of his personality and life by the choices he makes between limited possibilities."⁵⁷ Choices of materials or methods of construction, seemingly chosen at random, or as a result of technical considerations or physical availability, are always deliberate decisions underwritten by a mythological superstructure. It is by this deliberate delimitation of choice that the bricoleur gains an individual voice, marking a personal style; it thus marks the common

55. Robin Evans, "Mies van der Rohe's Paradoxical Symmetries," *AA Files* 19 (Spring 1990), reprinted in *Translations from Drawing to Building and Other Essays* (Cambridge, Mass.: MIT Press, 1997), 244. See also the Quetglas article in *Architectureproduction*.

56. Ibid.

57. Levi-Strauss, 21.

thread running through architecture as diverse as that of Watts Towers, the Sagrada Familia, or the Barcelona Pavilion. Thus, it is not simply the ad hoc assemblage of diverse materials that mark the work of the bricoleur, but rather, the strictly limited repetition of themes that becomes key to understanding the individual as well as the encompassing mythos. With Mies, his attempts to wrestle with universal questions⁵⁸ through the means at hand, return as intensely personal meditations regarding the contemporary nature of timeless form.

Bricolage in Mies seems initially incongruous in the face of his attempts at ‘transparent form,’ a state of ‘almost nothing’ that poses architecture as an inevitable ‘Will of the Epoch.’ Yet, it is at precisely this point that the labored intensity in the play of material contrasts comes to the forefront: throughout his oeuvre, materials are employed for their individual chromatic and textural differences, for their precise ability to resist assimilation into the surrounding context. The sublime telos of *Beinahe Nichts* is translated here in Nietzschean terms, through the resistant opacity of the architectural object. This architecture aspires to the timeless status of nature, in harmony with the technical capacity and cultural ethos of the epoch, yet is adamantly opposed to the antiquated state of the traditional city. It is a stance that continually poses contemporary culture as a dynamic, continually moving force rather than a collection of ossified precedents. By their uniform opposition against an undifferentiated background, the prismatic exterior shell of Mies’ buildings act as an intellectual and physical bulwark, posed as a defense against, and a critique of an existing context.

One of the critical aspects of the Miesian vocabulary concerns the multivariate functions of glass in Mies’ architecture: inasmuch as it transmits, disappears, or obtusely reflects, it is hardly ‘simply’ transparent. An architecture of glass, as Philip Johnson eloquently demonstrated in his own house, is not a sieve, but rather a sponge, absorbing the contents of the surrounding environment into its interior. The interior becomes a dynamic collage of exterior elements, absorbing and reflecting both interior and exte-

58. Schulze (as well as Werner Blaser and other scholars) notes Mies’ interest in philosophical and scientific texts, ranging from Aquinas to Einstein, intimating the architect’s attempts to ground his buildings to a more fundamental condition of being. Mies’ penchant for rereading texts is emblematic of his obsession with working problems of form and structure, and reveals the thematic repetition of the architect as bricoleur: “He read as he always had, and much the same philosophical fare, though his earlier preoccupation with morphological subjects shifted—logically, one would like to infer—toward an interest in physics and cosmology. He labored earnestly at this, poring over the same texts in German and English by Werner Heisenberg and Erwin Schrödinger and sometimes finding himself unable to understand what he had read. Typically, he would go back to it again and again, insisting to [his companion] Lora that it was imperative he learn the deeper truth he knew was there.” Schulze, 313.

rior, and it is this individualized perspective which is represented and ossified in Mies' collage renderings.

As much as the exterior facades present a singularly opaque distance from its immediate surroundings, their interiors reveal a more open and wide ranging attitude toward materials. Mies' typical palette is an expression of diversity in form, color, and texture, incorporating glass, brick, marble, wood, steel, silk, and leather, compiling an intentional bricolage of materials. These materials also corresponded to the primary categories introduced in the original Bauhaus curriculum: before embarking upon the study of architecture as the culmination of visual education, the Bauhaus design student undertook the examination of the fundamental components of building: glass, clay, stone, wood, metal, textiles, color. Each of the material categories found their way into Mies' fundamental building blocks of architectural materials. Color, and specifically integral material color became the abstract unifying foundation for a diverse family of objects. Likewise, Mies incorporated a range of textures into his architectural palette, mirroring Itten's *Vorkurs* exercises in photocollage material studies.

Between his understanding of Schwitters and Itten, then, Mies developed a new reading of the photocollage as the province of an architectural bricoleur, posed as both rendered precursor to the built object, and as an independent visual manifesto. While Schwitters deemphasized the linguistic and iconic references of his source material in favor of their pure formal qualities, Mies compressed form and sign onto the same element: the photographic cutout of marble slab indicating marble, a wood grain sample demarcating wood, and so forth. Through collage, Mies presented the constituent facts of the architectural object through a series of indexical signs signifying their originary, raw elements. In this, he again recalls Levi-Strauss's distinction between the engineer who "works by means of concepts and the 'bricoleur' by means of signs."⁵⁹ Mies' ascetic vision, inherited from Loos, substituted the ornamental excesses of the nineteenth century with the inherent decorative qualities of materials, and this was what he attempted to represent in both the collage renderings as well as his buildings.

As the assemblage of abstract surface forms, colors and textures, these photocollages recall Schwitters' transformation of bricolage from the public 'waste' of the world into the autonomous world of art. Like Picasso's chair caning, Mies' collages simultaneously reflect and dissimulate, reproducing a world by means of metonymic fragments (the collage elements standing in for the actual materials) that are reproduced themselves. Pasted on top of one another, the assemblage of elements sit obstinately on the surface, refusing entry into the perspectival depths promised to the viewer. Spatial effects are repressed in favor of the immediate surface properties of the collage form.

59. Levi-Strauss, 20.

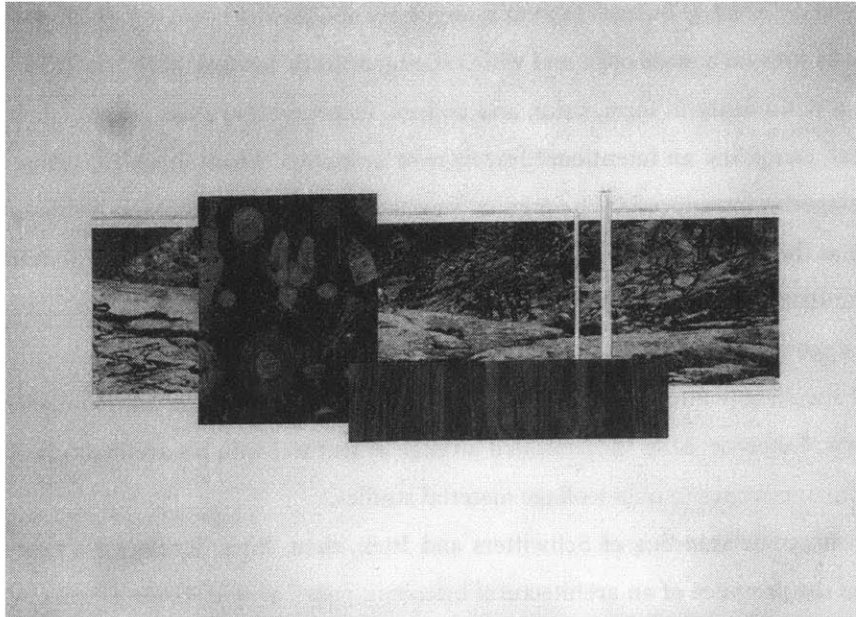


Figure 3: Mies van der Rohe, collage for the Resor House, 1937

Dislocated and isolated from their previous contexts, the fragmented images transcend their purely formal qualities and return as self-referential, signifying elements. More than simply anonymous abstractions or architectural renderings, Mies' photollages force an awareness of the material qualities of the object being represented. Here, architecture is not simply about construction, technical mastery, rational planning, or spatial invention, but rather is designed to promote the haptic immediacy of surface, texture, and color on the collage surface. In contrast to the static appearance of the architectural plan, the collage perspective presents a dynamic order with shifting focus points.

In contrast to typical perspectival renderings which present things in the distance as recessive and by implication, render them less important than those closer to the plane of vision, the collage format compresses and gives each element equal weight; the illusion of perspective is always poised against the stark, cropped frontality of the collage cutouts. A curious spatial flattening appears, where only the sliver of a perspectival hierarchy is maintained, through overlapping or the relative size of forms. Figures are often included to give an otherwise abstract scene a measure of human scale; the presence of gravity scarcely exists, residing only at the outer edges of the accumulated images. In some cases, as for instance in the photollages of the Resor house project of 1937-8, the spatial order of the perspective rendering is deliberately inverted so that it is the background vista of the Tetons that appears as the



Figure 4: Mies van der Rohe, *Museum for a Small City*, 1942

dominant surface, with the interiors barely registering in the renderings. In so doing, not only does Mies press the case that the Resor House resides as a picture box for framing the mountain view, but also through the collage method, the object of contemplation is abstracted into an integral aspect of the notion of the house-as-bricolage. In another collage rendering of the interior, for instance, the exterior view is juxtaposed against a fragment of a Klee painting and a woodgrain panel, thus compressing three levels of nature—wilderness, the manufactured natural object, and the abstracted still-life—onto a single surface. [fig. 3] As in the Surrealist chance meeting of the umbrella and sewing machine, the disparate elements gain new meaning by their radical juxtaposition in a different context.

Similarly, the collage for the 1942 ‘Museum for a Small City’ project incorporates sculpture, painting (Picasso’s *Guernica* is employed here), and nature into one collected space. [fig. 4] In distinction to the Resor collage which inverts perspectival distance, here the elements are deliberately foreshortened and pasted on top of one another, so that the sculptural ‘islands’, the painted dividing panel, and the exterior vista, are given equal weight. His treatment of modern painting in the collages (he also incorporated paintings from Braque, Klee and Rothko, but interestingly, never Pollock) acknowledges its virtual and real flatness, as well as its aspirations towards a wall condition. The bricolage of elements substitute for the lack of ornamentation in an architecture which is intentionally recessive to the point of transparency.

Conversely, in his 1942 Concert Hall project (in which he used Albert Kahn's airplane factory as an architectural 'found object'), it is Mies' minimalist surfaces which are pressed to the forefront, in distinction to the industrialized aesthetic of the modern factory (a precursor to the fetishized details of 'high-tech' modernism). Mies was particularly fond of this collage, as he employed it repeatedly in his graduate courses at IIT, as a template for studying different combinations of textures, colors, and materials. While the surfaces would change, the basic form of the interior enclosure remained constant. As with the bounding grid of the Bauhaus collage exercises, the emphasis here is on the discovery of new chromatic and textural relationships between contrasting materials. Decoration and ornament are found, Mies implies, in the inherent property of things themselves; they merely need to be discovered through visual research.

For the most part, the horizon line of Mies' interior collages occurs at eye level, marking the implicit presence of a viewing subject. One of those exceptions, and one of the most radical of his collage works, is the 1954 photomontage for the Chicago Convention Hall. Hovering over the heads of the crowd, the line of sight cuts across the base of the immense travertine enclosure (only one of a series of proposals for the exterior skin), reducing the crowd to a textural background, thus making it among the most abstract of his renderings in its absolute reduction of architecture to sheer pattern. Through the colossal scale of the three primary architectural elements—roof, wall, and ground (represented by an mass of conventioners)—complex details are reduced to generalized abstractions read across the horizontal dimension, interrupted only by a single monumental American flag cutting across the roof and wall planes in the vertical axis.

As typical of Mies, the photomontage conveys the essence of the building's monumental status by stripping away extraneous detail, leaving only its most fundamental elements. The roof truss, a precursor to the freestanding span of the National Gallery in Berlin, imparts a regulating grid to the allover pattern of the travertine walls and convention audience. The flag performs a double function: it inserts a recognizable marker in an otherwise abstract context, and also resituates the undifferentiated repetition of the background elements towards a single point of focus. It occupies an ambiguous space between the virtual center of a gigantic volume and the actual surface of the photomontage. The photographic reproduction of the crowd is intentionally sheared at its intersection with the base of the wall, again revealing the difference between a purely illusionistic rendering, and the didactic intent of the photomontage: these are the most basic elements of the architecture being proposed here, shorn from their previous contexts to construct the space of the new convention hall. This work is a true bricolage of found pieces from Mies' personal past and present: the marble slabs of the German Pavilion are here reproduced and enlarged to monumental scale; the roof truss adapted from the Kahn bomber plant; the flag and audi-

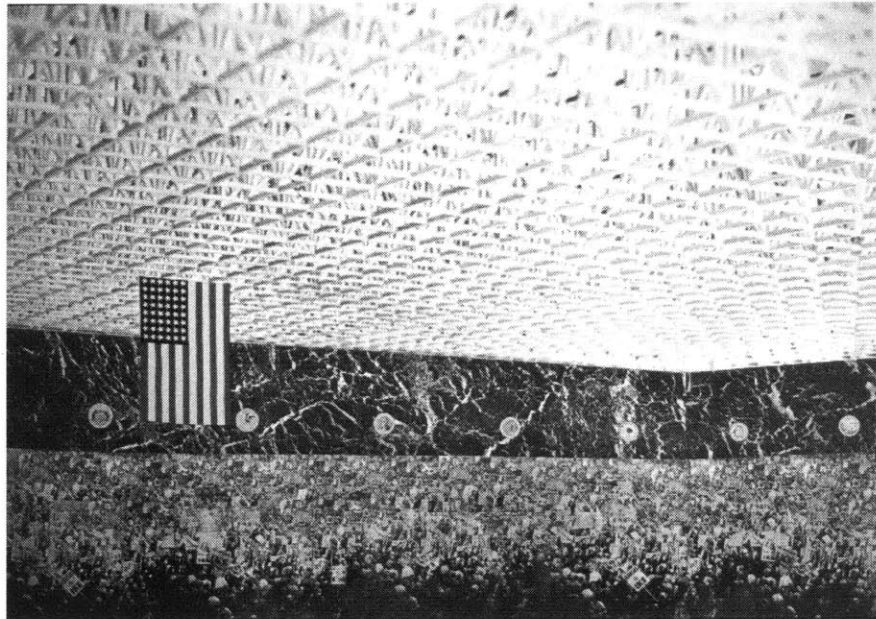


Figure 5: Mies van der Rohe, Chicago Convention Center project, 1954

ence are the found social artifacts of the architect's new life in America (although there is a certain ambiguous irony in the way its colossal scale hearkens as much to the scaleless monumentality of Speer's paeon to the Third Reich, as to the democratic glories of the electoral process).

Mies the bricoleur thus emerges not only in his architecture, but in the representation of his work as well. In an increasingly geometric, prismatic architecture, even in the most monumental of interior volumes, the representation of the space of the architectural object is compressed and shallow. It marks a sea change between the early German photomontages, which attempt a seamless if disjunctive insertion of architecture into the existing city, and the later American work, which escapes into a hermetic, self contained architectural condition in an increasingly flattened space. While this may have only been a curious consonance with abstract expressionist painting—or perhaps it indicates a greater relationship with postwar art than originally thought—it reinserted the central role of bricolage into postwar architecture, a role that Mies reinforced in his teaching at IIT.

Teaching Collage at IIT

In his first academic post, Mies was head of the Dessau Bauhaus from 1930, and presided over its fractious end in Berlin in 1933. In addition to his bureaucratic responsibilities, he also taught a studio

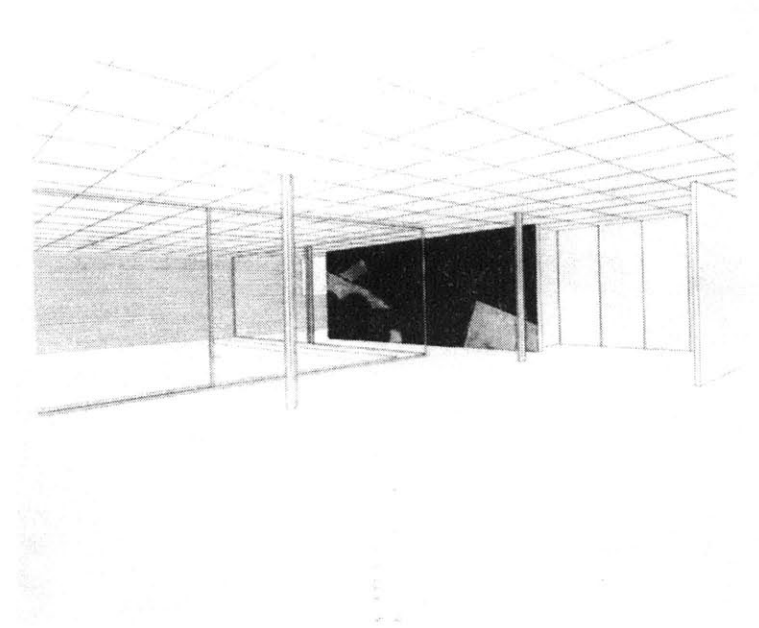


Figure 6: Mies van der Rohe, courthouse scheme, 1934; with cutout of Braque, *Fruit Dish, Sheet Music and Pitcher*, 1926

seminar for final year students that involved conventional design problems in single family and apartment housing.⁶⁰ Although his first extant photomontage dates from 1921 (as well as one minor photographic insertion he placed while in the office of Peter Behrens), with the entry for the Friedrichstrasse skyscraper competition, there is little evidence that he incorporated collage as a pedagogical instrument during his Bauhaus tenure.⁶¹ His early professional work points more towards the photomontage as a presentation tool than as a deliberate artistic construction, although by this point he was already aware of Hans Arp and Schwitters' collage work, as well as Itten's pioneering exercises at the school.

Mies however was also in charge of the wall painting workshop,⁶² which he took over from the previous director Hannes Meyer. Involved in much more than basic mural painting, the workshop was

60. See Rolf Achilles, Kevin Harrington, and Charlotte Myhrum, eds., *Mies van der Rohe: Architect as Educator*, ex. cat. (Chicago: University of Chicago Press, 1986), 72-93.

61. Indeed, as evidenced in the other entries for the Alexanderplatz competition, the photomontage format was a mandatory aspect of the rendered perspective, and thus all entries were required to present in this medium. The shift of photomontage from its status as transparent medium to a modernist, opaque condition, has recently returned full circle once again, with the appearance of digitally manipulated photomontages.

also responsible for sculptural reliefs and wallpaper production. In substituting texture and color for traditional patterns, Bauhaus wallpaper substituted traditional ornamentation for the inherent tactile and optical qualities of textiles. Mies adopted this Bauhaus concern with texture to architectural surfaces, transforming the inherent grain of materials into a modern day equivalent of ornament (a formula that Loos had attempted to propagate) at the same time that painting and sculpture began to play a central role in the construction of his architecture. Whatever fortuitous circumstances brought the legendary Georg Kolbe sculpture to the corner of the Barcelona Pavilion, marked the beginning of a long relationship between modern art and architecture for Mies. Painting and sculpture entered the collage renderings of Mies' courtyard house projects in the early thirties, revealing his early recognition of the architectural implications of the modernist mural work. [fig. 6] This period also saw the beginning of his use of wallpaper and other paper samples in the collage renderings. No less disruptive than Picasso's use of a chair caning sample in painting, Mies' use of wood grain and marble paper samples works in the opposite perceptual direction from Cubist work which forces the initial reading of absolute flatness, followed only subsequently by an intimation of a conceptualized depth. In contrast, Mies' photomontages initially appear as standard perspectival renderings, which on inspection refuse the intimation of space, and instead retain their flattened surface condition—like wallpaper.

Upon his emigration to Chicago in 1937, Mies used his photocollage technique to great advantage in the renderings for the Resor House project, perhaps revealing as well his newfound perceptions of the American landscape [fig. 7]. The insertion of the fine arts continued to play a central role in Mies' understanding of modern architecture: from the beginning of his tenure as director of the architectural program at the Illinois Institute of Technology, he had stated the central importance of 'architecture, painting and sculpture as a creative unity'⁶³ in the declarative program he set out for the school in 1938. The curriculum he instigated reveals an obvious debt to the Bauhaus program, especially in its belief in the primary role of building materials and the fundamental role of abstract visual studies for architecture. Though Mies was the main force behind the introduction of collage into architectural teaching, credit must also be given to Walter Peterhans, who, along with Ludwig Hilberseimer, joined the faculty at the architect's insistence in 1938. Peterhans taught photography at both the Dessau and Berlin Bau-

62. The wall-painting workshop, which had been previously organized under Gropius and Meyer, and involved Bauhaus figures such as Oskar Schlemmer and Herbert Bayer, was only one of several workshop 'concentrations' available to the Bauhaus student as preparation for architectural studies. Other courses involved carpentry, stained glass (taught by Albers), pottery, metal, weaving, stage, display design, and typography.

63. 'Program for Architectural Education,' in *Mies van der Rohe: Architect as Educator*, 57.



Figure 7: Mies van der Rohe, Resor House Project, 1937

haus, and his photomontage work demonstrated the Bauhaus legacy of Itten's teachings on the interrelationships between form, light, material, and texture [fig. 8]. At IIT, Peterhans became responsible for carrying out the pedagogical aspects of this introduction to visual studies, through the equivalent of the Bauhaus *Vorkurs*. Peterhans' Visual Training courses, given primarily for sophomore and junior year students, were intended to introduce abstract concepts in form, order, and proportion through a series of freehand, technical drafting, and collage exercises. Instead of the traditional ink washes favored by previous Beaux-Arts oriented classes, Peterhans set up a new standard based on technical pen renderings on Strathmore board, and photo collage studies incorporating modern painting and sculpture. The intent, Peterhans asserted, was to inculcate a feeling for the abstract foundations of architectural design.

It comprises exercises which are on the one hand sufficiently abstract to show visual qualities in isolation from one another—in crystallized form as it were—disentangled from the complexities in which they occur in architecture, in industrial forms and in the fine arts, and yet at the same time concrete enough to allow these and variations to be

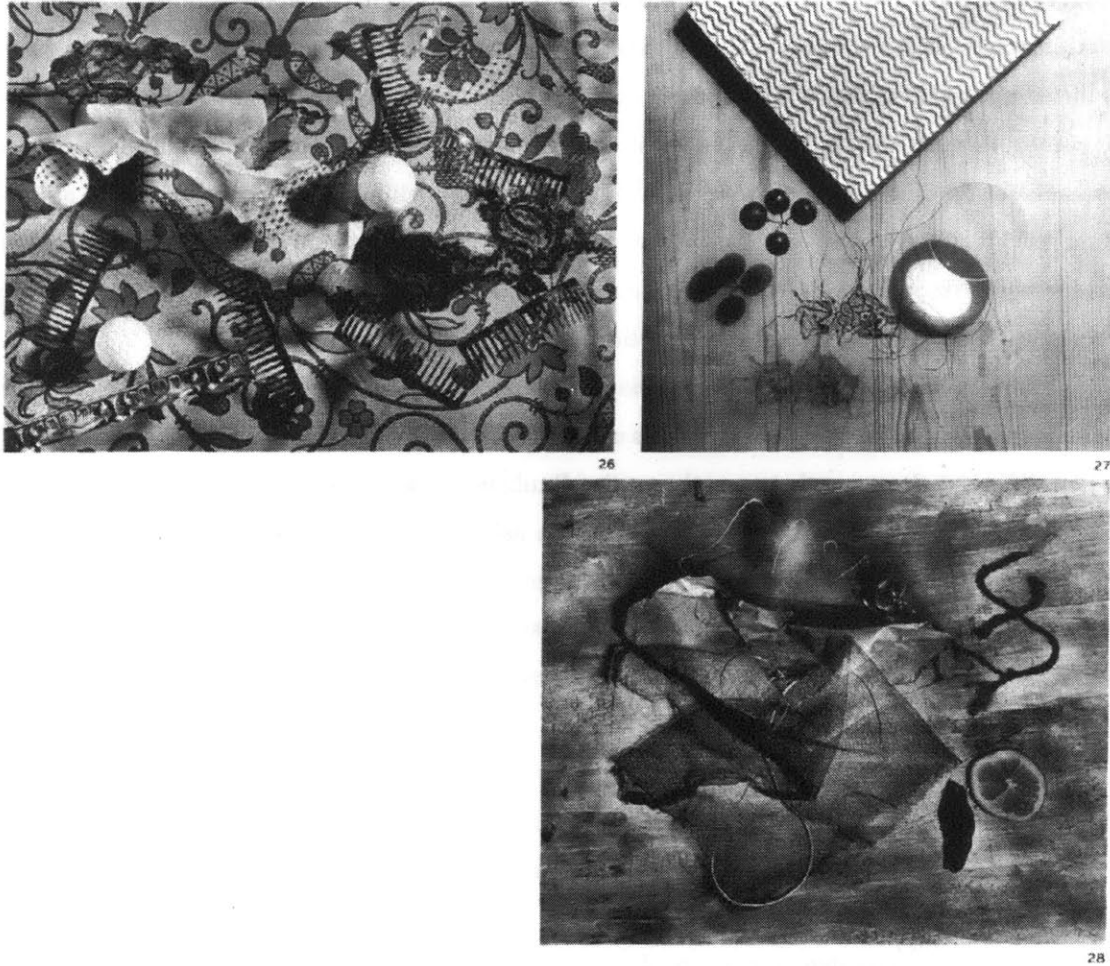


Figure 8: Walter Peterhans, untitled photographs, prior to 1938

tied to specific technical media and prescribed conditions... The course affords access to the common sources from which the formal values of the fine arts and architecture take rise, and likewise the ideas and concepts which are indispensable for the analysis and criticism of a work of art.⁶⁴

In moving away from the purely technical or professional aspects of an architectural training, the course shifted the fundamental understanding of architectural teaching away from both the neoclassical model of typological precedent and the early modernist concern with functionalist programming.

64. Walter Peterhans, "Visual Training," from Werner Blaser, *After Mies. Mies van der Rohe—Teaching and Principles* (New York: Van Nostrand Reinhold, 1977), 35.

Instead, form and material began to be studied for the sake of their inherent properties, and their relationships with color and proportion. As well, visual training promoted an appreciation and understanding of the relationship between architectural design and the other fine arts. While Peterhans' coursework paralleled similar investigations carried out during this time by Moholy-Nagy at The Institute of Design (before its absorption into IIT) and Albers at Black Mountain, the insertion of the collage medium here marks one of the pioneering instances in which there was a deliberate attempt to not only align, but mimic specific aspects of an exterior artform as a prolegomena into the architectural academy (Breuer later incorporated painting into his studio courses from the early forties, and Albers had also given some seminars on color at the GSD in the late thirties).

Examples of classwork from the late thirties and early forties bear a strong resemblance to earlier Bauhaus exercises, notably in their emphasis on texture and color relationships in various materials [fig. 9]. The difference however, between the earlier Bauhaus work and the exercises carried out at IIT, would be that the former was still concerned with a belief in the integral formal relationship between architecture and the various arts, whereas in the latter there was no longer this sense in the possibility or even the desirability of architecture as the common foundation of a unified artistic sensibility. The American painterly avant-garde lost interest in the integration of the arts, and turned their attention to the autonomous properties in their own field. In its stead, architecture looked to incorporate painting and sculpture not as part of a common visual practice, but instead as distinctly separate disciplines. The relationship between the arts that Mies alluded to in the IIT curriculum was therefore not the utopian unity attempted by his European predecessors, but rather one which realized the growing differences between architecture, painting, and sculpture at mid-century.

The collage studies demonstrate the discrete break between architecture and the other arts: painting and sculpture are posited as foreign objects set off from their architectural enclosures, acting as the sole examples of human figuration and decoration in otherwise spare interior enclosures. George Danforth's 1941 collage and pencil renderings appropriate a fragment of a Picasso easel painting, enlarged and set on its side, in order to substitute for the inherent decorative function of Mies' marble surfaces. Daniel Brenner's well known 1942 collage incorporating the Kahn bomber plant for Mies' graduate class, reveals the gap between sculpture and architecture: rather than the critical placement of the female Kolbe figure in the terminating visual axis of the Barcelona pavilion, the sculptures in Danforth and Brenner's collages set the statuary off as isolated events, without any intrinsic relationship to their architectural environs. This cannot be attributed solely to a failure on the part of the student: rather, it is indicative of the growing isolation and independence of the artwork, the difficulty of their placement in relation to an architecture which does little to accommodate or appreciate their presence. The architec-

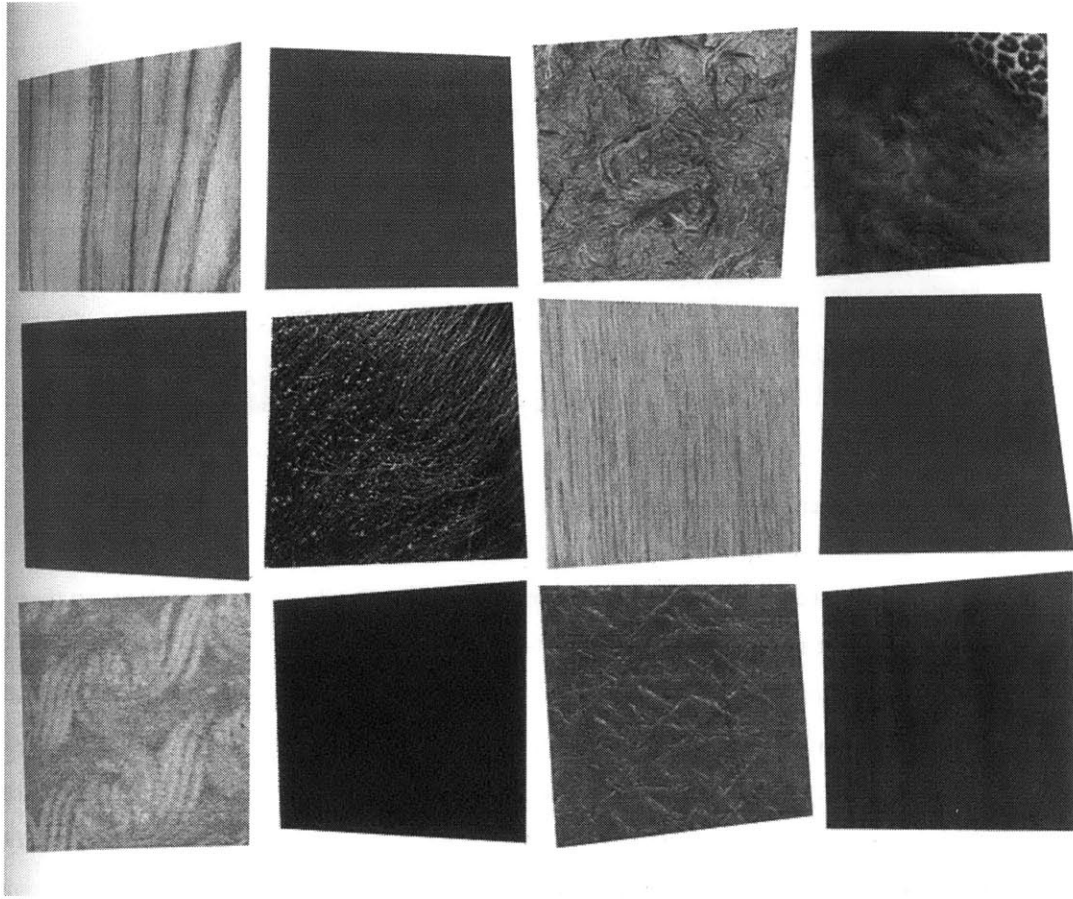


Figure 9: 2nd year photomontage texture exercise, IIT

ture can only act as a foil, as the contrasting backdrop for artforms which seem increasingly irrelevant to its enclosure. What the collage format intensifies here is this sense of detachment, a lack of gravity in the pasted elements, being glued instead to the presentation board as an independent two-dimensional formal exercise, rather than an intimation of a built reality.

Indeed, in the later student renderings, the awkwardly placed paintings and sculptural figures are gradually displaced in favor of the pure architectural collage, so that the architecture erases the artwork, becoming the work of art itself. The finely constructed elevations done for Mies' graduate classes in the fifties, returns the collage format to the rigid order of the Bauhaus grid, but here they are denuded of texture and materiality. What is left are exercises in pure formal relationships: proportion, color, balance. They are proposed as neither strictly pragmatic in the sense of an absolute functional order, nor *Sachlich* in the sense of being subjected to an overarching cellular system. They are instead filled with omissions,

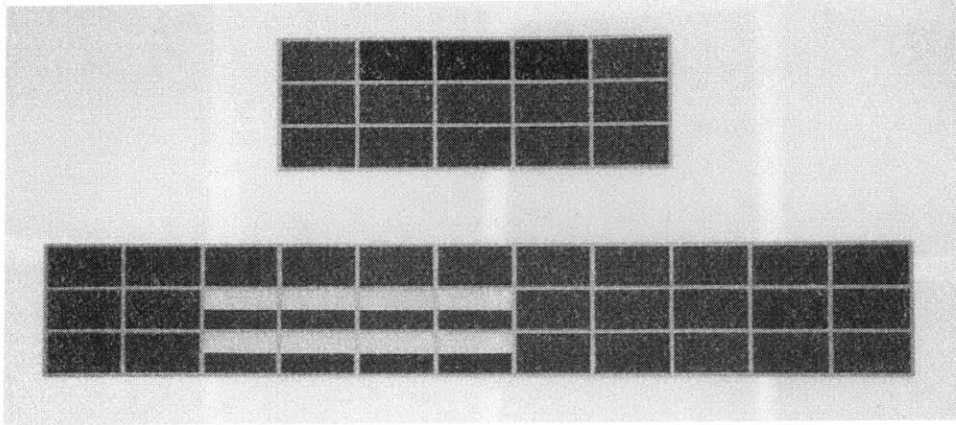


Figure 10: student facade study, IIT

gaps, and breaks in the system without any recognizable functional rationale, thus returning these renderings to an older, almost romanticised Beaux-Arts tradition of the façade study. [fig. 10] Only here, there is a vestigial intimation of a modernist tradition: within the rigorous discipline of the grid lies the hint of Van Doesburg and Mondrian, of Klee and Albers, of purified abstractions and color relationships.

If it is somewhat of a mystery why John Hejduk began in the fifties with an analytical reading of Mies rather than Le Corbusier, perhaps one of the answers lies here, in the intellectual coolness of these gridded façades. The contrapuntal rhythms set within the structural frame induce a potential dynamic out of a static condition, creating conceptual densities, visual movement, moments of localized order. These visual demarcations attempt an autonomous architectural discourse, beyond questions of function or historical style. It is a language of vision, as Kepes would have described it, although within the bounds of the collage format it is greatly distilled, abstracted to an essence of dialectical forces: center versus periphery, centrifugal versus centripetal, rotation, warp, shear, compression, tension, overlap, depth, surface, etc.—in short, precisely those formal devices which would come to occupy Hejduk’s own research on the grid frame. Peter Eisenman here correctly remarks that “if anything can describe the early work of Mies in America, it is reductiveness, the attempt to reveal the essential elements of an architectural objecthood, which is an idea central to Modernism in general. For Mies, the minimalist aesthetic of ‘less is more’ was an attempt to free the form from the program and thus from its cultural antecedents in order to look at the object itself.”⁶⁵ However, he goes on to say that “Mies’ details—his concern for how something is made—became the focus of this activity.”⁶⁶ Such a reading perpetuates the myth of the Miesian obsession with constructed details, and discounts the genuine contribution Mies

made towards the conceptual aspects of architectural form. In the collage format, volume and depth are compressed, and details are eliminated, so that the material aspects of architectural form are suppressed in order for the veritable essence of the architectural object to show through.

More so than in painting or drawing, the collage work presented architecture as a material presence that is driven by the Idea, the fact of architecture being no more than an object expression of a higher conceptual order. Mies' introduction of collage into the IIT curriculum thus contained a double agenda: it aligned architecture directly with early European avant-garde art and thereby with a distinct cultural agenda (the unification of the arts), but it also attempted to move beyond immediate fashion and towards a timeless, abstract level of understanding architectural form in itself. The prospect of a conceptually based abstraction in architecture was thereby broached at IIT during the forties via the use of collage, but would not be fully exploited pedagogically until its introduction in Texas in the mid-fifties.

Transparency and Collage

As much as the Texas Rangers claimed a decisive break from the hegemony of International Style functionalism and Gropius' 'team-oriented' design practices, the teaching methods of the former were indissolubly linked with the Bauhaus. One of these crucial links concerns the use of collage as an introduction to architectural design. While the Bauhaus incorporated collage within a general program of visual education, and IIT used it as a means of representation, at Austin it was deliberately inculcated as a prolegomena to architectural design. Robert Slutzky and Lee Hirsche's color class in Texas became the conceptual intermediary between modern art and architecture, with collage as the instrumental medium. Slutzky and Hirsche, both former students of Albers, had adopted the Bauhaus master's work on the interaction of color for a distinctly different audience and purpose: Caragonne here notes that in contrast to the previous color course which was geared towards representational skills incorporating traditional artistic media, Slutzky and Hirsche's class emphasized the perceptual aspects of color interaction, using collage as a teaching tool.⁶⁷ That is, it was no longer about delineating the architectural object post facto, but became rather a means of developing an abstract approach towards architectural design.

65. Peter Eisenman, "In My Father's House Are Many Mansions," in *John Hejduk: 7 Houses* (New York: Institute for Architecture and Urban Studies, 1980), 9.

66. Ibid.

67. Caragonne, 186.

Albers had used collage in his color interaction studies at Yale in order to suppress the factual qualities or technical capabilities of the individual artist. For Slutzky and Hirsche, this also propitiously coincided with “the new architectural program’s preference for the use of flat, colored planes in architectural presentations.”⁶⁸ Or rather, the two went hand in hand, the literal flatness of the collage work becoming the sieve through which the language of Le Corbusier could be read and constructed for the architectural student. Against the literal, material reality of Gropius’ brand of modernism, the introduction of collage into applied design steered architectural discourse not only towards the abstract and the conceptual, but also towards a flattening of the architectural object.

While Herdeg here has written cogently on the paucity of the ‘decorated diagrams’ of the Harvard approach in the mid-forties and fifties, an implicit understanding still remained in the function of the diagram as an intermediary representation of the built object, that the drawing served merely as the technical means to aid in the construction of the building. At Texas, this relation between drawing and building was broken, as there was no longer a belief in the traditional hierarchy between these two disparate systems. Drawing no longer depended upon the necessity of the constructed object, nor did the work of architecture necessarily have to exist as a built artifact. Not that this point in itself was all that radical; certainly there has always been a tradition of an autonomous ‘paper architecture’ throughout history. However, the difference here lies in the allegiance—indeed, dependence—upon the formal precedents set up by Cubist painting and collage: where previously painting had depended upon the architectural surface, now it was architecture that looked to the leading formal advances in the visual arts. Design projects here came to resemble the material properties of the collage work, mimicking the flat colored rectangular planes of the collage form. It was no longer simply the reproduction of an early Corbusian syntax (itself derived from the Purist visual language), but rather the flattened, dematerialized, and compacted planes of the contemporary collage work that are evoked here.

If Albers did not necessarily have in mind the architectural implications of the color collage, certainly this possibility was not lost in Texas: behind Slutzky and Hirsche’s color exercises was always the inference of an architectural setting, the translatability of the collage work into an architectural diagram, whether it be as plan, section, or elevation. The influential role of gestalt psychology occupies a central position here in making possible the multivalent readings in abstract forms, introducing the perception of depth on flat surfaces, and affecting the fluctuating spatial positions of overlapping planes. For both Slutzky and Hirsche (as well as Eisenman later), the possibility of the gestalt reading became the linchpin for relating one formal discourse to another.

68. *Ibid.*, 187.

The implications of volume, depth, recession and projection, overlap, literal and phenomenal transparency, as presented in the collage exercises, were resituated into architectural diagrams. Other exercises that also traversed the path from two to three dimensions, extruding the implication of depth into mass and volume, included the production of 'negative space' poché drawings, relief models, and the legendary nine-square grid problem. Rather than the static symmetry of Albers' *Homage to the Square* series, however, a more intricate interweaving of rectangular forms more reminiscent of a De Stijl sensibility emerged that took full architectural advantage of the overlapping and multiple readings of the collage process. While the rectilinear planarity of Mies along with the recessive planes of Corbu still remained a strong component of the student work, there began to be less of a reliance upon historical precedents and more on the conceptual foundations underlying the collage composition.

The move from two dimensional patterns to three dimensional architectural space was underwritten by a number of visual precedents: cubism, certainly, but also De Stijl, especially in its American phase as interpreted by Burgoyne Diller. In addition to Albers, Diller was the other significant influence for Slutzky at Yale, and it was by way of Diller's painted constructions that the object implications of the De Stijl format took form in Texas. Less distinctly architectural than Van Doesburg and Van Eesteren's building models, Diller's reliefs occupy a transitory middle ground between painting and sculpture, appearing as extrusions from the painterly surface into inhabited space [fig. 11]. The relief structure could also be read in terms of an abstracted architectural and urban form, and it was exploited at Texas for precisely these equivocal properties. In the cube construction exercises, for instance, the architectural grid is extruded, then posited against the fragmented planes of the De Stijl environment. If however Diller's constructions were a sort of three-dimensional interpretation of De Stijl painting, they also ossified the multivalent potential of neoplasticism. In its place, the introduction of a phenomenal transparency reinstilled the possibility of a multivalent reading in static forms.

Here, Moholy-Nagy's central contribution to this discourse has yet to be fully appreciated, due in no small part to Rowe and Slutzky's rhetorical separation between the literal (Moholy-Nagy) and the phenomenal (Kepes) aspect of transparent forms. The two artists' understanding of transparency was actually far more similar than the authors of phenomenal transparency would make them out to be, with Moholy-Nagy not only presenting his case for the phenomenal oscillation of layers in a flattened plane, but also explicitly outlining their possible architectural implications, as outlined in this diagram from his 1946 text *The New Vision* [fig. 12]. Here, the introduction of the Corbusian pilotis do not define a static volume divided into discrete layers as may be expected in Rowe and Slutzky's argument, but rather are intentionally ambiguous, overlapping one another in a compressed, undefined plane.

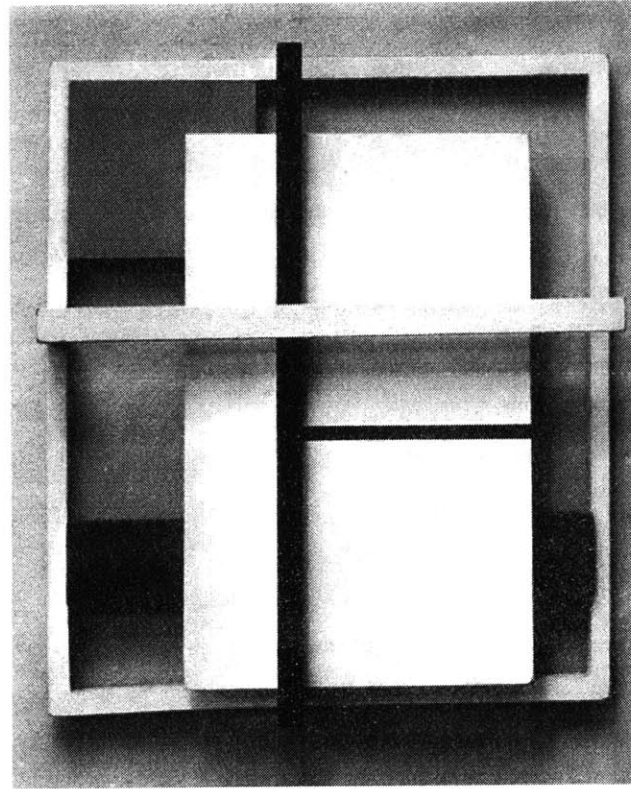
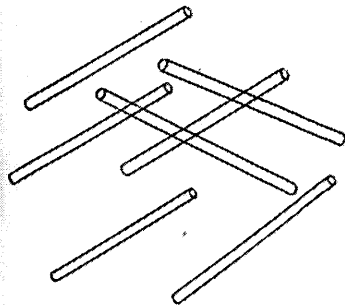


Figure 11: Burgoyne Diller, *Construction*, 1938

Albers' colored collage planes also exhibited both forms of transparency: literal, for the way in which the perception of an individual chromatic field could be seen as the result of adjacent hues 'overlapping' each other; and phenomenal, for the fluctuating spatial location of these color fields. Variations in color corresponded to variations in spatial perception, as the interpenetrating planes of Albers' squares began to be related alongside Cubist collage, De Stijl constructions, and the gestalt reversability of architectural diagrams. Albers' grid was equally applicable in all coordinate vectors, facilitating multiple architectural interpretations, as plan, section perspective, or elevation. The implication of a spatial depth on the flat surface became one of the principal components in Texas driving the cube and nine square grid exercises, aimed at the creation of an architectural condition from a flat surface, as well as the introduction of a conceptual transparency in the architectural diagram.

The groundbreaking relation between phenomenal transparency and Albers' color research was, however, overshadowed by its technical means, in the agency of the paper collage construction. Rather than acting as a transparent medium, the collage format carried its own specific material properties, and



34. Space relationship created through the position of rods.

This type of relationship gives the eternal pattern for the use of columns as architectural means.

One usually understands spatial relationship in reference to architecture but in reality many spatial relationships exist besides those of architecture. To demonstrate a simple but rich spatial effect, one should slide his hands up and down and right and left. The relationship of the fingers each to the other creates changing position of bodies (rods) which gives a spatial sensation. This is a basic exercise of a spatial a b c. In experimental examples of spatial exercises the role of the moving fingers can be exchanged into movable linear elements which produce spatial effects.

Figure 12: Moholy-Nagy, excerpt from *The New Vision*

these traits—paper thinness, absence of material grain, singular hue, collapsed spatiality, frontal reading, and so forth—were also translated into architectural form in Texas. The flat rectangular planes that dominated student work in Austin are superficially related to modernist typologies, but on closer inspection are indifferent to material specificity; it is the formal reading rather than the science and craft of construction that underlies these projects.

Le Corbusier's white planes, it should be recalled, contain a Hellenistic providence, recalling the cubic volumes of a timeless Mediterranean vernacular rather than the flattened fragments of a modernist collage aesthetic. Indeed, the Purist argument against cubism lay in precisely the latter's fragmentation and lack of definition, in contrast to the Purist credo of platonic volumes and abstracted object types.

It is thus ironic that it was precisely a Purist example that Bernhard Hoesli dissected in the name of phenomenal transparency: in dividing Le Corbusier's 1920 *Still Life with Pile of Plates* [fig. 13] into a series of vertical planes, [fig. 18 on page 270] Hoesli presented the argument that though "Le Corbusier's purist image is correspondingly built up in layers in the Cubist tradition," "The attempt to break up the formal organization clearly and unambiguously into actual planes demonstrates that it is impossible to fix all the forms clearly in space. It is typical of transparency in the figurative sense that the situation of individual forms in space is ambiguous."⁶⁹ Hoesli's own diagram of the painting contradicts this last

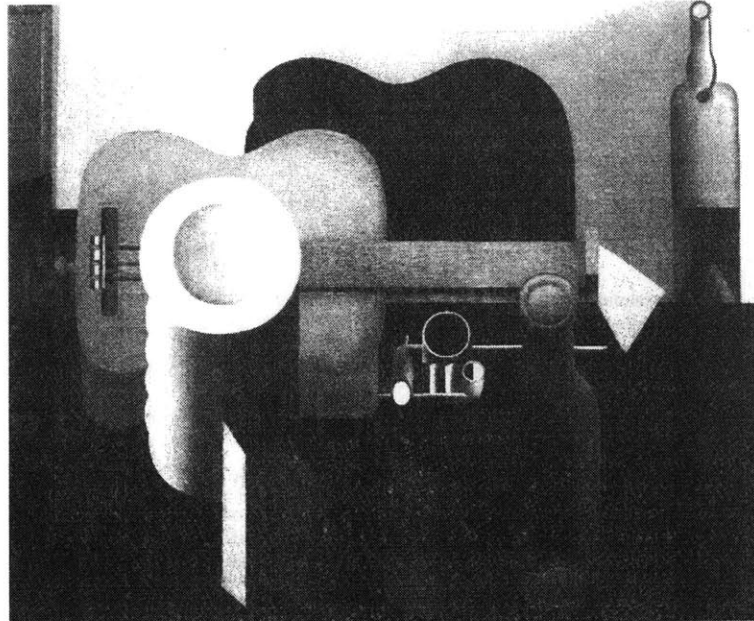


Figure 13: Le Corbusier, *Still Life with Pile of Plates*, 1920

statement, as the drawing clearly fixes the location of the still life elements into a defined spatial construction. Phenomenal transparency is discarded in favor of an architectural opacity.

While this particular diagram is not necessarily the only, or even the most plausible of possibilities for this painting, it does demonstrate how easily phenomenal transparency was ossified into a given order—an order that was absolutely necessary in the transition from painting to architecture. Architecture, which in its built form relies upon fixed elements, could only restore the illusion of a phenomenal transparency through its metaphorical reading: i.e. as if the elements did not occupy fixed but rather constantly changing positions, and that by implicit extension the intellectual essence of the architectural object lay not in its finished construction, but instead as an hermeneutic diagram which could be distilled through its representation in collage form.

Kepes' definition of phenomenal transparency which Rowe and Slutzky adopted, the ability to "interpenetrate without optical destruction of each other,"⁷⁰ is translated into collage form via Albers'

69. Bernhard Hoesli, "Commentary," in Colin Rowe and Robert Slutzky, *Transparency* (Basel: Birkhäuser – Verlag, 1997), 60; originally published as *Transparenz, Kommentar von Bernhard Hoesli. Le Corbusier Studien 1* (Basel: Birkhäuser – Verlag, 1968).

70. Kepes, *Language of Vision*, 77.

chromatic research into optical overlap and spatial depth, and then further extended towards the architectural plan and elevation. However, because architecture in its built state is perpetually static, the work of architecture must here constantly refer to the diagram rather than the inhabited experience for its 'proper,' phenomenal reading. In adopting the implied depths of painting and collage to architecture, architecture negated its constructed presence in favor of its two-dimensional representation. Rather than looking strictly to modernist archetypes such as Le Corbusier's Purist villas, the Texas method looked directly at the visual properties of the Purist image.

In addition to Le Corbusier, the other typological example that Hoesli recalled and summarily dismissed, the Miesian (and at a remove, also Wrightian) model of the intersecting rectangular planes of the open plan, was introduced only insofar as it served to introduce concepts in spatial definition and formal composition. A noticeable lack of attention was paid to the specifics of construction or the integration of material and form in recalling these precedents. Instead, walls and floors are relegated to the status of abstract vertical and horizontal planes of nominal thickness, demarcating space through generic partitions.

Translated into architecture, the plan appears as a sort of architectural algebra; the elevation/section is composed as a series of compacted facades, demarcating space through a collage of overlapping elements. The distant but recognizable relation between the Austin collage projects and Eisenman's 1978 House X (presented partly as collage elevations) can be traced to this common reading of the architectural diagram as an abstract notational system, signalling surface and depth by overlapping colored planes. The use of collage thereby shifted from the individual perception of color interaction in Albers' work, and towards a chromatic matrix indicating depth and volume in the architectural object.

As with American abstract painting's progressive remove from social critique in the forties, collage also turned away from both political and popular culture subject matter, and towards the autonomous properties of the medium. While postwar architecture looked to the visual attributes of modern painting for inspiration, it adopted the material aspects of collage for its tectonic model. Against Le Corbusier's contemporary brutalist phase, the Texas educators instead returned to an mythicised portrait of the platonic villas, inheriting a formalist heritage from the Italian Renaissance. In distinction to Mies' insistence on the material specificity of the architectural object, however, the Austin incorporation of collage subverted the primacy of the built construction in favor of its idealized representational essence. Collage here did not act, as in Mies' case, as a means of depicting the tectonic and constructive qualities of a given architecture on the patently flat surface of the collage work, but instead attempted to displace the specifics of constructed form with its immaterial Idea, enunciating the sense of fluctuating phenomenal relationships among architectural elements, through the overlapping composition of flat colored planes.

In this manner, collage was appropriated from the visual arts, and incorporated into architectural design. Stripped of politics, of social commentary, of even its painterly vestiges, collage became the critical pedagogical link between the flat image and the constructed artifact. Read as diagram, collage delved into the depths of the picture plane, intimating spatial relationships and phenomenal transparencies. Read as construction, collage could be extruded out from the picture plane, with each layer transforming into a horizontal and/or vertical architectural surface.

The irony of the myth of an autonomous postwar architecture thus lies not only in the disavowal of its roots in the visual arts, but also in the way in which it attempted to reverse the order of influence: that is, it was not architecture that looked to painting and collage, but rather the visual arts that had architectural aspirations. The implicit argument in phenomenal transparency was that architecture did not borrow from the other arts per se, but that it participated in a common intellectual discourse underlying visual culture. Thus, literal and phenomenal transparencies were already existent in modern architectural form; it was merely through the agency of painting and collage that the “characterization of species”⁷¹ could be more easily distinguished. If the outmoded and romantic idea of a *Gesamtkunstwerk* could no longer be plausible in the postwar era, at least it could return surreptitiously in the guise of visual research on the object, incidentally resembling work of the early avant-garde.

How later Cooper Union exercises such as designing a building ‘in the intention of Juan Gris’,⁷² for instance, could be construed as an autonomous architectural formalism now seems slightly surprising, but it must be understood in the context of an earlier attempt to realign architectural form within an underlying modernist paradigm. Rowe and Slutzky’s admonition that the distinction between literal and phenomenal was not intended as a litmus test or a preference for one over the other is refuted not merely in their thinly disguised rejection of the former in their essay, but also in their incorporation of collage in their design teaching efforts at Texas (and later at the Cooper Union, Cambridge University, and Cornell): in distinction to drawing’s tendency towards illusionistic, literal transparency, the flat opacity of the collage work encouraged a conceptual reading of space and form, and in so doing, moved architectural design away from the ‘transparent’ functionalism propounded by Gropius, and towards a more complex, formalized vision of postwar modernism.

71. Rowe and Slutzky, 176.

72. *Education of an Architect* (New York: Cooper Union, 1971), 163.

Painting/Collage/Architecture

If the translation from collage to architecture is to be understood as some sort of recognizable process, then the distinction between the painting—architecture axis and the collage—architecture axis must be articulated. In representational painting, the work begins at the picture plane and extends backward to some more or less determinate vanishing point or background plane. Abstract painting, as Greenberg argued, attempts to assert the object nature of the painted work by suppressing the pictorial illusionism of the picture plane in favor of the surface reality of the art object. However, he also admitted that the literal flatness of the object constantly battles for attention with the illusive, pictorial content of the painted surface. Even with Mondrian, arguably the ‘flattest’ of abstract painters, the painted work cannot entirely escape the intimation of object form, and thereby the possibility of depth. While this formal ambiguity is arguably an intrinsic aspect of painting in general, the crucial conceptual shift in modernist visuality allowed forms to reside in front of, rather than behind, the picture plane.

The architectural translation of the painted surface, then, exploited this double reading, incorporating the diagrammatic structure of the modernist painting in terms of its volumetric implications. This was the path most often traversed in the trajectory from the painted object to the architectural parti: whether the inspiration happened to be Mondrian, Arp, or Gris, its architectural equivalent operated as an extrusion from the abstracted surface, treated as the schematic outline of an architectural plan, section, or elevation. Le Corbusier was of course, the best known instance of this approach, incorporating his own painterly research as the basis for a Purist tectonics. Conversely, this method also allowed for the possibility of a common basis for a formalist reading, in that the architectural object could be distilled into a two-dimensional state. Thus, (certain species of) modern painting and modern architecture could be treated in and with similar terms, as Hitchcock, Rowe, and others aptly demonstrated.⁷³

For instance, Van Doesburg and Van Eesteren’s axonometric renderings present an object world that ostensibly resides in a traditional fictional space behind the picture plane. There is no extrusion to a third dimension necessary here; the architectural forms are present, floating in a weightless ether devoid of viewing or vanishing points. At the same time, their orthogonal structure flattens the renderings so that they read as pure geometric forms, returning to the compacted order of the painted plane. The visual trajectory is thereby reversed: rather than projecting from the two to the three-dimensional, the

73. The architectural reading of modern painting tended to be in terms of its design implications and its relationship to exterior disciplines in general, while conversely, Greenberg’s understanding of modernist visuality stressed the growing autonomy of the arts. That painting began to resemble architecture was not a cause for celebration for Greenberg, but rather, an indication of a lack of rigor and loss of leadership in avant-garde culture.

axonometric order presents a volumetric fiction which ultimately resides only as a diagram. The De Stijl group, as well as other members of the European avant-garde, were well aware of this conceptual reversability,⁷⁴ but these tendencies were not fully exploited in architecture until Gestalt thought filtered into the architectural academy in the postwar period.⁷⁵

Color became the distinguishing element differentiating individual forms, marking a notational syntax correlating individual chromatic fields to specific volumes. In the absence of a figurative classical language, color imparted both symbolic and syntactic meaning to modern architecture: symbolic in its reference to the contemporary arts, and syntactic in relationship to the formal structure of the composition, both horizontally (diagrammatically) and vertically (spatially). That this makes an oblique reference to Saussure's distinction between syntagmatic and associative relations may not be entirely accidental, as the horizontal language of the plan also forms the basis for associative relationships above and below the base plane.⁷⁶ Through color, architectural distinctions are structured in relationship to other elements at a specific datum, and determine their vertical position within the space of the architectural frame. There is no reference to facture here, either in the painting or the architectural object; chromatic differences implicate and instantiate volumetric readings.

Analytical Cubism adopted Cezanne's movement towards the elimination of perspectival depth and the immediate properties of the canvas plane, presenting instead a formal structure that resisted spatial illusionism by compressing both space and mass onto a unified surface. However, unlike the later, more static formal compositions displayed by Leger and Gris, as well as the idealized refinements presented by Ozenfant and Le Corbusier, Braque and Picasso's initial analytical Cubist research had no architectonic corollary (other than the sort of overgeneralized mimicry of cubic forms demonstrated for instance, in Raymond Duchamp-Villon's 1912 *Maison Cubiste*⁷⁷ or Robert Mallet-Stevens' Art Deco-cum-Moderne set pieces for Marcel L'Herbier's 1924 film *L'Inhumaine*). With no static outlines or clear

74. See Yves-Alain Bois' "El Lissitzky: Radical Reversability," *Art in America*, April 1988.

75. Kepes, LeBoutillier, Filipowski, and Slutzky, were among the 'early adopters' of Gestalt psychological readings in architectural forms. As Rosemarie Haig Bletter points out, however, the architectural interpretation of 'Gestalt form' transformed from its original meaning of a specific reading in an ambiguous field, to that of a fluctuating reading in a static field. Rosemarie Haig Bletter, "Opaque Transparency," *Oppositions* 13 (Summer 1978), 121-26.

76. This analogy may not be entirely faithful to Saussure's concept of associative 'vertical' relations, in that his distinction seems ostensibly metaphorical in the sense of differentiating between sentence structure and the individual function of words. Yet, as Derrida, Wigley and others have pointed out, the philosophical instantiation of these spatialized differences are hardly accidental, and may arguably be intrinsically related to a dependence on architectural terms of thought.

spatial distinctions, the early Cubist canvas seemed deliberately posed to precisely resist any attempts at a tectonic translation. Or rather, it was not so much interested in acting as a foundation for other disciplines, as in exploring the implications of the object properties of the canvas itself. It did not point to architecture; instead, it attempted to become architectural.

This was precisely the trajectory Picasso and Braque traced in their evolution from the introduction of collage elements in the Cubist canvas, to the systematic deconstruction of the painted plane through the relief work, and its subsequent sculptural development in Cubist assemblage. Cubist painting was therefore not merely the translation of the external world to an interiorized and distilled visual language, but also the visual foundation for modernism's reentry into the realm of objects. The canvas gained a thickness, a conspicuous opacity that ultimately divested itself in the third dimension, extruding its accumulation of brushstrokes in a succession of materially discrete layers.

The Cubist assemblage thus celebrates this delamination of the painted surface, peeling off in a series of disparate and fragmented elements. There is no relationship between actual color and depicted color, as Poggi points out, since hues are employed purely on a syntactic basis.⁷⁸ Color, material, texture, and shape, are celebrated independently of any representative function, working instead with the formal qualities of the separate elements. If abstract painting was able to instigate the foundation for the architectural object, then collage was responsible for the tectonic properties of the assemblage work. More than simply form and color, the Cubist collage and assemblage began to promote the specific material qualities of the constructed object.

77. For David Cottington, Duchamp-Villon's structure was designed as a radical break from academic sentimentality, and as such, instantiated a critical vocabulary designed to deconstruct the Beaux-Arts architectural language, rather than merely appearing as a crude analogy of a Cubist architecture. See Cottington, "The Maison Cubiste and the Meaning of Modernism in Pre-1914 France," in *Architecture and Cubism*, ed. Eve Blau (Cambridge, Mass.: MIT Press, 1997), 16-40. In the same text, Yve-Alain Bois argues for a distinction between Duchamp-Villon's merely cosmetic 'Cubistic' translation of Picasso and Braque, Le Corbusier's prismatic and thereby 'cubic' (Purist) villas, and a true 'Cubist' architecture which takes into account "the structural level of cubism's formation as a semiological system." That is, the semiotic oppositions that Poggi also describes in Cubist collage becomes the principal defining characteristic of a Cubist vocabulary in architecture. For Bois, as for Poggi, material differences are noted primarily for their formal, structural differences, rather than for their object properties. Certain aspects of Le Corbusier's oeuvre fall into this category, as does Michael Graves' academic interpretations of the former's vocabulary. See Bois, "Cubistic, Cubic, and Cubist," 187-194. Beatriz Columina also questions the validity of a Cubist architecture here, with the caveat of a parallel between the multiple viewpoints of the Cubist observer, and that of the participant of Le Corbusier's *promenade architecturale*. See Columina, "Where are We?," 141-66. Finally, Ivan Margolius outlines cubist influences in Czech architecture, most notably by Josef Gočar and Pavel Janák in *Cubism in Architecture and the Applied Arts* (Newton Abbot: David & Charles, 1979).

However, the deliberately disjunctive materiality of the collage work did not occupy a correspondingly radical role within modern architecture, preferring instead the seamless utopia of a whitewashed International Style. As previously mentioned, Mies' photomontages and built commissions revealed an early awareness of the critical importance of the collage work in the modernist epoch. Le Corbusier also demonstrated an affiliation with a collage sensibility in his contrasts of primitive and modern forms in certain villa projects (the Errazuris house in Chile, or the Mandrot House in France are two examples), and in his perverse coupling of natural and man-made elements (in the Pavilion de L'Esprit Nouveau and the de Beistegui apartment, for instance). For the most part, however, modern architecture did not explore collage's more radical formal and social implications, supressing the fragmentary and disparate in favor of coherency and uniform typologies.

What instead transpired in its architectural translation, from Barr to Rowe, was a reading of Cubist collage that conflated it neatly with Cubist painting: rather than reenacting the radical break from painting that Poggi outlined in Cubist and Futurist collage, architecture's adoption of Cubist precedents read collage as basically a natural extension of Cubist visuality. The relationship between painting and collage became inverted, so that it was now painting that became a subset of collage (by reading the painted surface as a series of discrete material layers), rather than collage being the poor cousin of the painted work. Collage then became principally an *optical*, rather than a tactile phenomenon whose unique properties lay in its visual rather than its material differences. In similar terms, the idea of transparency shifted from the visual translucency of overlapping materials, to the idea of a conceptual layering that occurred equally in either its painted or constructed configuration.

From Collage to Architecture

The transformation from the tactile to the conceptual was a subtle but absolutely crucial shift in the function of the collage work, and it occurred in a prosaic manner, in its photographic reproduction. This shift was not particularly noted, due to the almost indiscernable difference between the photographic reproduction of a material collage, versus a deliberate photographic composition of collaged elements. This elision was made all the more easily because it occurred around a common pedagogical instrument, in the production of collage as precursor to architectural understanding. In distinction to

78. Poggi argues that "colors serve to clarify the oppositional structure of Picasso's composition, but they bear a purely arbitrary relationship to the objects depicted within that composition. This is consistent with Picasso's arbitrary and highly imaginative use of materials and with his recognition of the arbitrary and therefore mutable character of representative signs." See Poggi, *In Defiance of Painting*, 15, 17.

Itten's more tactile approach to collage composition at the Bauhaus, the American instantiation of this exercise, from Chicago to Texas and Cambridge, moved away from the direct experience of material differences, and towards the production of visual oppositions.

Moholy-Nagy's and Kepes' interest in photographic reproduction began to shift the idea of collage away from its material properties, and towards its optical effects on a two-dimensional photographic plane; i.e. the play of light and color, the deliberate abstraction of scale, the visual qualities of textural surfaces. Much of this had been broached in an experimental fashion, in Peterhans' Bauhaus photographs and Mies' photomontage renderings from the 1920s, but it was only until the synthesis between the haptic and the optical, through the photographic reproduction of collage elements (versus a collage of photographic fragments) by Moholy-Nagy and Kepes, did there begin to be a deliberate and systematic attempt at reducing the material world into a series of visual oppositions, a kind of optical syntax in the modern language of vision.

For Kepes, texture could be codified through visual reproductive systems, whether photographic, drawn, or painted; a modern language of vision could be enabled in order to differentiate material differences. He states how texture "has a fine grain of sensory impact which can be comprehended only in its *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."⁷⁹ Through sight, the experience of materials could not only be comprehended, but regulated as a system of structural oppositions. However, this synthesis of the haptic and the optic deemphasized the material properties in favor of the flattened informational space of the photographic image. As Poggi and Bois have both argued in their analyses, the Cubist collage is structured as a set of formal oppositions that reads materials within the context of a visual syntax, rather than its specific object properties. For the Bauhaus emigres and their second generation students and teachers in America, collage became one of the critical discursive tools in moving architectural design away from the inherent quality and properties of materials, and towards their place within a larger formal, visual order.

Though collage as a pedagogical instrument was also practiced as the compilation of disparate materials onto a common base, the emphasis upon the visual properties of collage—the optical differences between forms—gained ground, leading to the possibility of collage effects in drawing, photography, and painting. Initially derived from the real world properties of materials, the abstraction of texture

79. Kepes, *Language of Vision*, 152; my italics.

into a visual syntax dislocated the property of materials from their representation, leaving only the visual appearance of textural differences.

We see this deliberate flattening of the collage surface not only in Moholy-Nagy's photographs and photograms done at the New Bauhaus from the late thirties, but also in the progressive transformation from the haptic to the optic in the collage exercises taught at Harvard and MIT. George LeBoutillier's Architectural Sciences texture exercises for instance, taught at the Harvard Graduate School of Design in the summer of 1943, initially looked to Johannes Itten's Bauhaus Foundation Classes and their emphasis on the sensual and structural qualities of various building materials.⁸⁰ Only two years later, however, LeBoutillier began to shift his attention away from the purely haptic properties of textures, in order to explore the formal qualities of texture in the collage composition.⁸¹ LeBoutillier's 1948 sketches for these texture exercises [fig. 14] reveal how the painter began to distinguish different materials not only in terms of their impressions of touch, but also by their visual patterns. Moreover, a wholly separate visual vocabulary could be introduced out of these exercises that could be ultimately divorced from their original sources; visual texture (or what he annotates in his sketch as 'illusional' texture) was a formal, versus material, matrix of elements with its own distinct properties culled from a Modernist visual language.

Though Itten was of course from the beginning very much involved with the issue of drawing and color, he did not divorce these concerns from his textile work—color, texture, and form were inseparably related elements. In distinction, LeBoutillier was able to separate touch from sight, and in so doing, reiterated the Cubist legacy of collage as a structural rather than material process. Appendix 5 on page 309 describes how LeBoutillier defined three categories of texture: its tactile, material properties; its inherent visual pattern; and its purely graphic function, that is, its capacity as a compositional element. These

80. See Appendix 4 on page 308, for his canonical treatment of materials in his course outline, which seems almost directly culled from Itten's Bauhaus Foundation Class; see also Appendix 1 on page 301, esp. Week 5, for an outline of LeBoutillier's treatment of texture. Gropius' influence is evident in the structure of this class; in spite of the eventual separation between Gropius and Itten, the former had often written after the fact of the efficacy of Itten's teaching methods in the Vorkurs.

81. His notes for Assignment 10 on texture describe the problem as a "Discussion of the qualities and types of texture: Material texture, design texture, and Graphic texture. The tactile sense and function. the optical textures. The texture suggestion of certain pattern arrangements and their place in design. Problem: An arrangement of material textures in a progression and a similar sequence of graphic textures. Design textures may be substituted for Graphic textures. Presentation scheme to be designed to convey the purpose of the problem and not that of a mere abstract composition." LeBoutillier notes, unpaginated, Harvard GSD Special Collections. See also Appendix 9 on page 317, for an outline of Boutillier's 1948 texture exercise.

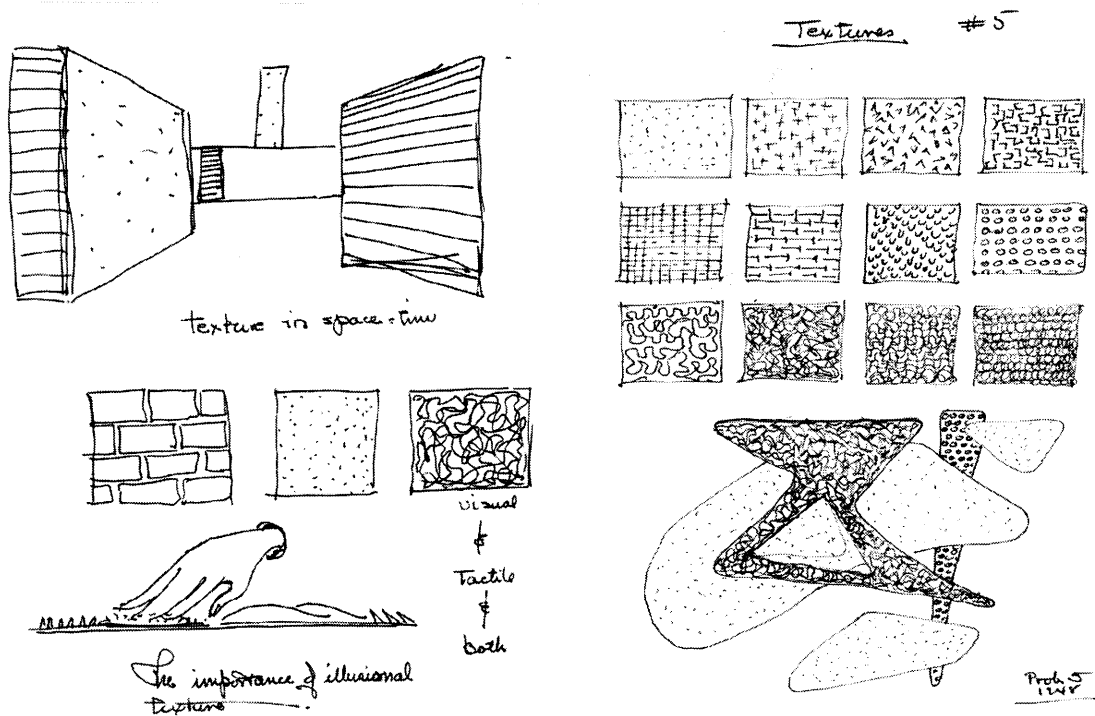


Figure 14: George LeBoutillier, texture sketches from Architectural Science 201, 1948

graphical patterns could be further classified as either linear, dotted, areal, or composite. The formal language of the collage work could therefore be dissected and composed wholly apart from its architectonic reality, and as such, could be free to explore the nonobjective abstractions of modern art, rather than being confined to the relatively limited palette of architectural materials. Architectural design need no longer be limited to sticks and stones, but could be expanded to a wider palette of visual textures. Concomitantly, collage in architecture did not necessarily mean a melange of building materials, but instead indicated a formal composition composed of a structurally derived set of overlapping shapes, wholly dissociated from their actual material composition.

Though collage and montage compositions were a major aspect of his studio design problems, Kepes' postwar foundation classes in Visual Fundamentals were structured in large part around light and color concepts, and thus the material aspects of the student exercises were deemphasized in favor of their optical effects. Light and shadow, push and pull, solid and void, were three dimensional concepts that became distilled onto a two dimensional plane, denuded of their material specificity and haptic

properties. Kepes used collage in order to present the basic formal elements of modern architectural space, and in so doing, separated them from ideas about materiality, structure, and function.

In similar fashion, Robert Preusser also incorporated the pedagogical use of collage techniques in his fundamental design classes at Houston and MIT. As a painter, Preusser saw collage as an intrinsic element of painterly composition: painting was inherently a collage process, applying layers of paint instead of paper or cloth as its primary medium. Like Albers, Preusser saw that the appearance of overlapping colors could be created either by their physical overlap, adding one layer of paint on top of another, or merely inferring their conjunction through chromatic intervals. Optical transparency could be rendered either as actual overlap, or as the illusion of adjacent painted planes. The use of paper cut outs, as Albers and Preusser employed in their design exercises, precluded the possibility of optical transparencies, but instead initiated the possibility of a phenomenal transparency in the fluctuating spatial and chromatic relationships created through flat colored planes. In this purely flat, painterly space, the hard edged opacity of the collaged object reappears, intimating an oscillating myriad of layers and volumes.

In an ironic twist, these exercises returned modern architecture to the classical realm of autonomous form, of the idea of plan as *poché*, of the possibility of the rendering having an entirely separate and valid existence apart from the object itself. The common undercurrent in the ostensible distance between the *Beaux-Arts* and Modernist design lay in their use of abstraction, in their love of pattern making: formal symmetries, hierarchies, and repetitive forms, created architectures entirely removed from programmatic functions or technical concerns. Through work in collage, the compact distillation of visual understanding in two dimensions could be extended into planes and volumes residing in three dimensional space.

Cardboard Architecture

One of the critical epithets raised by Frank Lloyd Wright (among others) against the International Style, was its appearance as a kind of 'cardboard architecture,' in reference to the flimsy appearance of its white planar construction and expansive glass panels, contrasting against the impassive solidity of traditional load bearing construction. Critics of modern architecture subsequently adopted this label for work ranging from Gropius to the New York Five. Cardboard intimated a lack of substantive materiality, a weakness in construction technique, a failure to translate between the model and the architectural object. In the same manner, however, this literal thinness was celebrated for precisely its ephemerality, its break from the weight of chronological precedent and traditional building materials. Van Doesburg

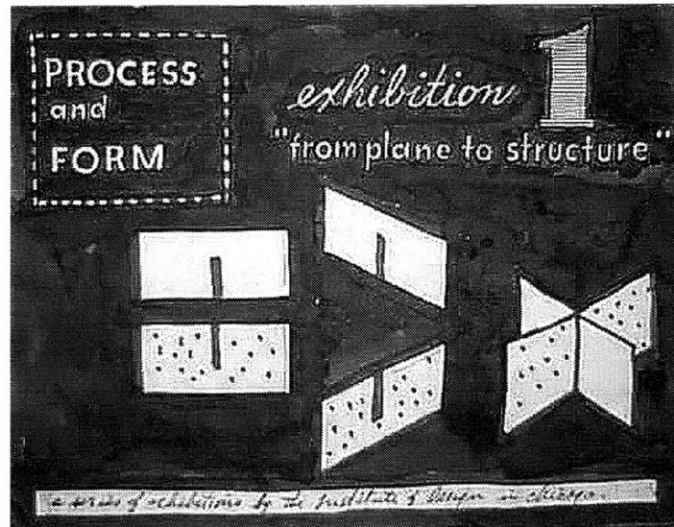


Figure 15: Richard Filipowski, poster design for the Institute of Design, 1948

and van Eesteren's De Stijl architectural projects from the twenties attempted to recreate the ephemeral qualities of their axonometric renderings of colored planes in model form. Moholy-Nagy had also brought up the sympathetic architectonic possibilities of the collage work in *The New Vision*, when he stated how "the picture-plane itself begins to be the subject for analysis. It is divided up. It is conceived as a rigid body whose secret the artist attempts to reveal by means of line and plane organization, visual illusion, color, rhythm, geometry, etc. The picture-plane is activated by cutting and penetrating it, by turning it about and pulling off its skin."⁸² [fig. 15]

Arthur Drexler was one of the first postwar critics to treat the aesthetic in a positive manner, in noting, for instance, how "The school buildings of Maynard Lyndon recall phases of Italian architecture in the 1920's and 1930's: stucco walls treated as though they were huge sheets of white cardboard (a technique early disparaged by Frank Lloyd Wright), the massing of connected units as if they were physically unconnected, and general precision of detail valued for the illusion it creates of an architecture totally without detail...This detail suggests that the walls are not simply single pieces cut to size and assembled, but that end walls and roof are all cut and folded out of the same imaginary sheet of cardboard. Color is applied to enhance the effect."⁸³ Similarly, Reyner Banham also found this tendency in

82. Moholy-Nagy, *The New Vision*, 37. See also note 88 on the idea of architecture as 'skin'.

the deliberate planarity of the English Brutalists; for instance, in commenting upon Denis Lasdun's Residential and Chemistry Blocks for the University of East Anglia, Banham notes their "uncompromising pre-cast slabs and posts, their plainly apparent mode of jointing and assembly into structural piles that (unglazed and unfinished) resemble houses of cards."⁸⁴

Five decades later, Peter Eisenman extolled the immaterial properties of his projects, arguing that their deliberate cardboard appearance "question[ed] the nature of our perception of reality," and "shift[ed] the focus from our existing conception of form in an aesthetic and functional context to a consideration of form as a marking or notational system."⁸⁵ While this last statement refers to Eisenman's passing interest in structuralism and, more directly, his attempt to inculcate Chomsky's notion of a generative grammar towards a logical architectural grammar, it also indirectly reopens that historical dialogue with the syntactic revolution opened up by Cubist collage. Against Eisenman's mythopoetics of autonomous and achronological form, the use of cardboard as a didactic technique and avant-garde posture is nothing if not grounded in the historical precedents created by the modernist avant-garde. Cubist collage demarcated and delaminated the painted plane into a series of discrete layers, transforming pictorial space into architectural volumes.

In Picasso's 1912 *Still Life with Chair-Caning*, for instance, the purity of the graphic surface is disrupted, and in so doing, also intimates the possibility of actual volume in the later cardboard assemblage *Guitar* [fig. 16]. The guitar hole, here constructed and extruding towards the viewer rather than receding into the distance, inverts the spatial order of traditional painting, presenting an object world out of the detritus of the Cubist fragment. It is however an ossified world, frozen in stasis from a single moment in the Cubist environment, rather than recreating that spectacle of temporal and spatial multiplicity which is possible only as a two-dimensional fiction.⁸⁶ The paper surface simultaneously announces and rejects its material appearance (after all, the oil-cloth woodgrain and tablecloth inserts are photographic repro-

83. Arthur Drexler, preface to *Built in USA: Post-war Architecture* (New York: Simon & Schuster, 1952), 33.

84. Reyner Banham, "Motherwell and Others," *Architectural Review* 140 (July 1966): 61.

85. Peter Eisenman, "Cardboard Architecture: House I," in *Five Architects* (New York: Wittenborn, 1972), 15.

86. Robin Evans comments that Eisenman's writings help to 'propel' the fiction that his architectural designs are imbued with their own self-driven motion: "'Punctured volume', 'compressed planes', 'scattered fenestration', 'frozen movement', 'interpenetrating spaces', 'agitated surface': it is the verbs turned into adjectives that do it... Always it is words that help us believe that static things move." Indeed, the lineage of these and other similar terms may be traced to Moholy-Nagy and Kepes' concepts about 'vision in motion', reading and projecting visual movement through the analysis of static visual forms. Evans, "Not To Be Used for Wrapping Purposes," *Translations from Drawing to Building and Other Essays* (Cambridge, Mass: MIT Press), 138; originally published in *AA Files* 12 (Summer 1986), 3-18.

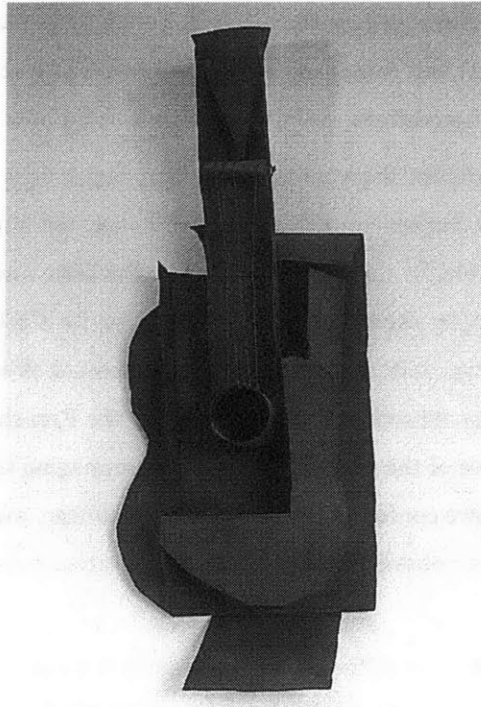


Figure 16: Picasso, *Guitar*, 1912

ductions), returning to the formal structure of visual oppositions. The straight versus the curved, contained versus container, volume against mass; these are some of the syntactic pairings posed in the dialogue of the collage work.

Or more architecturally, this is perhaps the genesis of what Colin Rowe would later term the interspersal of structure with event, of *langue* and *parole*, of the structure of the gridded base/foundation/façade, against the individuality of its architectural events. Le Corbusier plays a large part in Rowe's ruminations on architectural collage, indeed using the Corbusian metropolitan utopia as the foil against which to place his own more catholic, if no less utopian and authoritarian, vision of the urban future. Rowe however qualified his use of Corb as the perennial modernist straw man, however, claiming that "His buildings, though not his city plans, are loaded with the results of a process which might be considered more or less equivalent to that of collage."⁸⁷ The urban plans, lacking that density, layering, variegated structure and multiplicity of forms and origins that characterize modernist collage, instead finds

87. Rowe and Koetter, *Collage City*, 140.

these qualities in Corb's architecture. Rowe here refers to that bringing together of disparate formal elements into a contained architectural composition, which he views as parallel to Cubist collage: "With very slight modifications (for oil cloth caning substitute fake industrial glazing; for painted surface substitute wall, etc.) Alfred Barr's observations could be directly carried over into [an] interpretation of the Ozenfant studio."⁸⁸ More accurately, these works are assemblages, three-dimensional instantiations of their flattened inspirations; the Surrealist de Bestegui penthouse, the aquatic quotations of Poissy and Marseilles, the assemblage-facade for the Nestlé Exhibition Pavilion, and the primeval allusions of the Brutalist works, are the examples Rowe points to in reading Le Corbusier as a 'collagiste.' Rowe attempted to align these activities with the two-dimensional painted object rather than their sculptural counterparts; to make the Swiss master part of the legacy of the French painterly avant-garde, rather than relegating him to the status of the primitive *bricoleur*, rummaging through the collective historical debris of European culture. Rowe confounds assemblage with collage, making one the equivalent of the other; it is an attempt to flatten volumes into planes, to fit the architectural conceit into a formalizable diagram.⁸⁹

Le Corbusier's own explicit use of the collage medium was rather limited: a photomontage for the Palace of Nations competition, a photomural on the side of the Pavilion de L'Esprit Nouveau, and the cover for his 1938 text *Des canons, des munitions?*, are among the few examples of the architect's direct attempts at collage; as Purism was already a break from the Cubist canon, it seemed likely that Le Corbusier and Ozenfant would look at Cubist collage with even further disdain for its corruption of absolute geometries and strictly ordered forms. Not that Corbu was against reworking mass reproduced materials; rather, his well documented manipulation of photographic surfaces are of a slightly different timbre, either overlaying the image with annotations reinforcing his polemic (as in his markings of a postcard of the Petit Trianon outlining hidden proportions), or by the wholesale erasure of extraneous decorative elements that reinforce the images of a platonic architectonic order (for instance, in the famous examples of the 'whitewashed' Canadian grain silos and other photographs shown in *Vers une Architecture*). While Corb thus perhaps never participated directly in collage practice in the Cubist sense, his attempts at seamlessly dissembling the photographic image⁹⁰ is perhaps closer to Max Ernst's Surrealist juxtapositions in *La Femme 100 têtes*, or John Heartfield's National Socialist satire. Unlike these two examples,

88. *Ibid.*, 142.

89. Indeed, one could claim that Rowe's oeuvre consists largely of this kind of comparison of disparate types, whether Palladio and Le Corbusier, the ancient and modern city, or European and American architecture. Their enforced equivalence is due in no small part in Rowe's ability to flatten and subsequently read their reduced, formalizable construction, independently of place, time, and space.

however, Le Corbusier's images lack the intentional irony or shock value of their artistic cousins; rather, they are presented to the viewer as photographic truths, as timeless, frozen artifacts. The layering of images onto a uniform, seamless surface initiates an equivalence between disparate disciplines, as if the physical splicing of dissimilar images were not unlike the insertion or erasure of juxtaposed objects in a photographic composition.

Rowe's Corbusian reading (and again, we must stress it is this postwar analytical reception of the architect that we are interested in here, from the 1949 "Mathematics of the Ideal Villa" onwards) relies precisely on the ability to compress the architectural object into two dimensions, with the ironic consequence of returning this rendered flatness into the architectural realm. Rowe thus redirected (with assistance and input from Slutzky, Hejduk, Graves, and many others), over the span of several decades, the trajectory of Le Corbusier away from a classically inspired, timeless architecture concerned with mass and volume, and towards one intimately related to the research of an artistic avant-garde concerned with fragmentation, collage, and the multiple layering of overlapping planes. In short, it returned Le Corbusier back to precisely that point—synthetic Cubism—which he so adamantly attempted to break from.

If, as Mark Wigley argues, the obsessive whiteness characterizing modern architecture is no more than a thin veneer (masking an inordinately thick layer of social and cultural discourse),⁹¹ the Corbusian architectural collage qualifies this description as a series of interlocking horizontal and vertical layers, compressed in its rendered state, through plan, section, and elevation. This diagrammatic equivalence made possible not only a correspondence between the vertical surface of the collage work and that of the architectural parti, but also introduced the possibility of the formal equivalence and subsequent substitution between the horizontal cut in plan and the vertical cut in section and elevation. Rowe's analytical dissection and representation of high modernism (as stereotypically characterized by the twenties and

90. For more on this aspect of Le Corbusier's penchant for selective erasure and addition, see Beatriz Columina, "Le Corbusier and Photography," in *Assemblage* 4 (October 1987), 7-23.

91. Wigley here creatively annotates the historical relationship between the rise of modern architecture and its use of the white wall as an emblem of modernity; according to Wigley, the monochromatic wall is proffered as a garment of sorts, enveloping the structural bones of the modern building. It is a weightless substance, paralleling the formal freedom of the International Style with that of progressive clothing design: "What has to be concealed is the fact that the white is a layer...It is not simply inserted into the space vacated by clothing. It is itself a very particular form of clothing." While Corb's built architecture was hardly flimsy, the stuff of paper thin walls, it is rather a particular modernist architectural relationship between skin and structure and their social and cultural implications that Wigley refers to. Further, the architect's reproductive means—drawings, models, photographs—reinforce this reading of the thin architectural plane. See Mark Wigley, *White Walls, Designer Dresses: the fashioning of modern architecture* (Cambridge, Mass.: MIT Press, 1995), xviii.

early thirties International Style white villas), descended from a mixture of Wittkower and Barr, thus transformed formal analysis into a prescriptive paradigm for postwar modernism. The introduction of cardboard architecture both argued against technological and functional determinism, structure over form, team oriented design, and for an art of architecture that was also intimately linked with avant-garde visuality. Or more precisely, it was an architecture that deliberately allied itself with the institutionalized legacy of Synthetic Cubism, in spite of its rejection, in ideology and practice, by Le Corbusier.

This is no better illustrated than in Bernhard Hoesli's analytical commentary on Rowe and Slutzky's "Transparency" article, translated for the 1968 German edition.⁹² Indeed, Hoesli begins by invoking the Miller Company catalog *Painting Towards Architecture* (which he attributes rather misleadingly to Hitchcock alone), and its attempts to define modern architecture and painting as coequivalent discourses. In order to construct his argument, Hoesli conflates two previously dissimilar examples, that of Picasso and Le Corbusier [fig. 17]: as in the original "Transparency" article, Hoesli employs Léger's *Three Faces* of 1926 as the common visual archetype for phenomenal transparency, presenting multiple depth readings within a two-dimensional graphic structure. However, Hoesli's second painted example substitutes Le Corbusier's 1920 *Nature Morte* in the place of Picasso's 1911-12 *L'Arlésienne*, thereby neatly bridging the gap between the painted plane and the constructed object, between the fictive oscillations intimated by analytical cubism, and the calcified state of the Purist composition. Against Picasso's deliberately ambiguous play, Le Corbusier's paintings still and reform the object world; painting becomes architecture. Hoesli methodically peels off and recreates the Purist landscape in three-dimensional form, as if constructing a stage set; the illusion of volume and mass in two dimensions is countered by the thin planarity of its three dimensional instantiation.

In literalizing the phenomenal by its analytical dissection, however, Hoesli unintentionally returns phenomenal transparency to the mundane realm of the merely optical; one is able to 'see through' Hoesli's exploded axonometric of the *Nature Morte* as easily as through the glass walls of the Dessau Bauhaus. Though Hoesli argued (in reference to L.C.'s *Nature Morte*) that the Cubist/Purist "attempt to break up the formal organization clearly and unambiguously into actual planes demonstrates that it is impossible to fix all the forms clearly in space. It is typical of transparency in the figurative sense that the situation of individual forms in space is ambiguous,"⁹³ his analytical diagrams clearly indicate not only

92. Bernhard Hoesli, "Kommentar," in Colin Rowe and Robert Slutzky, *Transparenz, Kommentar von Bernhard Hoesli. Le Corbusier Studien 1*, gta Series, vol. 4 (Basel/Stuttgart: Institut für Geschichte und Theorie der Architektur, 1968); English edition translated by Jori Walker (Basel; Boston; Berlin: Birkhäuser, 1997). All references are to English edition.

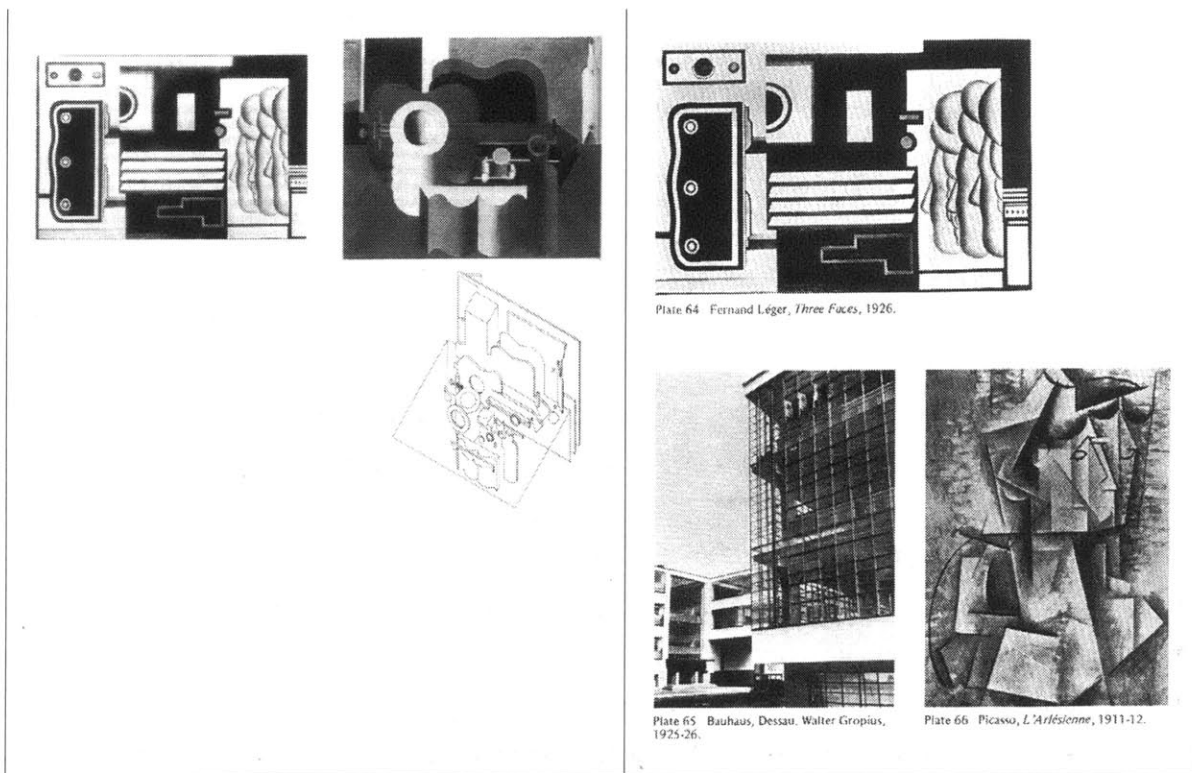


Figure 17: Comparison between Hoesli (a) and Rowe/Slutzky's (b) representations of phenomenal and literal transparency

the static condition of its discretely layered elements, but also demonstrate the fluid equivocality introduced between architecture and painting, in reading painting, plan, and section as a graduated series of related planes [fig. 18]. Of course, the intent of his questionable proposition was to match dissimilar intentions (Picasso and Le Corbusier) under the common rubric of phenomenal transparency, and to thereby align the architectural with the painterly. Seeing Cubism in architectural terms inferred its converse, such that the architectural object could be defined and designed in the same manner as a Cubist collage; fluctuating visual planes ossify into immobile architectural surfaces. A deliberate inversion emerges: as Hoesli's diagrams expand Le Corbusier's painting into the third dimension, his architecture, presented in separate vertical and horizontal layers, acquires the symmetric perception of appearing as the three dimensional expansion of a two dimensional, diagrammatic condition. Corbusian painting here acts as the transition between pure pictoriality and tectonic construction, working the phenomenal and the material within the same surface. In expanded form, its variegated layers, denuded of specific material properties or structural functions, rendered weightless in a neutralized space, returns this cardboard

93. Ibid., 60.

world back to the status of a structural sign, as a series of formal integers marking formal oppositions within a closed condition. Shape, color, and position replaced tectonics and function as the touchstones of postwar architectural design in Texas, Cambridge, and Ithaca.

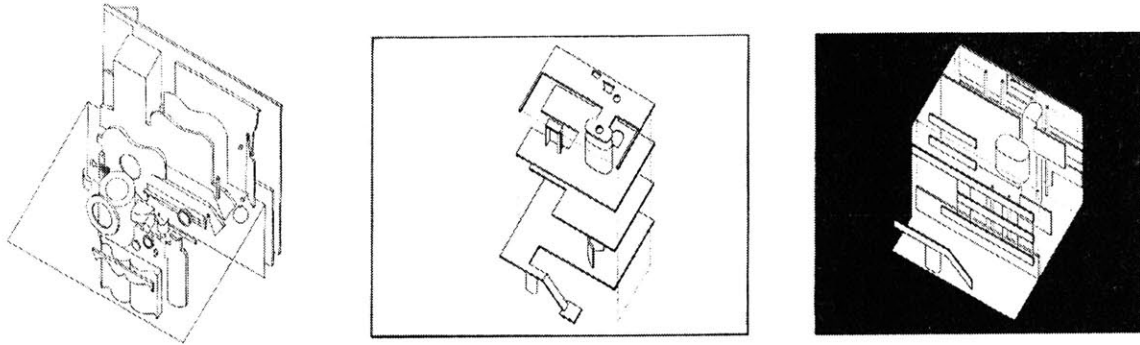


Figure 18: Hoesli analytic diagrams

The substitution of thin veneered materials in place of their load bearing counterparts enhanced the cardboard reading of architectural surfaces: the perception of stone and wood shifted from mass to abstract pattern; glass suppressed its visual transparency in favor of its conceptual function as a translucent plane; gypsum wallboard transformed the vertical surface from a space divider and tectonic element, to a chromatic sign through the use of color.⁹⁴ Specific material properties were suppressed, as wood, brick, cedar siding, stucco, or metal panels were uniformly painted over (in the case of the New York Five), and the conceptual significance of their work rested upon their affinity to Cubist precedents. Unlike Le Corbusier's invocation of color as a means to define space,⁹⁵ however, the American references were deliberate allusions to the flattened planes of painting and collage.⁹⁶

The desire to reproduce a collage aesthetic appears at its extreme in the imitation of its torn paper edges, à la Picasso and Schwitters. As Alan Colquhoun points out, this tendency appears in the 1960s

94. Joseph Maybank here recalls the influence his color exercises with Kepes at MIT had on his architectural work decades later: "One of the positive things about sheetrock, by the way, is that we have had to rediscover the use of color. The 'nature' of sheetrock seems to bring back a concern with surface color and the decorative treatment of walls. Once, again, I am using Kepes's training." From Floyd, *Architectural Education and Boston*, 129.

95. Mark Wigley argues, for instance, that the architect's Pessac "housing project turns into a 'pure envelope' that has been 'carved out' with color. Indeed, the color is the envelope. The logic of load and support has been dissolved into that of the paper-thin surface. The 'weight' and 'density' of volumes is literally 'destroyed by being 'camouflaged.' As a result, 'space was gained.'" See Wigley, *White Walls*, 217. Wigley also discusses Le Corbusier's work with the Salubra wallpaper company to create 'architectural' colors. *Ibid.*, 219-20.

painterly and architectural work of Michael Graves: drawn loosely in the manner of Le Corbusier, Graves' sketches and paintings do not imitate the master's architecture, but rather the drawings themselves, in the flattened space and aleatory meanderings of the reproduced image⁹⁷ (this reproduction of the fragmented edge can also be found in varying degrees in the early work of Meier, Gwathmey, and Hejduk, and somewhat later in Eisenman's architecture). While Colquhoun sees Graves operating in a "de-historicized world of memory and association",⁹⁸ I would add that this ostensible de-historicization on the part of Graves and others of his generation, is itself an historically situated phenomenon, caught up in the modernist turn from historical precedent, and towards form *qua* form. Or perhaps more precisely, it concerns the historical legacy of research into abstract form and its architectural applications, following that pedagogical trajectory initiated by Itten's Bauhaus collage exercises, and carried through by Moholy-Nagy and Peterhans in Chicago, LeBoutillier at Harvard [fig. 19], Kepes and Filipowski at MIT, Albers at Yale, and Slutzky and Rowe in Texas, with the idea of invention through the deliberate dislocative fragmentation of existing precedent. Its subtext concerns the erasure of Beaux-Arts typologies, and the substitution of a new set of precedents built upon the myth of dehistorical abstraction. Literally torn from their previous contexts, the elements of the collage work both alluded to and disavowed their historical meaning, in favor of the immediate optical reception of color and texture.

The collage fragment not only dislocated history and context, it also undermined the stability of any absolute, fixed visual scale. Kepes had discovered this in experimenting with the abstract properties of the photographic image; size and scalar relationships lost meaning, as the abstract formal qualities of the composition took over: "The photographic image...is cut out from the familiar spatial frame of reference and there is frequently no cue for deciphering the spatial scale. A micro-photo and an aerial photo can easily be confused. Space is condensed or expanded according to the optical accessories used in its

96. Alan Colquhoun sees Michael Graves' work as developing "parallel themes in both painting and architecture, among which one finds the typically Cubist notion of a world built out of fragments, related to each other not according to the logic of the perceived world, but according to the laws of pictorial construction. His buildings are, as it were, projections into real three-dimensional space of a shallow pictorial space, and his spaces are frequently made up of planes which create an impression of Renaissance perspective or of successive planes of the Baroque theater." Colquhoun, "From Bricolage to Myth: or how to put Humpty-Dumpty together again," *Oppositions* 12 (Spring 1978), 6.

97. "[Grave's] paintings suggest collages built up out of fragments which create diagonal fault lines or, as if with torn paper, trembling profiles suggestive of the edges of bodies. These elements reappear on his plans and create a nervous interplay of fragmentary planes, a web of countervailing spatial pressures inflected with slow curves or overlaid with diagonal figures." *Ibid.*

98. *Ibid.*, 18.

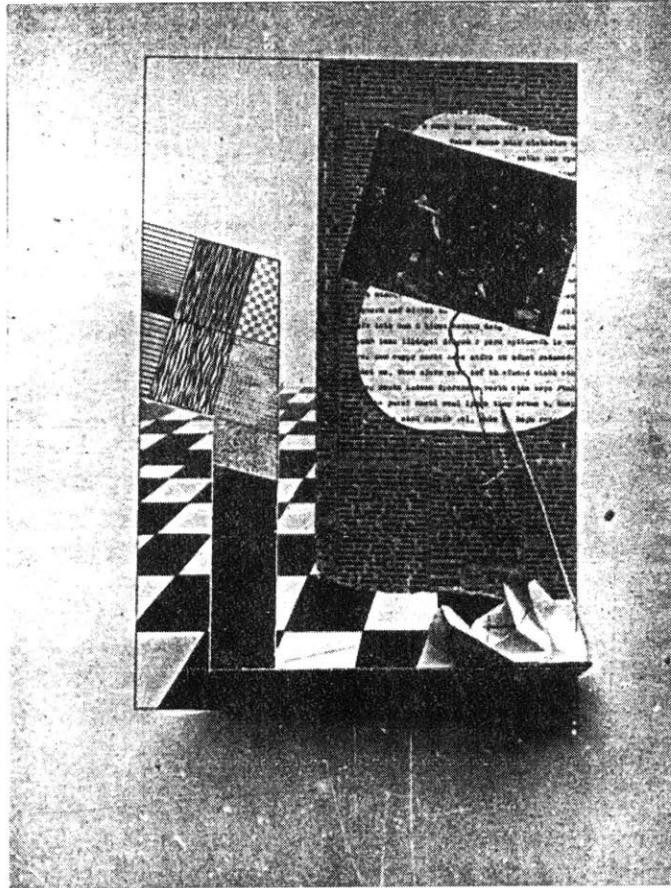


Figure 19: Warren Clark, 3rd year exercise with George LeBoutillier, Harvard Graduate School of Design, 1941

recording.”⁹⁹ Indeed, Kepes’ student exercises were planned precisely to erase such specific references, in favor of the abstracted composition. The flattened optical reading of the photographic image, alongside the compressed layers of the collage work, were thus the two major pedagogical instruments in erasing the differences between the intimate and hermetic scale of the art work, and the large scale complexities of the metropolis. The deliberate fragmentation of Cubist collage, dislocated from any temporal or material specificity, appeared as an analogy of the temporal and geographic ruptures recorded in the urban plan. Accordingly, the piecemeal arrangement of the collage work could therefore be seen as a valid prolegomena towards viewing and reconstructing the formal composition of the city. Far from being the disjunctive break from the formal comparisons between Cubism and the architectural objects

99. Kepes, *Language of Vision*, 150.

that Rowe and Slutzky presented, the concept of the city as collage became a logical consequence of the analysis of architecture as artwork.

Collage City Redux

The City as Collage

Though the initial publication and wide ranging consequences of *Collage City* fall beyond the immediate confines of this study,¹⁰⁰ it forms both the underlying trajectory and implicit endpoint in the postwar architectural aspirations of the collage aesthetic. The intimate and hermetic frame of the modernist collage, reread in architectural terms, finds its zenith in the metropolitan scale of the city. The collage aesthetic resituates the city in terms of a modernist visual dialogue, patently away from the bureaucratic planning utopianism of CIAM, and instead towards the idea of the city as a literal work of art. While the Cornell School of urbanism and its associated formalist pedagogic methodologies had reached its greatest influence in the seventies and early eighties, its roots can be found precisely within the period of post-WWII urban reconstruction it ostensibly aimed to redress. Indeed, the city as a collection of fragments, as an artifact of a chronological collage process, had already been an intrinsic aspect of the modernist metropolitan experience.

Contemporary images of the city had always been a principal theme in early modernist collage, ranging from Picasso and Braque's synecdochical invocation of the metropolis by its quotidian elements (newspapers, advertisements, images of cafes and bars), to Schwitter's reclamation of urban detritus, and Paul Citroen's photographic reconstructions of the modern metropolis. The modernist city was viewed as a continually changing organism, seen only in fragments. As mimetic instruments, however, there was a fixed relationship between spectator and picture that did not change in spite of the dynamic nature of their composition. Instead, the shift in the use of the collage medium from artwork to design tool came about with a conceptual shift from the vertical plane of the displayed artwork, to the horizontal plane of the overhead, planimetric view.

Moholy-Nagy's Bauhaus collage exercises at Dessau from 1928 and a decade later in Chicago, promoted an applied methodology to the Cubist aesthetic that presented the fragment in uniformly abstract terms, from the disparate accumulation of discarded minutiae [fig. 20], to the large scale patterns of aerial photographs [fig. 21]. By treating both large and small as a collection of visual and haptic textures,

100. According to Rowe, the text of *Collage City* was substantially completed in December of 1973, but the first edition was not published by MIT Press until 1978.

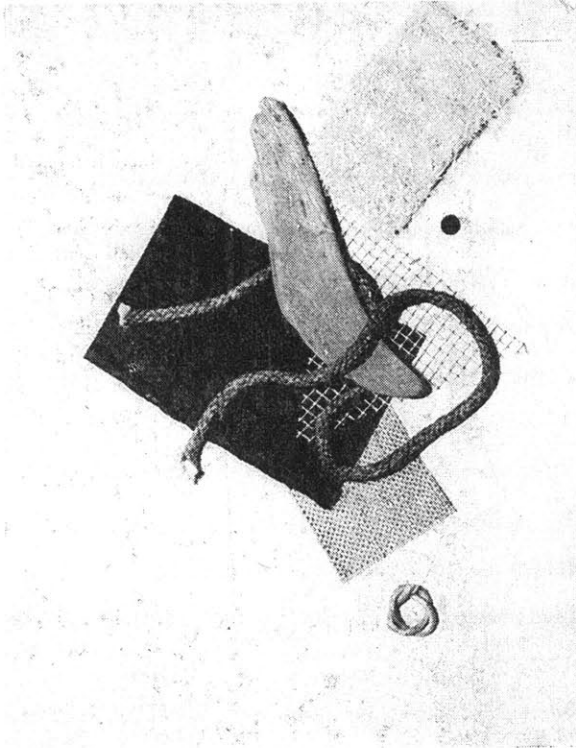


Figure 20: Frances Senska, collage, 1942
From Moholy-Nagy, *Vision in Motion*, p. 13

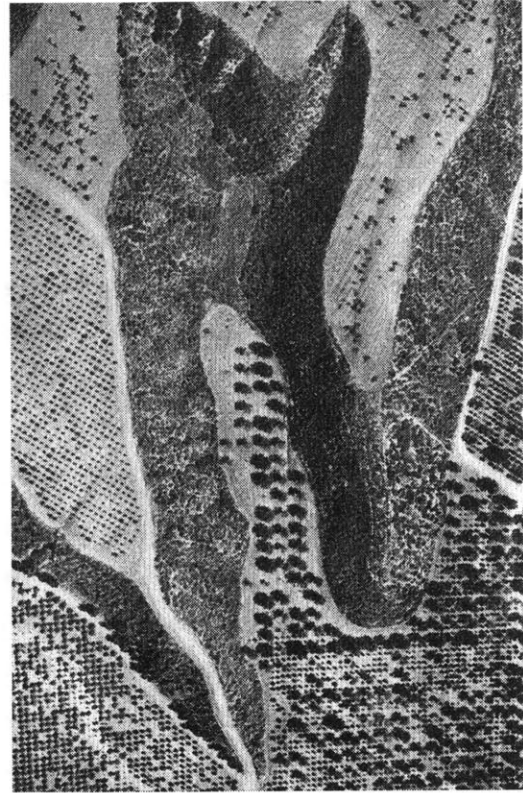


Figure 21: Ralph Samuel, aerial photo, 1944
From Moholy-Nagy, *Vision in Motion*, p. 136

students could transform the object world into a series of abstract patterns, demarcated by their rectangular frame. It is thus perhaps hardly surprising that one of the first instances of urban *poché* Rowe identified in his Cornell studios, manipulated the landscape in the same manner as a Bauhaus collage exercise, carving out and inserting urban elements to form a willful collision of natural and artificial textures to be read from above [fig. 21].

The use of collage techniques as an urban design tool had already been anticipated at least as early as 1961 by Gyorgy Kepes, who remarked that

A new art form of our century is the collage, a device by which materials from the most heterogeneous fields are brought into a contrasting but complementing ensemble. The cityscape is to some degree a counterpart of the collage, in which the contrast and variety of the elements produces a vitality through tension and potential of structure. Through the cooperation of architects, designers, painters, and sculptors skilled in the expressive nature of forms, a wealth of new architectural devices, color, and textural values can be brought into play.¹⁰¹

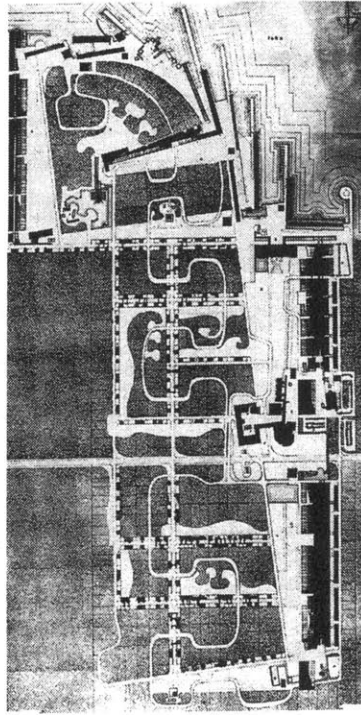


Figure 22: Irving Philips, *Satellite City, Houston, 1965*

More than Rowe and Koetter, and perhaps closer to Moholy-Nagy's understanding of collage in relation to the other arts, Kepes' reading of the city as the new field of a postwar *Gesamtkunstwerk* transforms the metropolis into a work of art. Just as the large and small scale were treated in equal terms by Moholy-Nagy, the particular compositional and material qualities of the collage format could also be applied to investigate and propose grander urban conditions. Color, texture, layering, chance encounters, a willful cacophony of disparate forms and materials, were not only an intrinsic part of collage, they also marked essential aspects of life in the modern metropolis. As such, collage was simultaneously an analytic as well as a projective design tool, and thus in somewhat ironic (though intentional) fashion, the radical modernist visual aesthetics of collage were reinstated precisely as a means of criticising the absolutist order of modernist urbanism.

The notion of the city as art object begins to develop in the early sixties, most notably in the work of Mathius Ungers, who explicitly argued for an autonomous formal structure not only in architecture,

101. Gyorgy Kepes, "Notes on Expression and Communication in the Cityscape," *Arts & Architecture*, August 1961, 17. Also published in *Daedalus*, Winter 1961.

but also for that of the urban realm as well, stating that “The city is governed by the same formal laws as the individual houses that comprise it.”¹⁰² For Ungers, the city was seen as a set of volumetric relationships guided by gestalt principles, three dimensional extrusions of the figure-ground diagrams that would be the hallmark of the Cornell School of urban analysis and design beginning in the mid sixties. On his 1963 Cologne apartment project [fig. 23], for instance, Ungers stated how “Positive volumetric form and negative intersitial space are brought into correlation. In the interplay between volumes and space the complex’s character is expressed, which arises from its ability to organize two realms—internal and external—to a specific purpose.”¹⁰³ Both Ungers’ volumetric extrusions and Rowe’s figure-ground studies present the city as discrete, autonomous, logical units collaged into the larger framework of the existing city, a condition later exploited in their teachings at Cornell.

Collage as City

If *Painting Towards Architecture* proved to be the touchstone for the infiltration of painterly concepts into postwar architecture, then surely *Collage City* occupies an analogous place for the use of collage during the seventies and early eighties. Perhaps the most remarkable (and overlooked) aspect of *Collage City*, however, is the fact that collage itself is barely mentioned. The sole example of collage shown, Picasso’s 1911-12 *Still Life with Chair Caning*, is reproduced three separate times in the text: once in connection with the cover title and set in relation to one of Francesco di Giorgio Martini’s studies for an ideal city [fig. 24], ostensibly contrasting utopian architectural idealism against messy artistic vitality, as well as implicitly equating Picasso’s collage with the idea of a city as collage; secondly, in relation to Levi-Strauss and the concept of the bricoleur, thus adding an intellectual legitimacy to the enterprise; and thirdly, in relationship with Le Corbusier’s 1922 Ozenfant studio, thereby inserting its consonance to one of the early canonical examples of high modernism. That the relationship of this particular collage to their three partners is questionable at the least, seems obvious in retrospect; it is rather by force of rote repetition that their pairings seem possible, natural, and inevitable. Much like Barr’s pairing of Mies’ 1922 brick country house scheme with Van Doesburg’s 1918 *Rhythm of a Russian Dance*, it promotes an artificial correlation where none previously existed. Collage for Rowe is simultaneously ‘merely’ a metaphor for an alternative design methodology for urban design, i.e. as a piecemeal,

102. O.M. Ungers, “Neue Stadt,” *Werk*, July 1963, 281; republished as “Stadt as Kunstwerk,” in Ulrich Conrads et al., ed., *Hommage à Werner Hebebrand* (Berlin: Akademie der Künste, 1965), 19-20.

103. Ibid.

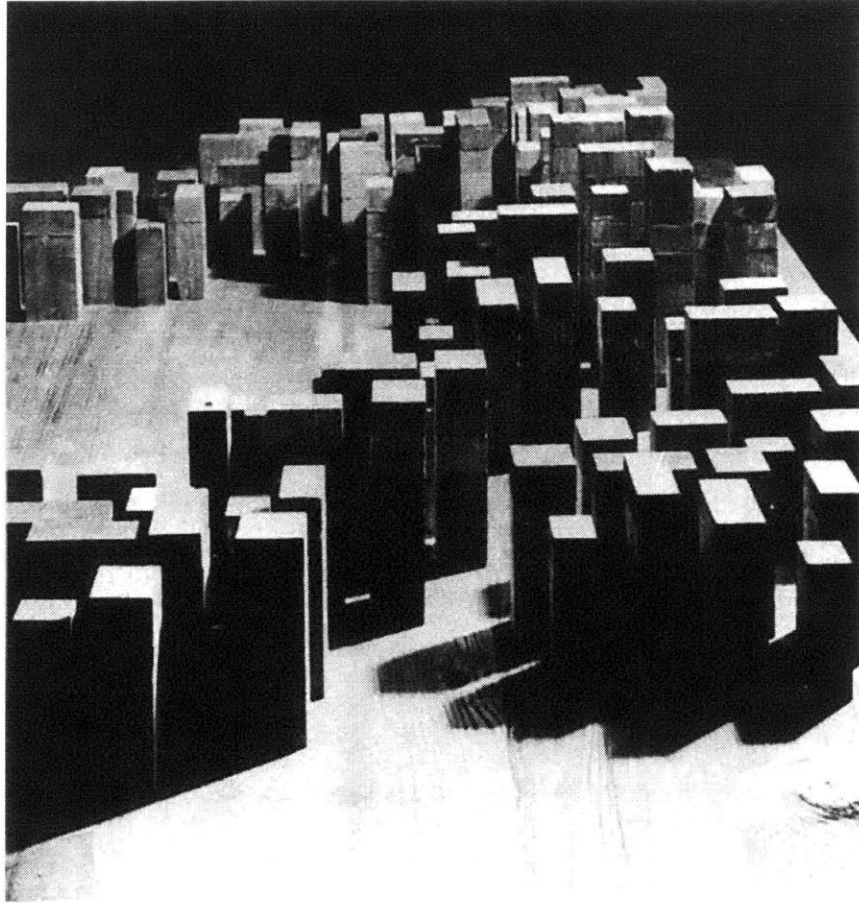


Figure 23: O.M. Ungers, apartment project, Cologne, 1963

heterogeneous and ultimately democratic means of urban planning—but elsewhere the authors also take the metaphor more literally, i.e. the city as a modernist work of art, one that incorporates historical quotations atemporally, dislocating them of their chronological specificity and reverting them instead to formal patterns and textures on a two-dimensional surface. Yet, as evidenced by the lack of corroborating examples, there remains a distinct inability to pursue the collage / architecture relationship beyond the bounds of a basic simile.

In the face of the scarcity of other examples of modernist collage, this absence, or omission, is worth noting. Why the insistent repetition of this one particular instance of Picasso's oeuvre, which was only one experiment within a series of similar themes, and why not other examples of collage outside of the Cubist tradition? Why, for instance, was Schwitters' central contribution to this discourse entirely ignored, much less that of Heartfield, Ernst, and Hannah Höch? To be sure, cubism provided an easy



Figure 24: Frontispiece, *Collage City*

segue from abstract painting to a formalist architecture, whereas dada / surrealism lead down the slippery slope to the *Informe* and organicism. However, one also suspects that in addition to the difficulty of translation between disciplines (actually, no less than any of the other examples), there was a real aversion to the political overtones of dada and surrealism, preferring instead the ‘formal’ revolution enacted by Synthetic Cubism. Rowe was patently uninterested in the political and social context of the European avant-garde, deliberately detaching historical event from the formal structure of the collage work. Ironically, Schwitters’ influence (marked by his deliberate disengagement from the German political arena) could be later seen in Moholy-Nagy, Peterhans, and Kepes’ photographic abstractions, as well as Motherwell’s later collage production, and underlies the autonomous nature in the formal composition of Rowe’s urban propositions.

There are only two other modern artworks cited in *Collage City* that could come close to falling under the rubric of collage, one being Mondrian’s 1943-4 *Victory Boogie-Woogie*, and the other, Picasso’s bicycle seat and handlebar *Bull’s Head* of 1944. The first is a collage only by happenstance, consisting of the artist’s preliminary interwoven colored tape investigations for the painted work, while the second is more specifically a Surrealist assemblage of mechanical parts fused into animal form. Yet, they are both deeply implicated in Rowe’s argument: Mondrian’s collage/painting is set up against the ‘historical democratization’ archived in the fractured grid of Manhattan (note that the authors chose the more energetic *Victory Boogie-Woogie* over the more literally named 1942 *New York City* to illustrate their argument, the latter being a more rigidly orthogonal study and less representative of the Manhattan grid), while the Picasso assemblage affords the opportunity to introduce the concept of the bricoleur, that is, of a certain calculated kind of playful invention that is set in contrast to the more linear, plodding efforts of the bureaucratic architect/scientist.

The cartographic implications of Mondrian’s work had not gone unnoticed before Rowe’s analysis, of course: as early as 1944 Greenberg had remarked on how the artist’s last paintings were “no longer

windows in the wall, but islands radiating clarity, harmony and grandeur,"¹⁰⁴ alluding to the architectural implications inherent in the De Stijl aesthetic by rotating the picture plane ninety degrees. Unlike Van Doesburg's axonometric renderings which reside in a virtual space behind the picture plane, Mondrian's painted surfaces project orthogonally from the canvas; its strips of color (and here Mondrian strenuously argued for their status as independent fields rather than as inconsequential lines) read as foundations for walls surrounding the 'radiating islands' of extruded volumes. At the same time, the physical braiding of the taped canvas displays its affinity to collage, a property lost in its painted form. Albers' color research with paper samples rather than paint also grew out of pragmatic convenience (because cheaper and more flexible), but the color collage never lost its connection with the Bauhaus texture exercises, nor did it lose its *Vorkurs* heritage as research into architectural form. Certainly the design exercises carried out by Le Bouillier, Kepes, Preusser, Rowe and Slutzky, bear witness to the efficacy of this method in relation to postwar architectural and urban design education; however, the specific assertion of the collage materials in contrast to the painted canvas led ironically to the promotion of the paper thin, cardboard reality of their design surfaces. As with Mondrian's study for *Victory Boogie-Woogie*, the lack of any scalar reference (as anticipated by Kepes) in the collage format facilitated its reading as urban plan as well as architectural form, although the artist's other 'urban' titles, i.e. *Place de la Concorde*, *Trafalgar Square*, and *Broadway Boogie-Woogie* (in themselves puns on both the notion of the public 'square' and the square format of the paintings), are conspicuously absent from *Collage City*. If the urban references were perhaps too literal and did not stand up on closer scrutiny for their design rhetoric, neither did the authors wish to invoke Mondrian and the dogmatic formalism of the De Stijl movement as indicative of their purposes. Instead, the black and white reproduction in the text transformed the work from a meditation upon color and proportion, to a contemporary variation of a Nolli plan, revised to reflect a modernist sensibility (i.e. the Nolli plan as read in terms of the scaleless, modernist, abstracted *Language of Vision*).

With Picasso's *Bull's Head*, its inclusion in their argument serves as a marker for the entry of the architect-bricoleur, picking through the formal scrap-heap of history "in terms of pleasures remembered and desired, of a dialectic between past and future, of an impacting of iconographic content, of a temporal as well as a spatial collision, that resuming an earlier argument, one might proceed to specify an ideal city of the mind."¹⁰⁵ Proust and Levi-Strauss are invoked here to bridge the incongruity of the Surrealist

104. Clement Greenberg, "Art," *The Nation*, March 4, 1944; reprinted in Greenberg, *The Collected Essays and Criticism*, ed. John O'Brian (Chicago: University of Chicago Press, 1986), 188.

105. Rowe and Koetter, 138.

gesture, with the possibility of juxtaposing the Roman Forum against the Plan Voisin. Rowe however added a caveat that the metaphorical aspects of the ‘architectural bricoleur,’ with all its attendant implications and misreadings, threatened to overwhelm the informed, rational incorporation of an architectural language with a kind of ‘architectural rag-picking’ from historical and vernacular sources: “Indeed, one could fear that the architect as ‘bricoleur’ is, today, almost too enticing a programme—a programme which might guarantee formalism, ad hocery, townscape pastiche, populism and almost whatever else one chooses to name.”¹⁰⁶ That is, what Rowe and Koetter attempted to forewarn against was precisely what occurred, in the barrage of historical pastiche during the 1980s. Instead, what they attempted to introduce through the invocation of the collage metaphor was a kind of intellectualized and artificial architectural pluralism, a reconstructed incarnation of the American melting pot—albeit through a rarefied dialogue of complex and arcane historical references.

Rather than reflecting the urban detritus of the contemporary city (à la Schwitters), capturing the frenetic energy of the modernist metropolis (Balla, Citroen [fig. 25]), or reviving historical quotations from the traditional European city (the Townscape movement), *Collage City* rarefies and abstracts its sources, flattening and distilling the meaning of the city to a heterogenous set of Nolli plan diagrams, as positive urban volumes and negative architectural infill (or vice-versa, in the case of the modernist city). Buildings are seen as a collection of varying textural patterns, more or less dense, more or less overlapping, inherited as if haphazardly cut out from a textbook of city plans. The French *hôtel* abuts against the Seagrams building, baroque infill against the modernist object, all cohabitating within the diagrammatic space of the idealized post-CIAM city. This architectural bricolage, only a stone’s throw from Moholy-Nagy, Peterhans and Kepes’ optical flattening of the collage surface through the photograph, finds its architectural corollary in the black and white gestalt diagrams of the urban figure-ground plan. Indebted to Slutzky’s unacknowledged central contribution in collage (via Albers) and gestalt studies, *Collage City* appears as a mélange of Bauhaus and Cubist collage techniques, incorporating architectural diagrams drawn from the historical metropolis. That is, they are techniques involving the cutting and pasting of different shapes, patterns, and textures, as a means of creating a good urban gestalt, and by implication, creating good urban design. The dilemma of recovering the Modernist revolution in the face of a desire for traditional urban space, created a hybrid condition whereby the city was not only shaped by avant-garde technique, but indeed began to take on its modernist formal elements (albeit with examples culled from the monuments of urban history), while at the same time, claiming historical pre-

106. Ibid., 104-5.



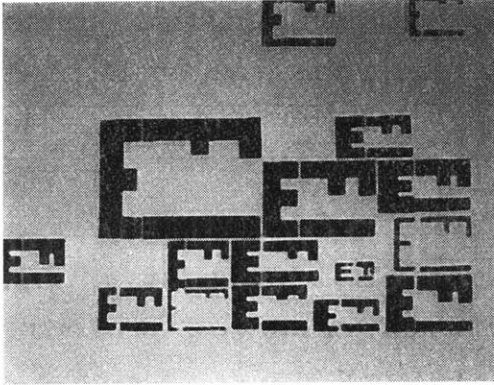
Figure 25: Paul Citroen, collage done under Johannes Itten at Bauhaus, 1921

cedent as justification. While much of the earlier work in Texas centered around the problem of reviving the Modern city through the use of an abstract vocabulary [fig. 26], the mature vision of the city as collage began to increasingly borrow from the historical precedents used in the abstracted formal analysis of urban space [fig. 27].

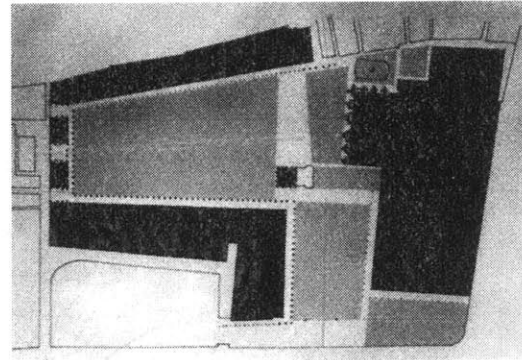
Indeed, Rome becomes the model urban prototype for *Collage City*; not only with its seventeenth century Baroque “collision of palaces, *piazze* and villas,”¹⁰⁷ but also the inflated monumentality of imperial Rome, which “illustrates something of the ‘bricolage’ mentality at its most lavish—an obelisk from here, a column from there, a range of statues from somewhere else...”¹⁰⁸ The Roman model conflates modernist collage with the accretion of urban monuments over time, so that the two-dimensional synchronic palimpsest of abstract forms is made equivalent to the accumulative construction of architec-

107. Ibid., 106.

108. Ibid.



**Figure 26: Pattern study, Arc. 610,
University of Austin, Texas, c. 1955-57**



**Figure 27: Figure-ground study of Piazza S.
Marco, Arc. 510; University of Austin, Texas, c.
1955-57**

tural events and urban places. The figure-ground plan becomes a sort of architectural shorthand for the extruded object, while the city is reduced to an abstract diagram. In the process of reviving historical form, historical context is eliminated, returning design to an achronological aesthetic.

Yet, an implicit social and political discourse underwrites this city, one which attempts to recover utopia as a positive fiction through the democratic conjunction of competing ideal forms. It is a politics born of the Modernist revolution and its critical evaluation (via Popper), as well as of the domestic politics underwriting American art discourse during the Cold War. The social implications of the collage work, simultaneously avant-garde, combative, neutral, timeless, heroic, patriotic, utopian, and post-utopian, are transparently extended to the scale of the city, so that the autonomous beauty of forms may be recovered without its accompanying ideological baggage. In this flattened space defined by the frame of the artwork, the post-Modern city appears as a tale of hope from its utopian disappointments, marking its redemptive possibilities and opportunities amid the rubble of the past.

Collage as Metaphor

In the face of his revisionist criticisms of the modernist project, about which he has written at length,¹⁰⁹ it seems clear that while the architectural alternatives Rowe is interested in promoting are hardly limited to a formalist discourse, his writings do indicate a willingness to detach form from any associated historical or political context. He states as much near the end of *Collage City*: “a collage

109. Most recently, see Rowe's *The Architecture of Good Intentions* (London: Academy, 1994).

approach, an approach in which objects are conscripted or seduced from out of their context, is—at the present day—the only way of dealing with the ultimate problems of, either or both, utopia and tradition; and the provenance of the architectural objects introduced into the social collage need not be of great consequence.”¹¹⁰ That is, the collage approach permits a return to traditional forms, while simultaneously declaring same to be within the province of the avant-garde.

While there is a divorce between form and meaning, however, there is also the implication that design decisions not only instantiate more desirable urban forms, but are also prescriptive social instruments, hearkening back to the vestiges of a modernist utopia. Form could be treated for form’s sake, while the collage process itself could be appropriated as a metaphor of a liberal postwar democracy. Here, the socio-political context of the collage work is filtered out, leaving its emptied forms, and instead a complex fiction (i.e. the city as metaphorical and literal collage) is woven around a formal deconstruction of postwar American urbanism. Thus, the insertion of imperial Rome and *Ancien Régime* Versailles into the American city is here posited as an answer to the ills of fifties urban renewal, acting as a gesture of democratic goodwill against the tyranny of the grid plan. Like painting, the collage work is seen as formally autonomous, yet also bespeaks of a catholic culture that accepts all forms with equanimity.

The deliberate and selective depoliticization of collage parallels a trajectory that began with Schwitters’ renunciation of dada politics (himself later driven out of Germany by the reactionary aesthetics of National Socialism), and revived in America with Motherwell’s 1950s adoption and transformation of Schwitters’ bricolage sensibility, resituated in terms of the heroic individual gestures of Abstract Expressionism. This condition reflected the domestic politics of postwar American culture, simultaneously driven by a belief in the virtuosity of the individual architect, and the international fiat of the American state. Freedom and power, diversity and stability, progress and tradition, marked the twin poles of the postwar collage work and its subsequent applications in architectural and urban design. As with the critical reception of American painting in the fifties, the fragmented composition of collage became both a formal conceit and a political metaphor.

For the most part, collage remained the province of the early European avant-garde, rather than being taken up by the Abstract Expressionists (Motherwell being one notable exception). Consequently, the Bauhaus emigres in Chicago, North Carolina, Cambridge, and New Haven, were the ones who became the central figures in disseminating collage techniques in art and architectural education during the fifties, and their methods were used as a prolegomena towards abstract visual studies. As evidenced in both the ‘Transparency’ article and the later *Collage City*, it was the importance of precedent (here

110. Rowe and Koetter, 144.

artistic instead of architectural), rather than visual innovation that underlay the use of collage in post-war design theory. Collage here was a neutral research medium based upon the legacy of modernist design principles, rather than an artistic vehicle for political protest.

American collage did not gain critical force until the fifties work of Johns and Rauschenberg, itself developing out of the early pop sensibility of the Independent Group in Britain, and the more radical political critiques posed by the French *décollagistes* and European Situationists. The American version however, was less concerned with presenting a social critique than with reflecting mass culture and its associated commodities. Advertising design became fetishized into abstract symbols, and consumer goods transformed into sculptural objects. In this manner, Rauschenberg's photo transfers are directly related to Picasso and Braque's cubist collage, not only in their mutual appropriation of mass culture, but also in their common interest in research towards an advanced visuality. Thus, the distance between Motherwell's transcendental formalism and Rauschenberg's pop sensibilities considerably narrows in the face of their mutual attempts to transcend political themes in the service of abstraction. In similar terms, Rowe and Koetter's thesis was driven by the same disinterested transformation of content towards a higher aesthetic plane that drove American collage in the fifties and sixties, along with the accompanying belief that this aesthetic *Aufhebung* would somehow also engender a shift in social mores and political sensibilities. Indeed, *Collage City* ends by stating how

because collage is a method deriving its virtue from its irony, because it seems to be a technique for using things and simultaneously disbelieving in them, it is also a strategy which can allow utopia to be dealt with as image, to be dealt with in *fragments* without our having to accept it *in toto*, which is further to suggest that collage could even be a strategy which, by supporting the utopian illusion of changelessness and finality, might even fuel a reality of change, motion, action, and history.¹¹¹

It is this schizophrenic attitude towards collage, at once neutral, autonomous, and disinterested, and yet also not given up on the idea of *function follows form*, that most utopian of design conceits, that marked the modernist roots of their enterprise. To be sure, urban forms are here treated as malleable fictions rather than gospel, but inherent in this text is the belief that collage is somehow able to promote a political discourse, if not initiate and direct social change. The collage form, deliberately unfinished, unstructured, multivalent, and discordant, carried over its compositional themes into the social realm as political postures. The metaphor of collage as a specific and deliberate construction, both civic and artistic, thus carried with it a myriad of implications, though its politics were hardly of a singular mind; per-

111. *Ibid.*, 149.

haps this in itself revealed the multiplicity of the collage approach, or rather, it uncovered the historical context and contradictions in collage construction.

From its early avant-garde roots, collage has been associated with the disruption of institutions, both artistic and political. In spite of its formalist turn at mid-century, it still retained the rebellious streak originally conveyed by the dadaist insurrection against National Socialism. By the 1950s this stance had been superseded by the Situationist critique of the European city, which also incorporated collage as a means of subverting and dismantling the existing structure of the bourgeois metropolis. Both Situationist collage and its fraternal twin, the *décollage*, posited their visual techniques as constructed analogies to their political convictions: the deliberate disruption of form, the fragmentation of coherent imagery, the juxtaposition and overlapping of discrete planes, were all technical devices intended to insert the collage work within a Hegelian-Marxist dialectic, in opposition to the static compositional order of the existing city. The collage work literalized the Situationist *dérive* and the artistic *détournement* of the given world, tracing and reenabling resistance in visual form.

While Rowe and Koetter in comparison hardly share the same political sentiments, it is instructive to detect a double invocation of Hegel throughout *Collage City*: initially in order to discount the materialist utopianism of early modernism (“Mies Van der Rohe, Gropius and Le Corbusier, are perfectly illustrative of the manner in which Hegelian categories and modes came gradually to saturate all thought”¹¹²), but later to introduce the possibility of an urban dialectic as a prolegomena to a democratic social order, that is, “A debate in which victory consists in each component emerging undefeated, the imagined condition is a type of solid-void dialectic which might allow for the joint existence of the overtly planned and the genuinely unplanned, of the set-piece and the accident, of the public and the private, of the state and the individual.”¹¹³ Like their Situationist counterparts, however, no synthesis arises from this dialectic; instead, the collision of elements remains as evidence of its unresolved condition. That is, a conflict is posited not in order to create a third order, but rather the goal is to present the collage as such, as the instantiation of a legitimated avant-garde art practice (i.e. as typological precedent), whose implications are an urban and social pluralism (a democratic politics). Here, the collision of elements do not spark change, but rather mediate and compromise, celebrating and re-presenting tolerance and diversity.

In the city of the figure-ground precedent, the bricolage of historical urban elements becomes a code word for democracy, for an alternative to the centrally planned utopias of Le Corbusier and Hilber-

112. Ibid., 28.

113. Ibid., 83.

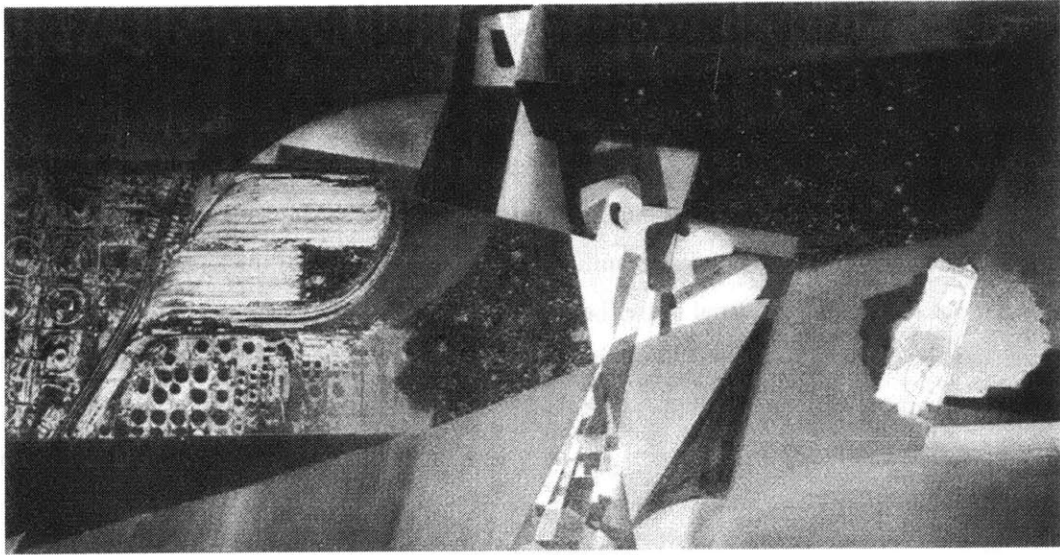


Figure 28: Gyorgy Kepes, *China*, photomontage, 1942

seimer. Never mind that in its stead, totalitarian empires and imperial monarchies are posited, or that incremental, diachronic urban development is confused with the invention of a synchronic, democratic populism; it is the appearance of diversity that matters here. In this scenario, Rome appears analogous to Watts Towers; Las Vegas is on the same order as *Victory Boogie-Woogie*. The bricoleur and the rag-picker join forces with the *sans culottes* and the pedestrian, in reshaping the city as the democratic site of a continuously made work of collage.

Behind this illusion, however, this myth of the collage as a constructed democracy, lies the authoritarian hand of the architect-planner and the belief in the prescriptive fiat of the built environment. Only here, the rectilinear bureaucratic planning of CIAM urban renewal is set against the irregularity of the coincidental intersection, of local monuments, of the fragmented, messy vitality of specific neighborhoods—even if such events were all minutely predetermined in equally inflexible terms, as with the artificial environments constructed at Disneyland. To be sure, Rowe discounts both the modernist utopia and the picturesque cult of Gordon Cullen's *Townscape*, the former for the failure of its promise, the latter for its lack of intellectual foundation. The distance between *Townscape* and *Collage City* for Rowe lies in the difference between a pedestrian, perspectival reading of the city, versus the abstracted overhead plan view with its attendant conceptual readings; it is a juncture which also parallels the difference between the traditional space of a perspectival rendering and the flattened, modernist collage plane. What Rowe finds so offensive about the picturesque is not so much its effects, as its deliberate anti-intel-

lectualism and rejection of the historical legacy of the modernist project. In contrast, what *Collage City* attempts is the reintroduction of historical typologies in terms of the modernist collage, in effect redeeming the paucity of precedent in modernism by abstracting and neutralizing the social and historical context of premodern types. While this stance has been occasionally associated with Aldo Rossi and the Italian Rationalists' belief in the central autonomy of the architectural object as a metonym of a collective memory (see especially Rossi's *Architecture of the City* written in 1966, at the beginning of the Italian student movement¹¹⁴), the intellectual foundation of Rowe's project lies in its dependence upon the legitimating precedents of the cubist avant-garde rather than any understanding of the city as an incremental and chronological process.

All this is merely to restate the particular urban and intellectual schisms faced during and in the ensuing two decades after WWII in America: i.e. the rift between the failure of the modernist utopia and the simultaneous efforts to defend the continuing presence of an avant-garde against the onslaught of popular culture; the associated return of traditional form versus technological innovation; the conflict between abstraction and (mass market) imagery; the promotion of the concept of a vital political center amid the decline of the intellectual left. The formalization and abstraction of postwar art in the midst of cold war politics thus applied not only to Abstract Expressionist painting, but also to collage (in its Abstract Expressionist, post-Bauhaus and pop art varieties), architecture, and urban design. The trajectory from Schwitters to Motherwell, from Itten to Kepes [fig. 28], marks the deliberate neutralization of any radical politics [fig. 29] in the service of an abstracted notion of a progressive society.

Collage City precisely mirrors and sublimates these desires in its attempts to simultaneously discount a modernist utopia and suggest a progressive alternative built upon avant-garde techniques; it attempts to contain its own contradictions by mediating and accommodating divergent positions in a pluralist manner. Thus, avant-garde and mass culture are both (if not equally) accepted, as are past and present, left and right, representation and abstraction. This is possible because, as Rowe states, they are all treated as equally plausible fictions: both utopian forms and ideas become elements within an overriding collage sensibility, colliding and overlapping one another. It reduces the city to a work on paper, where utopia is made possible only within the limited frame of the artwork; once constructed, the fiction of diversity is unveiled to reveal an institutionalized formalism grounded in a nostalgic recollection of avant-garde practices [fig. 30]. Ultimately, the irony of the postwar American city as collage lies in its constructed reality: against the outline of the relatively compact and uniform character of the nineteenth

114. Aldo Rossi, *The Architecture of the City*, trans. Diane Ghirardo and Joan Ockman (Cambridge, Mass.: MIT Press, 1982); originally published as *L'architettura della città* (Padua: Marsilio Editori, 1966).

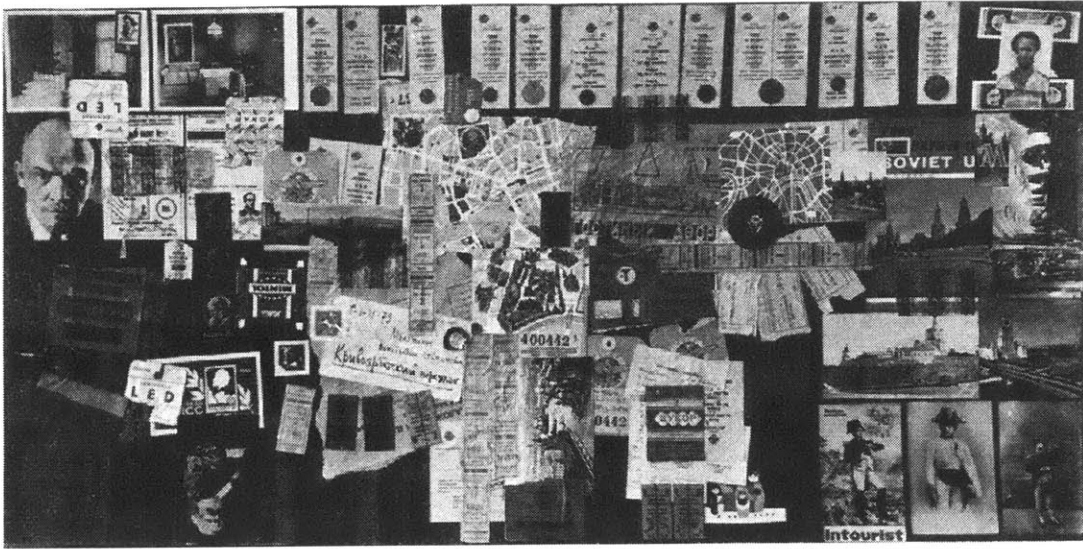


Figure 29: Colin St. John Wilson, *Moscow*, collage, 1966

century city, the contemporary images of New York, Houston, and Los Angeles present a bricolage of disparate formal and urban intentions underwritten by real estate speculation. The reality for better or worse, presents an assemblage at once wholly beyond the limited bounds of the collage metaphor, and outside the hermetic formal authority of avant-garde practice.



Figure 30: Richard Meier, Getty Center, Los Angeles

Postscript(s)

The Autonomy Myth

In the aftermath of Jackson Pollock's death in 1956, American high culture turned its attention away from abstract expressionism, splitting off into two ostensibly different formal positions: on the one hand, a spare, geometric hermeticism appeared as the extreme conclusion to painting's search for autonomous form; and on the other, high art culture began to embrace the compacted formal composition—if not the social consequences—of mass culture imagery. At the same time, a parallel event was also occurring within the postwar architectural avant-garde—that is, the transformation of a Corbusian syntax into a self-referential program (from the New York Five to the Italian Rationalists), alongside the development of a nascent pop architecture (encompassing such diverse groups such as Archigram, the Smithsons, Venturi and Scott-Brown, and Superstudio). However, both tendencies remained joined by a common underlying belief in the autonomous register of the work of architecture, and their central role within the development of contemporary visual culture.

The assumption that modern architecture and modern art are somehow related, is an integral part of the polemics of the modern movement, in both the first and second half of the twentieth century. In distinction to the early European avant-garde, however, American postwar architecture had little interest in unifying art and architecture under a common synthetic practice; instead, what replaced it was the desire to reproduce the formal effects of the other. What modern architecture required from contemporary art, was ironically the reclamation of its auratic presence, but here in the particular sense of the artwork as an instantiation of the dominant cultural authority. In referring to the self-referentiality of non-objective painting, architecture adopted a formal structure that was no longer dependent upon functional or technical requirements, but rather upon its formal similitude to what was regarded as a more advanced visual culture.

In the late fifties and early sixties, a group of geometrical 'hard-edge' abstractionists—Stella, Noland, Reinhardt and Kelly—introduced a minimalist painterly vocabulary that rejected the notion of the abstract transcendental canvas, in favour of the psychological dynamics of colour composition and the redefinition of the traditional limits of the frame. Stella's objectification of the canvas field helped to introduce Richard Meier and his contemporaries to the possibilities of the architectural plan as a dynamic conceptual datum. Around the same time that architecture began to embrace the abstract possibilities of the flattened plane, however, artists also started to explore the spatial and sculptural implications introduced by Pollock and Rothko's paintings. Stella, Judd, and Morris, for instance, exploited the

tectonic qualities of hard-edge painting, while their architectural colleagues began to focus on the two-dimensional reading of the architectural plan.

This flattened condition of the autonomous artwork was ironically reproduced in the proto-pop work of Paolozzi, Rauschenburg, and Johns, where they demonstrated that even (or especially) the visual structures of commodity manufacture could be just as easily appropriated towards high art practice; in Warhol's later work, the object of representation is simultaneously iconified and vaporized of meaning, transformed into heroic/vapid instances of color and pattern. The transformation of mass culture iconography into a mannerist subversion of high modernism played a central part of Venturi's populist transformation of Philadelphia school regionalism and its Kahnian metaphysics (via Scott-Brown's AA background), as the glossy surfaces of mass cultural media became embedded in plan and elevation.

Pop art and minimalism thus marked the two conceptual poles of artistic reference operating in American architecture at the beginning of the sixties. Through these two formal frameworks, the architectural avant-garde embraced the myth of an autonomous formalism, a myth that was however, inextricably tied to its cultural and historical circumstances, driven by a cold war political and social model of economic progress and cultural hegemony. Within this milieu, the architectural appropriation of contemporary art as a self-conscious avant-garde strategy, attempted to resituate its own ultimately conservative practices as part of an advanced visual culture.

The development of the autonomy myth in architectural practice was, interestingly, not important in itself, but rather what it symbolized, and how it aligned itself as such to a specific, institutionalized culture behind this myth. That is, autonomy for its own sake did not have any inherent advantages; rather, the idea of autonomy, in its architectural instantiation, always contained an underlying reference, whether to the formal structure of the artwork, the semiotics of language, the shibboleth of pure function or technology, its relationship to a certain philosophical strategy, religion, mathematics, or, finally, towards that ambiguous notion of architecture as autonomous form, somehow referring to its own innate elements and properties. As Lefaivre and Tzonis argue, the idea of architectural autonomy itself is not only socially and historically conditioned, but is at its foundation, always pointing to a reference something other than itself.¹ This is borne out, for instance, in Peter Eisenman's essay "The Futility of Objects,"² in which he equates asymmetry with the idea of a cultural rupture; that a formal dissonance

-
1. Liane Lefaivre and Alexander Tzonis, "The Question of Autonomy in Architecture," *The Harvard Architectural Review* 3 (Winter 1984), 27-42.
 2. Peter Eisenman, "The Futility of Objects: Decomposition and the Processes of Difference," *The Harvard Architectural Review* 3 (Winter 1984), 65-81.

somehow reflects a social imbalance. Unlike music, or even painting, however, architecture can never be wholly autonomous, but rather, only *refers* to that autonomy secondhand, surreptitiously, in reference to other disciplines. For American postwar architecture, this reference increasingly came to mean a reliance upon the iconographic typology of an institutionalized, legitimized, historicised avant-garde.

Avant-Garde as Economy

This reliance marks the underlying subtext of this study, which concerns the status, definition, and continued relevance of a postwar American architectural avant-garde, in the way in which their particular conceptual frameworks relate to the development of architecture as a progressive, legitimate artform, and how these paradigms are reliant upon cultural legitimation from exterior sources. In the three decades after the end of the Second World War, this source came from different aspects of American painting (in contrast to the moribund intellectual and formal state of its architecture), while more recently, it has come to reflect various (and at time competing) trends in contemporary intellectual discourse in philosophy and literature. In both cases, the autonomous has come to be equated with a neutralized high culture aesthetic rather than a political posture or social critique.

Part of this condition stems from the fact that the avant-garde itself, as an increasingly self-aware and institutionalized cultural phenomenon, cannot escape the market which supports it. Clement Greenberg remarked on this intractable position early on, in noting how “No culture can develop without a social basis, without a source of stable income. And in the case of the avant-garde, this was provided by an elite among the ruling class of that society from which it assumed itself to be cut off, but to which it has always remained attached by an umbilical cord of gold.”³ This is all the more so true in architectural discourse, as it more than most other disciplines, is fundamentally reliant upon a supporting ecosystem, from the client (though seemingly more and more, less important to this process), to its critics, its surrounding cultural and academic institutions, and their affiliated supporting media. Werner Oechslin succinctly outlines these relations as follows:

Architecture and architects enter into new relations of dominance and independence in a market for architecture as a cultural object: with those other artists who translate their works into images or reproduce the architects’ own images; with those who sell these objects (publishers, printsellers and in recent years, gallery owners); and with those who create an aesthetic or intellectual appreciation for them (historians, writers, critics and again recently, curators). Each participant, has, further, a direct interest in establishing the quality of the work, the basis for its claim to rarity, and may claim a

3. Clement Greenberg, “Avant-Garde and Kitsch,” *Partisan Review*, Fall 1939; reprinted in *The Collected Essays and Criticism*, vol. 1 (Chicago: University of Chicago Press, 1986), 10-11.

role in elaborating the work itself.⁴

Being avant-garde here no longer indicates social rebellion, but instead implies a certain level of achieved social acceptance, operating within a specific economy. Associated with this is the desire of contemporary architectural practices to align themselves within the legitimating aura of the historical avant-garde. The autonomy of avant-garde practice in this sense does not mean refusal to engage with, or a critical negation against bourgeois discourse, but rather, reveals its careful attempts to position itself within a specific social and intellectual cycle of cultural production. This other sense of the autonomous avant-garde, as social phenomenon, was a critical aspect of its organizational role among the Abstract Expressionists, as Diana Crane points out:

When Abstract Expressionism began, its members were a tiny enclave who perceived themselves as being at odds with the rest of American society and totally isolated. This image persisted long after it had ceased to be an accurate reflection of their situation. In fact, they were highly successful in creating a vital social network that included not only themselves but artists working in other styles and other art forms, as well as influential critics, dealers, and curators. This social network became the center of the dialogues concerning the nature of the avant-garde during this period and assured the access of these artists to this title.⁵

This is all the more so true in postwar architectural discourse, where its social networks were essential in the formation of a cultural milieu ostensibly posed as an alternative to mainstream practice, but which mainstream work continually took its inspiration from. As much as one posed itself in contrast to the other, it is more accurately a symbiotic relationship, each relying upon the other as yardstick and foil. For those architects unwilling or unable to participate in conventional building practices, this economy becomes all the more critical to their survival.

The idea of the avant-garde as a critical or subversive movement in the first part of the century, thus gave way in the second half to the notion of avant-garde practice as a progressive, defining set of formal design maneuvers for practice at large; this characterization is underlined in Thomas Crow's famous dictum of the avant-garde as being "a kind of research and development arm of the culture industry."⁶ Innovation has become an indispensable part of the economy of avant-garde production, in both art and perhaps more so, in contemporary architectural practice. Indeed, Greenberg notes, "Today everybody innovates...the character itself of being startling, spectacular, or upsetting has become con-

4. Hélène Lipstadt, "Architecture and its Image: Notes Towards the Definition of Architectural Publication," *Architectural Design* 59, no. 3/4 (1989), 21.

5. Diana Crane, *The Transformation of the Avant-Garde: The New York Art World, 1940-1985* (Chicago: University of Chicago Press, 1987), 41-2.

ventionalized, part of safe good taste.”⁷ Accordingly, Greenberg continues, the public’s view of the role of the avant-garde moved from indignant outrage to placid consumption of its latest innovations:

From all this it would look as though the educated public had not only assimilated the avant-garde past but that it had also caught up with the avant-garde present. It would look, too, as though the avant-garde in the present had become what it never was before, not even in Paris: a body of people and an area of activity that society at large accepted in an almost institutional way. And it is a fact that joining up with the avant-garde becomes less and less an adventurous, self-isolating step, and more and more a routine, expected one.

The transformation of the avant-garde occurs not just in its social relations, but in its formal strategies as well: the classical avant-garde instrument employed is the use of shock, which has been nullified and rendered harmless through its repetition and stylistic aestheticization. The thematic use of shock drives the culture industry's demand for the continually new and different, and the particular oversaturated condition of postwar culture makes shock absolutely necessary to merely register as a significant proposal. In architecture, the shock of form is both radical and conservative: on the one hand, extreme in its continuing attempts to produce a calculated amount of outrage; on the other, conventional in its desire to retain a privileged position in high culture discourse. In both cases, it is a borrowed strategy, intended to align the practices of one discipline with the formal strategies and polemics of another. Shock value, ultimately, is intended to translate into economic value.

Notes on the (neo)-avant-garde

A larger series of questions lies in the validity and viability of architectural practices and their relationship to the ideals of a critical counter-movement within a market economy. In other words, is an architectural avant-garde truly possible, in any effective sense of the term? What does a contemporary avant-garde practice currently imply? Is there even a coherent body which can be deemed as such, or can it now be divided into a series of more or less radical, more or less institutionalized (coopted?) practices?

A related issue here is the viability and meaning of the term 'neo-avant-garde' in architectural production; whether in fact it serves as a useful or effective label for postwar work outside of mainstream

6. Thomas Crow, “Modernism and Mass Culture in the Visual Arts,” in *Modernism and Modernity*, ed. Benjamin H.D. Buchloh, Serge Guilbaut, and David Solkin (Halifax: Nova Scotia College of Art and Design, 1983). The notion of the ‘culture industry’ is of course borrowed from Horkheimer and Adorno’s *Dialectic of Enlightenment*, trans. John Cumming (New York: Continuum).

7. Clement Greenberg, “Avant-Garde Attitudes,” The John Power Lecture in Contemporary Art delivered at the University of Sydney, 17 May 1978 (New York: Wittenborn, 1969), 9.

professional practice, or indeed, if it is possible to differentiate the activities of a 'progressive' avant-garde in any radical manner from mainstream work. Peter Bürger's reading of this term assumes that neo-avant-garde art merely imitates the formal content of the original avant-garde in a superficial and relatively uncritical manner. He states: "the neo-avant-garde institutionalizes the *avant-garde as art* and thus negates genuinely avant-gardiste intentions." Further, he argues, "Neo-avant-gardiste art is autonomous art in the full sense of the term, which means that it negates the avant-gardiste intention of returning art to the praxis of life."⁸

The issue here is whether, by shifting its terrain from the material artifact to the graphic sign, contemporary practice is able to dislocate this structural limitation, and initiate any serious challenge to mainstream discourse. While this shift, beginning in the 1950s, did attempt to differentiate a high culture practice from a banalized International Style aesthetic, it seems this was done instead to relegitimate architecture as an explicit form of traditional art making, reengaging the idea of auratic singularity in the object. In this light, it appears that Bürger's characterization may be applicable to the marginal practices of postwar architecture, in its explicit attempts to repeat not only the formal themes, but also the thematic devices—voided of their specific political, cultural and historical connotations—of an original avant-garde posture. In regards to Benjamin Buchloh's critique of Bürger's characterization of neo-avant-garde work, which focusses on repetition as subversive strategy (taking into account the role of the audience as a self-aware and integral part of the reception of the artwork),⁹ contemporary architectural practices are little interested in this kind of self-reflexive discussion, preferring instead to remain aligned with the strategies of an historicised avant-garde.

While certainly some neo-avant-garde art practices manage to challenge this interpretation by presenting specific criticisms of the institutions of artistic discourse, it is much less clear how this operates in architectural practice. That is, it seems that precisely because of its material dependence upon the economic forces driving the culture industry, architecture is possible only within the confines of its legitimating institutions. In this context, it is difficult to see how any serious critical assault on its institutions

8. Peter Bürger, *Theory of the Avant-Garde*, trans. Michael Shaw (Minneapolis: University of Minnesota Press, 1984), 58.

9. "It therefore becomes obvious that the reading of these neo-avant-garde works consists exclusively in assigning meaning to them from what traditional discourse would call the *outside*, that is, the process of their reception—the audiences's disposition and demands, the cultural legitimation the works are asked to perform, the institutional mediation between demand and legitimation. For the work of the neo-avant-garde, then, meaning becomes visibly a matter of projection, of aesthetic and ideological investment, shared by a particular community for a specific period of time." Benjamin Buchloh, "The Primary Colors for the Second Time: A Paradigm Repetition of the Neo-Avant-Garde," *October* 37 (1986), 41-52.

could be initiated, since it is dependent on prior approval in order to be built (or displayed, as a critical 'project'). This was the underlying dilemma from Russian Constructivism to the Situationist project; in the end, all radical architectures are necessarily defused and tightly delimited by their institutional and economic patrons. The recent disintegration of the subversive implications of deconstruction as regards the institutions of contemporary architectural discourse, for instance, into a superficial and ultimately anaestheticized architectural formalism, demonstrates how easily any radical proposal may be subverted and neutralized for the needs of cultural consumption.

Appendices

Appendix 1

The following is a listing of Peter Eisenman's bibliography from his dissertation, "The Formal Basis of Modern Architecture" (Trinity College, University of Cambridge, 1963). Minor typing errors in the original have been corrected. Articles referring to specific building examples cited have been omitted. Reproduced by permission of the author.

Bibliography

- Alberti, L.B. *Ten Books ('De Re Aedificatoria')* Ed. by J. Rykwert. London, 1955.
- Argan, G.C. *Walter Gropius e la Bauhaus*. Turin, 1951.
- Arnheim, R. *Art and Visual Perception. A Psychology of the Creative Eye*. London, 1955.
- Becker, Carl. *The Heavenly City of the Eighteenth Century Philosophers*. New Haven, Conn., 1932.
- Behne, Adolf. *Der Moderne Zweckbau*. Munich, 1926.
- Behrendt W.C. *Modern Building*. London, 1938.
- Benevolo, L. *Storia dell'Architettura*. Bari, 1960.
- Blake, P. *Marcel Breuer: Architect and Designer*. New York, 1949.
- _____. *The Master Builders*. London, 1960.
- Boesiger, W. *Oeuvre Complete, Le Corbusier*. Edited, Zurich, 1937–1957.
- Bosanquet, B. *A History of Aesthetic*. New York, 1957.
- _____. Introduction to Hegel's *A Philosophy of Art*. London, 1886.
- Butcher, S.H. *Aristotle's Theory of Poetry and Fine Art*. New York, 1951.
- Carpanelli, F. *Come si Costruisce Oggi*. Milan, 1955.
- Cassirer, Ernst. *The Philosophy of Symbolic Form*. Vol. 1. New Haven, 1953.
- _____. *The Problem of Knowledge, Philosophy, Science and History Since Hegel*. New Haven, 1950.
- De Chardin, Pierre Teilhard. *The Phenomenon of Man*. London, 1959.
- Choisy, Auguste. *Histoire de l'Architecture*. New York, 1938.

- Curtis, Nathaniel C. *Architectural Composition*. Cleveland, Ohio, 1923.
- Dorfles, Gillo. *Barocco nell'Architettura Moderna*. Milan, 1951.
- Drexler, Arthur. *Ludwig Mies van der Rohe*. London, 1960.
_____. *Three Drawings of Frank Lloyd Wright*. London, 1960.
- Durand, J.N.L. *Precis des Lécons*. Paris, 1802.
- Fleming, John. *Robert Adam and his Circle*. London, 1962.
- Giedion, Sigfried. *Machinisation Takes Command*. New York, 1948.
_____. *Space, Time and Architecture*. Cambridge, Mass., 1941.
_____. *Walter Gropius*. London, 1954.
- Gray, Christopher. *Cubist Aesthetic Theories*. Baltimore, 1953.
- Gropius, Walter. *The New Architecture and the Bauhaus*. New York, 1936.
_____. *Scope of Total Architecture*. London, 1956.
- Gromort, G. *L'Architecture in Histoire Generale de l'Art Français de la Révolution á nos Jours*. Paris, 1922.
- Guadet, J. *Éléments et Theories de l'Architecture*. 6th ed. Paris, 1929.
- Guibnebert, Charles. *The Migration of Symbols*. New York, 1956.
- Gutheim, F. *Alvar Aalto*. London,, 1960.
_____. *Frank Lloyd Wright: Selected Writings*. New York, 1941.
- Hamlin, T. *Forms and Functions of 20th Century Architecture*. New York.
- Hilberseimer, L. *Mies van der Rohe*. Chicago, 1956.
- Hitchcock, Henry-Russell Jr. *Modern Architecture. Romanticism and Reintegration*. New York, 1929.
_____. *In the Nature of Materials*. New York, 1942.
_____. *Architecture of the 19th and 20th Centuries*. London, 1952.
_____. *The International Style. Architecture Since 1922*. ed. Philip Johnson. New York, 1932.
_____. *Modern Architecture in England (with others)*. New York, 1937.
- Jaffe, H.L.C. *De Stijl—1917–31*. London and Amsterdam, 1956.
- Jammar, Max. *Concepts of Space*. New York, 1960.
- Joedicke, J. *A History of Modern Architecture*. London, 1959.
- Johnson, Philip. *Mies van der Rohe*. New York, 1947.
- Kaufmann, Edgar. *Frank Lloyd Wright, Writings and Buildings*. New York, 1960.

- Kepes, Gyorgy. *Language of Vision*. Chicago, 1948.
- Klee, Paul. *The Thinking Eye*. London, 1948.
_____. *Pädagogisches Skizzenbüch.* (Vol. 2, Bauhausbücher) Dessau, 1925.
- Koffka, Karl. *Principles of Gestalt Psychology*. New York, 1948.
- Labo, Mario. *Guiseppe Terragni*. Milan, 1947.
_____. *Alvar Aalto*. Milan, 1948.
- Langer, S. *Feeling and Form*. London.
- Le Corbusier. *Après le Cubisme*. Paris, 1918.
_____. *My Work*. London, 1960.
_____. *Le Corbusier et Pierre Jeanneret: Oeuvre Complète, 1910–1929*. Ed. Boesiger. Zurich, 1960.
_____. *Oeuvre Complète, 1929–1934*. Zurich, 1947.
_____. *Oeuvre Complète, 1934–1938*. Zurich, 1946.
_____. *Oeuvre Complète, 1946–1952*. Zurich, 1953.
_____. *Oeuvre Complète, 1952–1957*. Zurich, 1957.
_____. *La Charte d'Athens*. Paris, 1943.
_____. *New World of Space*. Boston, 1948.
_____. *Un Couvent de Le Corbusier*. Ed. J. Petit. Paris, 1961.
_____. *The City of Tomorrow*. London, 1929.
_____. *Une Maison—un Palais*. Paris, 1928.
_____. *Urbanisme*. Paris, 1925.
_____. *Vers une Architecture*. Paris, 1923.
_____. *The Marseilles Block*. London, 1953.
- Manson, G.C. *Frank Lloyd Wright into 1910*. New York, 1958.
- Martin, J.L. *Circle*. London, 1937.
- Moholy-Nagy, L. *The New Vision*. New York, 1928.
_____. *Vision in Motion*. Chicago, 1947.
- Montesi, Pio. *La Casa, 6. L'Architettura Moderna in Italia*. Rome, 1962.
- Morrison, H. *Louis Sullivan. Prophet of Modern Architecture*. New York, 1938.
- Mumford, Lewis. *The Culture of Cities*. New York, 1938.
_____. *Technics and Civilization*. New York, 1938.
- Neuenschwander, E.C. *Alvar Aalto and Finnish Architecture*. London, 1954.
- Ozenfant and Jeanneret. *Après le Cubisme*. Paris, 1919.
- Ozenfont, A. *Foundations of Modern Art*. London.

- Pagani, C. *Architettura Italiana Oggi*. Milan, 1955.
- Panofsky, Erwin. *Meaning in the Visual Arts*. New York, 1955.
_____. *Studies in Iconology*. New York, 1939.
- Persico, Eduardo. *Scritti, Critici e Polemici*. Ed. Alfonso Gatto. Milan, 1947.
- Persitz, A., ed. *L'Oeuvre de Mies van der Rohe*. France, 1958.
- Pevsner, N. *Pioneers of Modern Design*. London, 1960.
- Pica, A. *L'Architettura Moderna in Italia*. Milan, 1941.
_____. *Nuova Architettura Italiana*. Milan, 1936.
- Platz, G.A. *Die Baukunst der Neusten Zeit*. Berlin, 1927.
- Rasmussen, Steen Eiler. *Experiencing Architecture*. London, 1959.
- Robertson, H. *The Principles of Architectural Composition*. London, 1924.
- Rosenau, Helen. *The Ideal City in Its Architectural Evolution*. London, 1959.
- Santayana, George. *The Sense of Beauty*. New York, 1921.
- Sapir, Edward. *Language. An Introduction to the Study of Speech*. New York, 1921.
- Sartoris, Alberto. *Architettura Moderna in Italia*. Milan, 1941.
_____. *Gli Elementi dell'Architettura Functionale*. Milan, 1935.
_____. *Luci nella Scuola Moderna*. Como, 1940.
_____. *Encyclopédie de l'Architecture Nouvelle*. Milan, 1948.
- Scholfield, P.H. *The Theory of Proportion in Architecture*. Cambridge, 1958.
- Scott, Geoffrey. *The Architecture of Humanism*. Edinburgh, 1914.
- Scully, Vincent Jr. *Modern Architecture*. London, 1961.
- Smith, E.B. *Architectural Symbolism of Imperial Rome and the Middle Ages*. Princeton, 1956.
- Van Doesburg, Theo. *Classique—Baroque—Moderne*. Paris, 1921.
- Veronesi, Giulia. *Difficoltà Politiche dell'Architettura in Italia*. Milan, 1953.
- Weyl, Hermann. *Symmetry*. Princeton, 1952.
- Whittick, A. *European Architecture in the 20th Century*. 2 volumes. London, 1950–53.
- Wijdeveld, H.H. *Frank Lloyd Wright*. Amsterdam, 1925.

Wittkower, Rudolf. *Architectural Principles in the Age of Humanism*. London, 1949.

Wölfflin, Heinrich. *Principles of Art History*. Germany, 1915.

Wright, Frank Lloyd. *An Autobiography*. London, 1946.

_____. *Writings and Buildings*. Ed. Kaufmann. New York, 1961.

Zevi, Bruno. *Architecture is Space*. Ed. J. Barry. New York, 1957.

_____. *Architettura e Storiografia*. Milan, 1950.

_____. *Poetica dell'Architettura Neoplasticista*. Milan, 1950.

_____. *Storia dell'Architettura Moderna*. Turin, 1961.

_____. *Towards an Organic Architecture*. London, 1939.

Zurko, Edward de. *Origins of Functionalist Theory*. New York, 1957.

ARTICLES.

GENERAL.

Otto Senn. "Space as Form." *Werk*, Dec. 1955, 386-93.

Leo Ricco. "Space in Architecture." *Architectural Record*, 1957.

Bruno Zevi. "Della Cultura Architettonica." *Metpon*, 31-32. 1949.

Rex Martienssen. "Constructivism and Architecture. A New Chapter in the History of Formal Building." *South African Architectural Record*. Vol. 26, July 1941.

Walter Gropius. "The Formal and Technical Problems of Modern Architecture and Planning." *RIBA Journal*. May 1937.

F.J. Wepener. "Plastic Exploration." *S.A. Arch. Record*. May 1937.

I. Matsa. "Architectural Form." *Architektura*, S.S.P. 1941 (4).

W. Taesler. "Idee und Form." *Das Werk*. 1942, Feb.

Alvar Aalto. "Varans an Passing." *Form* 10. 1942.

H.M. Navarro. "Introduction to Architectural Theory." *Rev. de Arqui*. 1943 May.

Nils Ahrbom. "Function and Form." *Byggmastaren*. 1943, no 17.

E. Stockmeyer. "Measure and Number in Architecture." *Werk*. 1943, May.

H. Goodhart Rendel. "Style in Architecture." *R.I.A.Scot*. 1953 Feb.

Prof. A. Blomstedt. "The Problem of Form in Architecture." *Arkkitehti*. 1958 (12).

Lionello Venturi. "Per l'Architettura Nuova." *Casabella*. April, 1933.

G.C. Argan. "Il Pensiero Critico di Antonio Sant'Elia." *Casabella*, April 1933.

H. Russell Hitchcock. "Frank Lloyd Wright and the Academic Tradition of the Early Eighteen Nineties." *Journal of the Courtauld Institutes*. Vol. VII. 1944.

E.H. Gombrich. "The Visual Image in Neo-Platonic Thought." *Journal of the Warburg and Courtauld Inst.* Vol. XI. 1948.

Il Gruppo '7'. "Ristampe." *Quadrante*. 23 and 24. March and April 1933.

G.C. Argan. "The Architecture of Brunelleschi." *Journal of the Warburg and Courtauld Institutes*. Vol. IX, 1946.

L'Architecture Vivante. 1923-1933.

Appendix 2

The following is a list of key texts (as identified by Robert Slutzky) in the bibliography of Slutzky's 1952 B.F.A thesis at Yale. Source: Yale Manuscripts Collection, Yale University Archives.

- Hilaire Hiler, *Why Expressionism*, 1946.
 Morris Weitz, *Philosophy of the Arts*, Cambridge, 1950.
 Ogden, Richards and Wood, *Foundations of Esthetics*, New York, 1929.
 C.K. Ogden, *ABC of Psychology*, London, 1929.
 Gyorgy Kepes, *Language of Vision*, New York, 1944.
 Moholy-Nagy, *The New Vision*, New York, 1938.
 B.C. Heyl, *New Bearings in Esthetics and Art Criticism*, New Haven, 1943.
 Louis Danz, *The Psychologist Looks at Art*, New York, 1937.
 R. Rood, *Color in Light and Painting*.
 C. Johnson, *The Language of Painting*.
 A.P. McMahon, Preface to an *American Philosophy of Art*.
 Lloyd Mills, "The Art of Seeing," *Harvard Educational Review*, 1938.

The following lists Gestalt references in the bibliography of Robert Slutzky's May 1954 Master's Research Paper. Source: Yale Manuscripts Collection, Yale University Archives.

- W.D. Ellis, *A Source Book of Gestalt Psychology*, London, 1950.
 G.W. Hartmann, *Gestalt Psychology*, New York, 1935.
 K. Koffka, *Principles of Gestalt Psychology*, New York, 1935.
 L. Moholy-Nagy, *Education in Various Arts and Media for the Designer*, the Fortieth Yearbook of the National Society for the Study of Education, Art in American Life and Education, Public School Pub. Co.: Bloomington, Ill., 1941.
 Perls, Hefferline, Goodman, *Gestalt Therapy*, New York, 1951.
 Piaget, *Outside Readings in Psychology*, New York, 1950.
 H. Read, *Education Through Art*, London, 1943.

Appendix 3

The following excerpt is reproduced from George LeBoutillier's Architectural Sciences Course Outline, Summer 1943 Source: Harvard University Graduate School of Design Library, Special Collections.

WEEK 1

Elementary Design Geometry in layout for single stroke vertical lettering - caps & lower case. - Gothic

Inclined letters & numerals

WEEK 2

Roman caps and Roman single stroke

Review lettering - Roman title & single stroke gothic. etc.

Line study of space illusion

Planes in space, thru line

Planes in space with flat value

WEEK 3

Abstract rendered planes - space definition

Graphic analysis - full value - pencil

WEEK 4

Line analysis of previous study

Area & value pattern of same - flat

Abstract volume rendering in space planes

Geometric basic volumes in light & shade

Design of original volume in ortho- and isometric by application of Design Geometry - Dynamics

WEEK 5

Render above in space planes

Texture graphic analysis

Texture studies & comparisons: touch boards, texture scales, texture contrasts, Real & simulated texture. Material and design texture compared.

Appendix 4

The following excerpt is reproduced from George LeBoutillier's notes, for his summer 1945 Architectural Science 201 class. Source: Harvard University Graduate School of Design Library, Special Collections.

Outline of Course in Basic Materials

This course is suggested in connection with architectural sciences as a preliminary to specific study of materials in construction. This proposed course would be basic to architecture and industrial design to familiarize students with the standard materials and the general processes involved in their use.

Each classification of material would be studied in a simple use of the material in an abstract design, thus providing the student an opportunity to see, feel, and adapt the actual product to a presentation. When, in subsequent study, the use of these materials is considered in connection with construction, the student will already have experienced their physical properties in elementary use.

Materials: wood, manufactured wood products, metals, glass, ceramics, stone, brick, precast block, concrete, plastics, composition materials, other organic materials (rubber, cork, cellulose fibre, bamboo, rattan, cloth, paints etc.)

Appendix 5

The following excerpt is reproduced from George LeBoutillier's notes for Problem 10 of his Architectural Science 201 class, undated (ca. summer 1948). Source: Harvard University Graduate School of Design Library, Special Collections.

Problem 10.

August 25 - August 30

Lecture:

Texture

I. Definition of kinds of texture.

1. Material texture - tactile quality
2. Design texture - pattern
3. Graphic texture - medium use

II. Texture Function

1. Differentiation - cf. value
2. Accent & scale - cf line vs plane
3. Variety
4. Emotional stimulus (rare)

III. Comparison of texture with other elements - its interrelated character.

1. Texture & Value
 - a. - produces value condition
N.B.(light condition)
 - b. - provides progression & contrast
 - c. - changes value relation
2. Texture & Space
 - a. effect of space on texture
 - b. effect of texture on space
3. Texture & Volume.
 - a. Influence on shape & size
 - b. effect on character of volume-soft or hard

IV. Classification of texture:

1. Material -
 - a. Natural or inherent
 - b. Processed - tool marks, polish
2. Optical -
 - a. linear
 - b. dotted
 - c. Area pattern
 - d. Composite
3. Tactile -
 - a. soft, hard, rough etc.
4. Emotional
 - a. harsh, quiet, luxurious, restful, exciting
 - c. fast, slow, etc.

Appendix 6

The following excerpt is reproduced from George LeBoutillier's assignment for Problem 5 of his Architectural Science 201 class, dated Nov. 2, 1948. Source: Harvard University Graduate School of Design Library, Special Collections.

The purpose of this assignment is to offer an opportunity to investigate some of the functions of texture as a factor in design.

Part 1 - On a sheet of stiff paper, make as many areas of different graphic textures as you can. Cut these out and arrange nine of them as a scale so that the degree of contrast between each of the nine steps is approximately equal. Mount these on a sheet of 15 x 20 illustration board.

On the same sheet design a composition of areas in which three or four of the textures from the scale are used.

Part 2 - On a second sheet of 15 x 20 illustration board, arrange pieces of various material to produce a similar scale of material textures. Try to find materials which will yield a progression of differences to touch just as the previous scale provided a progression of visual differences.

Select from these materials suitable textures and make a collage designed on the same sheet. The choice of textures for this collage should be governed both by the tactile relationships produced as well as by the visual relationships.

With the long dimension vertical, letter your name, date, and problem number along the bottom of each sheet

Appendix 7

The following excerpt is reproduced from George LeBoutillier's notes for his Architectural Science 201 class (Design I), undated [ca. fall 1948]. Source: Harvard University Graduate School of Design Library, Special Collections.

I Summary

1. We have been formulating a theory:

- a) A structural system based on the psycho-physical reactions to visual relationships.
- b) It involves seven prime factors related in various combinations in space-time:

Point

Line

Area - surface and shape

Volume

Texture

Value

Color

- a) These factors include considerations of material, colors, light, and the physical structural forces as they apply to the manipulation of our environment as space.
- d) The relationships of these factors to produce the desired "emotional" responses : "affective values" is the designers' special concern.

e) The relationships depend upon "laws" - so far incompletely understood or formulated - but which work in this course is intended to suggest.

f) As with other scientific laws the limits of arrangement within them are set only by human imagination.

2. Problems the class has done:

a) the problems have been arranged to progress from the simplest factors - without apparent "practical" applications - to complex combinations with more evident architectural significance.

b) The purpose of the problems has been two-fold:

1- To encourage visual experimentation free of conventional subject-matter

2- To develop a design awareness and hence a critical judgement of visual compositions.

a) The success of the problems as value to the designers depend to a large degree upon the student's own determination to make the transition to applied uses. Here is the serious breakdown in the problems: too large a majority of the students who may have done fairly well on the "abstract" problems go into a fog just as soon as the assignment looks like an actual architectural problem.

d) the present assignment is offered as a last chance to abstract general principles from the work of the course and apply them to a realistic setting. In this problem, all material is realistic in character. The function of the design resulting from the use of that material has in it essentially the same demands on each of the prime factors as any one of the previous problems.

- e) To those students now or in the future taking Planning I make the earnest [sic] plea NOT to get bogged down first of all in technical and use details of a special building, but to make every effort at first to get a set of space and volume relationships which they would expect to find if the problem were to be done for this course. In name only is this course different from any other design course.

3. The question of motion in design:

We have already talked about the changes in appearance and in reaction to visual material when we move about it. In a painting we have seen that our experience of it can change "while we look at it": interchange between figure and ground; Changing impressions of spatial suggestion thru color and value; The pulls exerted [sic] by accents and textures. In the space model we have been concerned with the changing sensations of space as we considered, ourselves moving thru the arrangement. In the exercise [sic] with the light-modulator we turned the object, or moved around it and reassembled our various experiences of it. We found that color relationships changed according to the light in which we saw them and according to what color they might be placed next to.

- b) We might for a moment consider what the consequences would be of looking at a composition which itself was in motion. The animated pictorial material - cinema, animated cartoon, etc., the animated advertising signs, the fascination of clouds, running water, surf, etc., - all these demonstrate obviously the inherent interest in motion. Many efforts have been made by various designers to work with this as part of their material. Among the best known of these is Alexander Calder whose mobile sculptures have become practically synonymous with the word mobile. Others such as Moholy have worked with light in motion. So

far the field of movement as a design smaterial has been limited by limited studies in Kinetic design but there must surely be many new forms to be found.

4. Some basic notions which dominate most good design arrangements:

- | | | |
|--------------|------------|-------------|
| a) Unity | Balance | |
| b) Dominance | Contrast | |
| c) variety | Rhythm | Integration |
| d) Gesture | Discipline | |

Appendix 8

The following reprints a list of the basic visual design courses and their course descriptions taught at MIT, from c. 1946. Instructors listed in brackets; Preusser took over the Visual Fundamentals and Source: MIT Course catalogs, 1945-1965, Gyorgy Kepes papers, MIT Museum.

4.031, 4.0302. VISUAL FUNDAMENTALS.

The structure of two dimensional picture surfaces. The elements: point, line, shape, value, form, texture. Their organization: balance, dynamic equilibrium, tension, rhythm, proportion, etc. Experimentation with graphic tools in order to become acquainted with their potentialities.

4.031 [KEPES...PREUSSER]

I. PROPORTION

Symmetry and asymmetry in three dimensions, volume subdivisions are generated from symmetrical and random numbers. Main issue is visual extrapolation.

II. PERIODICITY

Nature of visual repetition. The invention of periodic cells one to one, one to two, two to three, etc. Translation of these patterns into three dimensions.

III. MASS

Form based on order achieved from sub-parts. Study of types of order from stacking, displacement and intersection. To particularize a volume increasing time of its visual exploration.

IV. MATERIALS

Study of form that emanates from the physical behavior and inherent visual qualities of materials. Objective being the synthesis of the physical and the visual.

V. SYNTHESIS

Study of the visual synthesis of analogous and opposite geometric volumes. The essence is the invention of transitions.

4.032 [KEPES...PREUSSER]

I. NUMBER

Translation of numerical quantity into a three-dimensional organization. Objective is the achievement of visual completeness for a specific number.

II. MODULARITY

The design of a geometric unit with modular properties and the use of it to construct spatial patterns that employ the most advanced sub-groupings that produce a variety of space cells.

III. SPACE COMPOSITION

The design of spaces that are pertinent to the proportions of a volume. The involvement of these spaces with one another through transparency, translucency and opaqueness.

IV. PARTICLE DEVELOPMENT

Form derived from the interpretation of the visual characteristics of a designed geometric particle. Systematic visual logic is the issue.

V. PLASTIC CONTINUITY

Exploration of non-verbal gestures. Form derived from gesture for which there is no verbal corollary. To sculpture form whose meaning is synonymous with private psychic feeling.

4.041, 4.042. LIGHT AND COLOR [KEPES]

Research in the organization of light and color in two and three dimensions. Studies in light modulation with cameraless photography, light modulators, light and shadow boxes. Space organization with light.

4.051, 4.052 GRAPHIC PRESENTATION (B) [KEPES]

Lettering, typographical layout, photomontage, collage, charts, diagrams, posters, etc. PHOTOGRAPHY. The study of light as a creative medium; photographic observation of subjects relevant to students of architecture.

4.053, 4.054. PAINTING (A) [KEPES]

Where the student has the opportunity to test his ability to express himself. DISPLAY, EXHIBITION AND STAGE TECHNIQUE. Utilization of the previous studies of light, color, and graphic expression in three dimensional relationships.

Eliminated in 1954-55 session.

Replaced by:

4.02. FORM AND DESIGN [FILIPOWSKI]

Study of visual and structural form inherent in the areas of design where art, science and technology are interdependent. Studio and work shop experiments to teach the student the proportion of spaces, scale, shape, volume, structure, texture, lines, plane or color to create and aesthetic form. Emphasis on relationships between imagination, materials, and techniques directed to enlarge the individual's form sense.

Appendix 9

The following notes are reproduced from Robert Preusser's teaching notes, ca. 1953-54. Source: MIT Library Archives, Box 3, Folder 28.

Visual Fundamentals

I. VISUAL ORDER*PERCEPTION*COMPOSITION

II. VISUAL ILLUSIONS

1. FLUCTUATION-FIGURE & BACKGROUND

2. SHAPE ILLUSION-Size-Character (line & background)

3. LINE ILLUSION-Size-Character

4. DIRECTION ILLUSION-Related to background area

5. COLOR & VALUE ILLUSION

6. RECEDING & ADVANCING

7. CONTROL OF COLOR-POSITION/TRANSPARENCY SIZE WITH LINE SHAPE

OVERLAPPING

8. TEXTURE ILLUSION

III. ORGANIZATION OF ALL ELEMENTS

IV. THREE ATTITUDES-PICTURE PLANE

1. DEEP SPACE-Illu. 3-dim. space

2. FLAT - emphasis 2-dim

3. INTERMEDIATE [i.e. pre-Renaissance perspective]

V. MODIFICATIONS OF PERSPECTIVE

1. AMPLIFIED

2. OMISSION - ATMOSPHERIC COLOR - LOOSING [sic] DETAIL

3. WITHOUT 3-DIM. VOLUMES

4. INVERSE

VI. MULTIPLE-SIMULTANEOUS PERSPECTIVE

1. AERIAL & FRONTAL
2. MANY VANISHING POINTS
3. DEPICTION OF MOTION - GESTURE Depicted-SUPERIMPOSITION

VII. SPACE WITHOUT PERSPECTIVE

1. SIZE CONTRAST
2. SIZE GRADATION
3. POSITION-VERTICAL LOCATION
4. OVERLAPPING
5. TRANSPARENCY

VIII. WORK FOR VARIATION: SIZE-VALUE-COLOR-TEXTURE-POSITION-DIRECTION-OVERLAPPING (transp&opq) SHAPE-NEGATIVE SPACES-BACKGROUND AREAS etc.

Bibliography

Archives

Architectural Association Library, London, England
 Architectural League of New York, New York
 Archives of American Art, Boston, Mass.
 Cambridge University Library, Cambridge, England
 Harvard University Graduate School of Design Special Collections, Cambridge, Mass.
 Josef Albers papers, Yale University Manuscript Collections, New Haven, Conn.
 MIT Archives, Cambridge, Mass.
 MIT Museum, Cambridge, Mass.
 Mies van der Rohe Archives, Museum of Modern Art, New York
 Museum of Modern Art Archives, New York City
 Pollock-Krasner Study Center, Springs, New York
 Walter Gropius Archives, Houghton Library, Harvard University, Cambridge, Mass.
 Yale University Archives, New Haven, Conn.

Bibliography

- Abercrombie, Stanley. *Architecture as Art. An Esthetic Analysis*. New York: Van Nostrand Reinhold, 1984.
- Achilles, Rolf, Kevin Harrington, and Charlotte Myhrum, eds. *Mies van der Rohe: Architect as Educator*. Chicago: University of Chicago Press, 1986.
- Ackerman, James S. "The Demise of the Avant-Garde: Notes on the Sociology of Recent American Art." *Comparative Studies in Society and History* 11 (1969): 371-84.
- Albers, Josef. *The Interaction of Color*. New Haven: Yale University Press, 1963.
- . *Glass, Color, and Light*. New York: Guggenheim Museum, 1994.
- Alloway, Lawrence, ed. *Topics in American Art since 1945*. New York: Norton, 1975.
- American Institute of Architects, and Wolf von Eckardt. *Mid-Century Architecture in America; Honor Awards of the American Institute of Architects, 1949-1961*. Washington, D.C.: American Institute of Architects, 1961.
- Arnheim, Rudolf. *Art and Visual Perception*. Berkeley: University of California Press, 1954.
- . *The Dynamics of Architectural Form*. Berkeley: University of California Press, 1977.
- . *Toward a Psychology of Art*. Berkeley: University of California Press, 1966.
- "Art et Architecture." *L'Architecture d'Aujourd'hui*, December 1992, 59-137.
- Banham, Reyner. *Theory and Design in the First Machine Age*. London: Architectural Press, 1960.
- . "The history of the immediate future." *RIBA Journal* 68 (1962): 252-7.
- . "Motherwell and Others." *Architectural Review* 140 (July 1966): 61.

- . "The New Brutalism." *Architectural Review*, December 1955, 356.
- . *The New Brutalism: Ethic or Aesthetic?* New York: Reinhold, 1966.
- Bannister, Turpin C., ed. *The Architect at Mid-Century: Evolution and Achievement*. New York: Reinhold, 1954.
- Barr, Jr., Alfred. *Cubism and Abstract Art*. New York: Museum of Modern Art, 1936.
- . *What is Modern Painting?* New York: Museum of Modern Art, 1943.
- Barr, Jr., Alfred, Henry-Russell Hitchcock, Philip Johnson, and Lewis Mumford. *Modern Architects* (New York: Museum of Modern Art, W.W. Norton, 1932).
- Baudrillard, Jean. *Simulations*. New York: Semiotext(e), 1983.
- Benevolo, Leonardo. *History of Modern Architecture*. 2 vols. Cambridge, Mass.: MIT Press, 1971.
- Benezra, Neal David. *The Murals and Sculpture of Josef Albers*. Phd. diss. New York: Garland, 1985.
- Benjamin, Walter. *Illuminations*. Trans. Harry Zohn. New York: Schocken Books, 1969.
- Berman, Marshall. *All That is Solid Melts into Air: The Experience of Modernity*. New York: Simon and Schuster, 1982.
- Bitterman, Eleanor. *Art in Modern Architecture*. New York: Reinhold, 1952.
- Blake, Peter. *No Place Like Utopia: Modern Architecture and the Company We Kept*. New York: Alfred A. Knopf, 1993.
- Blake, Peter, and Philip Johnson. "Architectural Freedom and Order: An Answer to Robert W. Kennedy." *Magazine of Art*, October 1948, 228-231.
- Blaser, Werner. *After Mies. Mies van der Rohe—Teaching and Principles*. New York: Van Nostrand Reinhold, 1977.
- Blau, Eve, ed. *Architecture and Cubism*. Cambridge, Mass.: MIT Press, 1997.
- Bletter, Rosemarie Haig. "Opaque Transparency." *Oppositions* 13 (1978): 121-26.
- Blum, John Morton. *V was for Victory: Politics and American Culture During World War II*. New York: Harcourt Brace Jovanovich, 1976.
- Bois, Yve-Alain. "El Lissitzky: Radical Reversability." *Art in America*, April 1988, 160-81.
- . "Metamorphosis of Axonometry." *Daidalos*, September 1981, 41-58.
- . "Mondrian and the Theory of Architecture." *Assemblage* 4 (1987): 103-130.
- . *Painting as Model*. Cambridge, Mass.: MIT Press, 1990.
- Bostick, Joel, and Gianni Pettena. *Architectural Teaching USA*. Florence: la Conti Tipocolor Calenzano, 1985.
- Bosworth, Jr., F.H., and Roy Childs Jones. *A Study of Architectural Schools*. New York: Charles Scribner's, 1932.
- Boyd, Robin. *The Puzzle of Architecture*. New York: Cambridge University Press, 1965.

- Breslin, James E. *Mark Rothko: A Biography*. Chicago: University of Chicago: 1993
- Brice, William. "Concerning Painting and Architecture." *Arts and Architecture*, August 1953, 20.
- Bryson, Norman. *Looking at the Overlooked: Four Essays on Still Life Painting*. Cambridge, Mass.: Harvard University Press, 1990.
- Buchloh, Benjamin, Serge Guilbaut, and David Solkin, eds. *Modernism and Modernity*. Halifax: Nova Scotia College of Art and Design, 1983.
- Buchloh, Benjamin. "The Primary Colors for the Second Time: A Paradigm Repetition of the Neo-Avant-Garde." *October* 37 (1986): 41-52.
- . Review of *Theory of the Avant-garde*, by Peter Bürger. *Art in America*, November 1984, 19.
- Buck-Morss, Susan. *The Dialectics of Seeing: Walter Benjamin and the Arcades Project*. Cambridge, Mass.: MIT Press, 1989.
- Bürger, Peter. *Theory of the Avant-Garde*. Trans. Michael Shaw. Minneapolis: University of Minnesota Press, 1984.
- Bürger, Christa, and Peter Bürger. *Postmoderne: Alltag, Allegorie und Avantgarde*. Frankfurt: Suhrkamp, 1987.
- Caragonne, Alexander. *The Texas Rangers: Notes from an Architectural Underground*. Cambridge, Mass.: MIT Press, 1995.
- Carmean, E.A. "The Church Project: Pollock's Passion Themes." *Art in America*, Summer 1982, 110-122.
- . *Mondrian: The Diamond Compositions*. Washington, D.C.: National Gallery of Art, 1979.
- Carter, Peter. "Mies van der Rohe," *Architectural Design* 31 (March 1961): 95-121.
- Champa, Kermit Swiler. *Mondrian Studies*. Chicago: University of Chicago Press, 1985.
- Chave, Anna. *Mark Rothko: Subjects in Abstraction*. New Haven: Yale University Press, 1989.
- Chermayeff, Serge. "Painting Towards Architecture." *Arts & Architecture*, June 1948, 24-31.
- Collins, Peter. *Changing Ideals in Modern Architecture 1750-1950*. London: Faber and Faber, 1965.
- Colquhoun, Alan. "From Bricolage to Myth: or how to put Humpty-Dumpty together again," *Oppositions* 12 (1978): 1-19.
- Columina, Beatriz. "Le Corbusier and Photography." *Assemblage* 4 (1987): 7-23.
- Columbia University School of Architecture. *Columbia University School of Architecture*. Exhibition Catalog . New York: Columbia University, 1954.
- The Cooper Union. *Education of an Architect*. New York: Cooper Union, 1971.
- Costanzo, Michele, Vincenzo Giorgi, and Maria Grazia Tolomeo, eds. *Richard Meier Frank Stella: Arte e Architettura*. Milan: Electa, 1993.
- Crane, Diana. *The Transformation of the Avant-Garde: The New York Art World, 1940-1985*. Chicago: University of Chicago Press, 1987.
- Damaz, Paul. *Art in European Architecture*. New York: Reinhold, 1956.

- Diamonstein, Barbaralee. *Collaboration, Artists and Architects*. New York: Whitney Library of Design, 1981.
- Dietrich, Dorothea. *The Collages of Kurt Schwitters*. New York: Cambridge University Press, 1993.
- Drexler, Arthur, and Henry-Russell Hitchcock, eds. *Built in USA: Post-war Architecture*. New York: Simon & Schuster, 1952.
- Drexler, Arthur. "Unframed space; a museum for Jackson Pollock's paintings." *Interiors*, January 1950, 90-1.
- von Eckardt, Wolf, ed. *Mid-Century Architecture*. Baltimore, Johns Hopkins Press, 1961.
- Erenburg, Ilia. *Post-War Years, 1945-1954*. London: MacGibbon & Kee, 1966.
- Eisenman, Peter. "The Formal Basis of Modern Architecture." Ph.D. diss., Trinity College, 1963.
- . "The Futility of Objects: Decomposition and the Processes of Difference." *The Harvard Architectural Review* 3 (1984): 65-81.
- Eisenman, Peter, Michael Graves, Charles Gwathmey, John Hejduk, and Richard Meier. *Five Architects*. New York: Wittenborn, 1972.
- Elizabeth Mock, ed. *Built in USA: Since 1932*. New York: Museum of Modern Art, 1945.
- Evans, Robin. *The Projective Cast*. Cambridge, Mass.: MIT Press, 1995.
- . *Translations from Drawing to Building and Other Essays*. Cambridge, Mass.: MIT Press, 1997.
- Findeli, Alain. *Du Bauhaus à Chicago: les années d'enseignement de Laszlo Moholy-Nagy*. Ph.D. diss., Université de Paris VIII: Vincennes, 1989.
- Fleming, Donald and Bernard Bailyn, eds. *The Intellectual Migration: Europe and America, 1930-1960*. Cambridge, Mass.: Harvard University Press, 1969.
- Floyd, Margaret Henderson, ed. *Architectural Education and Boston*. Boston: Boston Architectural Center, 1989.
- Foucault, Michel. *The Order of Things*. New York: Vintage, 1973.
- Frampton, Kenneth. *Modern Architecture: A Critical History*. New York: Oxford University Press, 1980.
- Freeman, Ralph Evan. *Postwar Economic Trends in the United States*. New York: Harper, 1960.
- Fried, Michael. "Art and Objecthood." In *Minimal Art: A Critical Anthology*, ed. Gregory Battcock. New York: E.P. Dutton, 1968. Originally published in *Artforum*, June 1967.
- . *Three American Painters*. Cambridge, Mass.: Fogg Art Museum, 1965.
- Frisby, David. *Fragments of Modernity*. Cambridge, Mass.: MIT Press, 1986.
- Das Frühe Bauhaus und Johannes Itten: Katalogbuch anlässlich des 75. Gründungsjubiläums des Staatlichen Bauhauses in Weimar*. Ostfildern-Ruit: Gerd Hatje, 1994.
- Gans, Herbert. *Popular Culture and High Culture*. New York: Basic Books, 1974.
- Giedion, Siegfried. *Space, Time and Architecture*, 5th rev. ed. Cambridge, Mass.: Harvard, 1967.

- Gilbert, James Burkhardt. *Another Chance: Postwar America, 1945–1968*. Philadelphia: Temple University, 1981.
- Gillam, Richard. *Power in Post War America*. Boston: Little, Brown, 1971.
- Goldman, Eric F. *The Crucial Decade, 1945-60*. New York: Vintage, 1960.
- Gough, Piers, Joseph Rykwert, and Ted Hollamby. "Positively the Last Word?" *Crafts*, no. 80, May/June 1986, 14-15.
- Gowan, James. "The Architectural Drawing: An Alignment with Painting." *Architectural Design* 59, no. 3/4 (1989): 6-7.
- Gowan, James, ed. *A Continuing Experiment; Learning and Teaching at the Architectural Association*. London: Architectural Press, 1975.
- Grabow, Stephen. *Christopher Alexander: The Search for a New Paradigm in Architecture*. Stocksfield: Oriel Press, 1983.
- Greenberg, Clement. *Art and Culture*. Boston: Beacon, 1961.
- . *Avant-Garde Attitudes: New Art in the Sixties*. Sydney: Power Institute of Fine Arts, 1969.
- . *The Collected Essays and Criticism*. 4 vols. Ed. John O'Brian. Chicago: University of Chicago Press, 1988.
- Guilbaut, Serge. *How New York Stole the Idea of Modern Art: Abstract Expressionism, Freedom, and the Cold War*. Trans. Arthur Goldhammer. Chicago: University of Chicago Press, 1983.
- . *Reconstructing Modernism: Art in New York, Paris, and Montreal (1945–64)*. Cambridge, Mass.: MIT Press, 1990.
- Harris, Mary. *The Arts at Black Mountain College*. Cambridge, Mass.: MIT Press, 1987.
- Harrison, Charles, and Fred Orton, eds. *Modernism, Criticism, Realism*. New York: Harper & Row, 1984.
- Hays, K. Michael. *Modernism and the Posthumanist Subject*. Cambridge, Mass.: MIT Press, 1992.
- Hejduk, John. *John Hejduk: 7 Houses*. Introduction by Peter Eisenman. New York: Institute for Architecture and Urban Studies, 1980.
- . *Mask of Medusa: Works, 1947-1983*. Ed. Kim Shkapich. New York: Rizzoli, 1985.
- Hejduk, John, and Robert Slutzky. *The Diamond in Painting and Architecture*. Exhibition catalog. New York: Architectural League of New York, 1967.
- Henry, George and Nelson Wright. *Tomorrow's House*. New York: Simon and Schuster, 1945.
- Herbert, Gilbert. *The Dream of the Factory-Made House*. Cambridge: MIT Press, 1984.
- Herdeg, Klaus. *The Decorated Diagram: Harvard Architecture and the Failure of the Bauhaus Legacy*. Cambridge, Mass.: MIT Press, 1983.
- Hitchcock, Henry-Russell. *Architecture: Nineteenth and Twentieth Centuries*. Harmondsworth: Penguin, 1958.
- . *Education of Architects and City Planners*. Cambridge, Mass.: Massachusetts Institute of Technology School of Architecture and Planning, 1949.

- Hitchcock, Henry-Russell and Arthur Drexler, eds. *Built in USA: Post-war Architecture*. New York: Simon & Schuster, 1952.
- Hitchcock, Henry-Russell and Philip Johnson. *The International Style*. New York: W.W. Norton, 1932.
- Hobbs, Robert Carleton, and Gail Levine. *Abstract Expressionism: The Formative Years*. New York: Whitney Museum, 1978.
- Hoffman, Katherine, ed. *Collage: Critical Views*. Ann Arbor: UMI Research Press, 1989.
- Itten, Johannes. *Mein Vorkurs am Bauhaus*. Ravensburg: Otto Maier Verlag, 1963.
- . *The Art of Color*. Trans. Ernst van Haagen. New York, Reinhold, 1966.
- Jacobus, John. *Twentieth Century Architecture: The Middle Years 1940-6*. New York: Praeger, 1966.
- Janis, Harriet, and Rudi Blesh. *Collage: Personalities Concepts Techniques*. Philadelphia: Chilton, 1967.
- Joedicke, Jürgen. *Architecture Since 1945*. New York: Praeger, 1969.
- Johnson, Philip. "An Artist in Architecture," *GSD News*, Fall 1995, 33.
- . *Mies van der Rohe*. New York: Museum of Modern Art, 1947.
- . "School at Hunstanton." *Architectural Review*, September 1954, 148-162.
- Josef Albers: A Retrospective*. New York: Solomon R. Guggenheim Foundation, 1988.
- Jumonville, Neil. *Critical Crossings: The New York Intellectuals in Postwar America*. Berkeley: University of California, 1991.
- Kahnweiler, Daniel-Henry. *Juan Gris, His Life and Work*. Rev. ed. Trans. Douglas Cooper. New York: Abrams, 1969.
- Kallmann, Gerhard, ed. *Four Great Makers of Modern Architecture: Gropius, Le Corbusier, Mies van der Rohe, Wright*. New York: Columbia University, 1961.
- Kandinsky, Wassily. *Point and Line to Plane*. Ed. Hilla Rebay. New York: Solomon R. Guggenheim Foundation, 1947. Originally published as *Punkt und Linie zu Fläche*, eds. Walter Gropius and L. Moholy-Nagy (Dessau: Bauhaus, 1926).
- Kauffmann, Jr., Edgar. *What is Modern Design?* New York: Museum of Modern Art, 1950.
- Kellein, Thomas. *Mark Rothko, Kaaba in New York* Exhibition catalogue, 19 February- 7 May 1989. Basel: Kunsthalle Basel, c1989.
- Kepes, Gyorgy. *Language of Vision*. Chicago: Paul Theobald, 1944.
- . *Module, Proportion, Symmetry, Rhythm*. New York: Braziller, 1966.
- . "Notes on Expression and Communication in the Cityscape." *Arts & Architecture*, August 1961, 17.
- Kepes, Gyorgy, ed. *The Visual Arts Today*. Middletown, Conn.: Wesleyan University Press, 1960.
- Kootz Gallery. *The Muralist and the Modern Architect*. Exhibition catalog, Oct. 3-23, 1950.
- Kozloff, Max. "American Painting During the Cold War." *Artforum* 11 (1973): 43-54.

- Krauss, Rosalind. *The Optical Unconscious*. Cambridge, Mass.: MIT Press, 1993.
- . *The Originality of the Avant-Garde and Other Modernist Myths*. Cambridge, Mass.: MIT Press, 1985.
- Landau, Royston. "Architectural discourse and Giedion," *Journal of Architecture* 1 (Spring 1996): 59-73.
- . "British architecture, the culture of architecture: the historiography of the current discourse." *UIA international architect / International Union of Architects* 5 (1984): 6-9.
- . "The end of CIAM and the role of the British." *Rassegna* 14 (December 1992): 40-47.
- . "The history of modern architecture that still needs to be written," *AA files* 21 (Spring 1991): 49-54.
- Langsner, Jules. "More about the School of New York." *Arts & Architecture*, May 1951, 20, 46.
- Lefavre, Liane, and Alexander Tzonis. "The Question of Autonomy in Architecture." *The Harvard Architectural Review* 3 (1984): 27-42.
- Léger, Ferdinand, Paul Nelson, and Emmanuel Auricoste, "Reflexions sur l'integration de la peinture et de la sculpture dans l'architecture," *i 4 Soli*, (1954): 8-10.
- Leja, Michael. *Reframing Abstract Expressionism*. New Haven: Yale University Press, 1993.
- Levi-Strauss, Claude. *The Savage Mind*. Chicago: University of Chicago Press, 1966.
- Lipstadt, Hélène. "Architecture and its Image: Notes Towards the Definition of Architectural Publication." *Architectural Design* 59, no. 3/4 (1989): 12-23.
- Lupton, Ellen, and J. Abbott Miller. *The ABCs of ▲■●: The Bauhaus and Design Theory* Princeton: Princeton Architectural Press, 1991.
- Margolius, Ivan. *Cubism in Architecture and the Applied Arts*. Newton Abbot: David & Charles, 1979.
- Martin, J.L. *Buildings and Ideas, 1933-8*. Cambridge: Cambridge University Press, 1983.
- Martin, J.L. Ben Nicholson, and Naum Gabo, eds. *Circle; International Survey of Constructive Art*. London: Faber and Faber, 1937.
- Mathews, Jane DeHart. "Art and Politics in Cold War America." *American Historical Review* 81 (1976): 762-87.
- Meier, Richard. *Richard Meier Collages*. New York: St. Martin's Press, 1990.
- Mertins, Detlef, ed. *The Presence of Mies*. New York: Princeton Architectural Press, 1994.
- Miller Company. *Painting Toward Architecture*. Text by Henry-Russell Hitchcock, foreword by Alfred H. Barr. New York: Duell, Sloan and Pearce, 1948.
- Millon, Henry A. "Rudolf Wittkower, *Architectural Principles in the Age of Humanism*: Its Influence on the Development and Interpretation of Modern Architecture," *Journal of the Society of Architectural Historians* 31 (1972): 83-91.
- Moholy-Nagy, Laszlo. *The New Vision*. Trans. Daphne M. Hoffman. New York: Wittenborn, 1946. Originally published as *Vom Material zu Architektur* (Berlin, 1928).
- . *Vision in Motion*. Chicago: Paul Theobald, 1947.

- von Moos, Stanislaus. *Le Corbusier: Elements of a Synthesis*. Cambridge, Mass.: MIT Press, 1979.
- Motherwell, Robert. *Robert Motherwell, the Collaged Image*. Minneapolis, Minn.: Walker Art Center, 1985.
- Motherwell, Robert, ed. *The Dada Painters and Poets*. New York: Wittenborn, Schultz, Inc., 1951.
- "The Muralist and the Modern Architect." *Arts & Architecture*, April 1951, 18-19.
- Müller, Michael. *Architektur und Avantgarde: ein vergessenes Projekt der Modern?* Frankfurt am Main: Syndikat, 1984.
- Museum of Modern Art. *What is Modern Architecture*. New York: Museum of Modern Art, 1942.
- . "What is Happening to Modern Architecture?" *The Museum of Modern Art Bulletin* 15, no. 3 (Spring 1948).
- Naifeh, Steven, and Gregory White Smith. *Jackson Pollock: An American Saga*. New York: Clarkson N. Potter, 1989.
- Naylor, Gillian. *De Stijl: Abstraction or Architecture?* *Studio International* 190 (1975): 98-102.
- O'Connor, Francis, and Eugene V. Thaw, eds. *Jackson Pollock: Catalogue Raisonné of Paintings, Drawings, and Other Works*. New Haven: Yale University Press, 1978.
- Ockman, Joan, ed. *Architectureproduction*. New York: Princeton Architectural Press, 1988.
- Oechslin, Werner. "From Piranesi to Libeskind—Explaining by Drawing." *Daidalos*, September 1981, 15-19.
- "Oeuvres Croisées: Frank Stella—Richard Meier." *Techniques et Architecture*, no. 358, 1985, 82-86.
- Olivier, Richard, ed. *The Making of an Architect: 1881-1981*. New York: Rizzoli, 1981.
- "On Art and Architecture." Transcript of a discussion, the third on art and architecture, from the program 'Yale Reports.' *Arts and Architecture*, August 1959, 18-19, 32-4.
- Pasmore, Victor. "Connection between Painting, Sculpture and Architecture." *Zodiac* 1 (1957): 63-71.
- Payne, Alina A. "Rudolf Wittkower and Architectural Principles in the Age of Modernism," *Journal of the Society of Architectural Historians* 53 (1994): 322-342.
- Philips, Lisa. *Frederick Kiesler*. New York: Whitney Museum, 1989.
- Pincus-Witten, Robert. *Postminimalism into Maximalism: American Art, 1966-1986*. Ann Arbor: UMI Research Press, 1987.
- Podro, Michael. *The Critical Historians of Art*. New Haven: Yale University Press, 1982.
- Poggi, Christine. *In Defiance of Painting: Cubism, Futurism, and the Invention of Collage*. New Haven: Yale University Press, 1992.
- Poggioli, Renato. *The Theory of the Avant-Garde*. Cambridge, Mass.: Harvard University Press, 1968.
- Potter, Jeffrey. *To a Violent Grave: An Oral Biography of Jackson Pollock*. New York: G.P. Putnam's Sons, 1985.
- Ragon, Michel. "Architecture et art abstrait." *Cimaise*, no. 4, March/April 1957, 26-8.

- Rasmussen, Steen Eiler. *Experiencing Architecture*. 2nd ed. Cambridge, Mass.: MIT Press, 1963.
- Reichlin, Bruno. "Reflections—Interrelations between Concept, Representation and Built Architecture." *Daidalos*, September 1981, 60-73.
- Robbins, David, ed. *The Independent Group: Britain and the Aesthetics of Plenty*. Cambridge, Mass.: MIT Press, 1990.
- Rodari, Florian. *Collage: Pasted, Cut, and Torn Papers*. New York: Skira/Rizzoli, 1988.
- Rose, Barbara. *American Painting: The Twentieth Century*. New York: Rizzoli, 1980.
- Rossi, Aldo. *The Architecture of the City*. Trans. Diane Ghirardo and Joan Ockman. Cambridge, Mass.: MIT Press, 1982. Originally published as *L'architettura della città* (Padua: Marsilio Editori, 1966).
- Rowe, Colin. *As I Was Saying: Recollections and Miscellaneous Essays*. Edited by Alexander Caragonne. 3 vols. Cambridge, Mass.: MIT Press, 1996.
- . *The Architecture of Good Intentions*. London: Academy, 1994.
- . *The Mathematics of the Ideal Villa and Other Essays*. Cambridge, Mass.: MIT Press, 1976.
- Rowe, Colin, and Fred Koetter. *Collage City*. Cambridge, Mass.: MIT Press, 1978.
- Rowe, Colin, and Robert Slutzky. *Transparency*. Basel: Birkhäuser-Verlag, 1997. Originally published as *Transparenz, Kommentar von Bernhard Hoesli. Le Corbusier Studien 1* (Basel: Birkhäuser-Verlag, 1968).
- Sandler, Irving. *The Triumph of American Painting*. New York: Praeger, 1970.
- Scarry, Elaine. *The Body in Pain*. New York: Oxford University Press, 1985.
- Schlesinger Jr., Arthur. *The Vital Center: The Politics of Freedom*. Boston: Riverside Press, 1962.
- Schneider, Bernhard. "Perspective Refers to the Viewer, Axonometry Refers to the Object." *Daidalos*, September 1981, 81-95.
- Schulze, Franz. *Mies van der Rohe: A Critical Biography*. Chicago: University of Chicago Press, 1985.
- . *Philip Johnson*. New York: Alfred A. Knopf, 1994.
- Schwartz, Hillel. *The Culture of the Copy*. New York: Zone Books, 1996.
- Scully, Vincent. *Modern Architecture*. Rev. ed. New York: Braziller, 1989.
- Scott-Brown, Denise. "Art and Architecture: Art in Architecture." *Lotus International*, no. 73 (1992): 128.
- Seitz, William C. *The Art of Assemblage*. New York: Museum of Modern Art, 1961.
- Sert, Jose Luis. "How to Combine Architecture, Painting, and Sculpture." *Interiors*, May 1951, 103, 105.
- Shapiro, David, and Cecile Shapiro. "Abstract Expressionism: The Politics of Apolitical Painting." *Prospect* 3 (1976): 175-214.
- Shapiro, Meyer. *Modern Art: 19th and 20th Centuries*. New York: George Braziller, 1978.
- Shillaber, Caroline. *Massachusetts Institute of Technology School of Architecture and Planning 1861-1961: A Hundred Year Chronicle*. Cambridge, Mass.: Massachusetts Institute of Technology, 1963.

- Slutzky, Robert. "An Examination of 'Actual Surface' in Oil Painting." B.F.A. thesis, Yale University, 1952.
- . "Art, Education, and Gestalt." M.F.A. thesis, Yale University, 1954.
- Smithson, Alison, and Peter Smithson. *Urban Structuring: Studies of Alison and Peter Smithson*. London: Studio Vista, 1967.
- Smithson, Peter. "The Idea of Architecture in the 50s." *Architect's Journal* 131 (1960): 121-26.
- Somol, R.E. "Oublier Rowe." *ANY*, no. 7/8, 1994, 8-15.
- Somol, R.E., ed. *Autonomy and Ideology*. New York: Monacelli Press, 1997.
- Sorzano, Margaret. "17 Modern American Painters: A Recent Exhibition at the Frank Perls Gallery." *Arts & Architecture*, January 1951, 26.
- Spies, Werner. *Josef Albers*. Trans. Herma Plummer. London: Thames and Hudson, 1971.
- Stella, Frank. *Shards*. Introduction by Richard Meier. London: Petersburg Press, 1983.
- Stern, Robert. "Yale 1950-1965." *Oppositions* 4 (1974): 35-62.
- Sting, Hellmuth. *Der Kubismus und Seine Einwirkung auf die Wegbereiter der Modernen Architektur*. Phd. diss., Rheinisch-Westfälischen Technischen Hochschule, 1965.
- Sweeney, James Johnson. *Vision and Image*. New York: Simon and Schuster, 1967.
- "A Symposium on How to Combine Architecture, Painting and Sculpture." *Interiors*, August 1951, 100-105.
- Tafuri, Manfredo. *Architecture and Utopia*. Trans. Barbara Luigia La Penta. Cambridge, Mass.: MIT Press, 1976.
- . *The Sphere and the Labyrinth*. Trans. Pellegrino d'Acierno and Robert Connolly. Cambridge, Mass. MIT Press, 1987.
- . *Theories and History of Architecture*. Trans. Giorgio Verrecchia. New York: Harper & Row, 1980. Originally published as *Teorie e storia dell'architettura*, 4th ed. (Rome: Laterza & Figli, 1976).
- Tafuri, Manfredo and Francesco Dal Co. *Modern Architecture*. 2 vols. Trans. Robert Erich Wolf. New York: Harry N. Abrams, 1979.
- Tate Gallery. *Mark Rothko*. Exhibition catalog, 17 June-1 September 1987. London: Tate Gallery, 1987.
- . *Mark Rothko: The Seagram Mural Project*. Exhibition catalogue, 28 May 1988-12 February 1989. With an introductory essay by Michael Compton. London: Tate Gallery, 1988.
- Thompson, D'Arcy. *On Growth and Form*. Cambridge: University Press, 1917.
- Turner, Judith. *Judith Turner Photographs Five Architects*. Introduction by John Hejduk. New York: Rizzoli, 1980.
- Ungers, O.M. "Neue Stadt." *Werk*, July 1963, 281.
- Venturi, Robert. *Complexity and Contradiction in Architecture*. New York: Museum of Modern Art, 1966.
- Viola, Wilhelm. *Child Art and Franz Cizek*. Vienna: Austrian Red Cross, 1936.

-
- Waldman, Diane. *Collage, Asemblage, and the Found Object*. New York: Abrams, 1992.
- Wescher, Herta. *Collage*. Trans. Robert E. Wolf. New York: Abrams, 1971.
- Whitechapel Art Gallery. *This is Tomorrow*. Exhibition catalog. London: Whitechapel Art Gallery, 1956.
- Whitely, Nigel. "Banham and *Otherness*: Reyner Banham and his Quest for an *Architecture Autre*," *Architectural History* 33 (1990): 188-219.
- Wigley, Mark. *White Walls, Designer Dresses: The Fashioning of Modern Architecture*. Cambridge, Mass.: MIT Press, 1995.
- Wingler, Hans M. *Bauhaus in America*. Berlin: Bauhaus-Archiv, 1972.
- Wittkower, Rudolph. *Principles in the Age of Humanism*. 3rd rev. ed. New York: Norton, 1962. Original edition, London, 1949.
- Wölfflin, Heinrich. *Principles of Art History*. Trans. M. D. Hottinger. New York: Dover, 1950. Originally published as *Kunstgeschichtliche Grundbegriffe* (Munich, 1915).
- . *Renaissance and Baroque*. Trans. Kathrin Simon. Ithaca: Cornell University Press, 1967. Originally published as *Renaissance und Barock* (Munich, 1908).
- Wolfram, Eddie. *History of Collage: an Anthology of Collage, Assemblage, and Event Structures*. London: Studio Vista, 1975.
- Wolner, Edward. "Art: Architecture." *Journal of Architectural Education* 44 (1991): 248-51.
- Worringer, Wilhelm. *Abstraction and Empathy*. Trans. Michael Bullock. London: Routledge and Kegan Paul, 1953. Originally published as *Abstraktion und Einfühlung* (Munich, 1919).
- Zinn, Howard. *Postwar America: 1945-1971*. Indianapolis: Bobbs-Merrill, 1973.

List of Illustrations

Introduction

- 1 *Pencil Points*, June 1944, p. 30.
- 2 *Pencil Points*, August 1944, p. 30.
- 3 *Pencil Points*, October 1944, p. 32.
- 4 *Progressive Architecture*, January 1946, p. 32.
- 5 *Progressive Architecture*, January 1948, p. 33.
- 6 *Progressive Architecture*, January 1949, p. 33.

Drawing and Architecture

- 1 George LeBoutillier, diagram for Architectural Science 3a, 1945, p. 66.
- 2 George LeBoutillier, sketch for problem 2, Architectural Science 210, 1948, p. 69.
- 3 George LeBoutillier, sketch for problem 2, Architectural Science 210, 1948, p. 69.
- 4 George LeBoutillier, sketches for Architectural Science 201, 1948, p. 70.
- 5 Robert Preusser, color gouache sketches and notes for 4.031, Visual Design Problems class, c. 1953, p. 76.
- 6 Robert Slutzky, *Red Square*, 1955, p. 78.

Painting and Architecture

- 1 Photo of Jackson Pollock by Hans Namuth, p. 88.
- 2 Jackson Pollock, Cutout, 1948, p. 94. Ohara Museum of Art, Kurashiki, Japan.
- 3 Jackson Pollock, Hobby Horse, 1948-50, p. 94. Moderna Museet, Stockholm.
- 4 Jackson Pollock, Number 29, 1950, p. 96. National Gallery of Canada.
- 5 Juan Miro, Terrace Plaza Hotel Mural, 1948, p. 106.
- 6 Symposium cover, "What is Happening to Modern Architecture?", p. 110.
- 7 Doesburg/Mies comparison in Giedion, *Space, Time and Architecture*, p. 117.
- 8 Piet Mondrian, Victory Boogie-Woogie, 1943-44, p. 121. Museum of Modern Art, New York.
- 9 John Hejduk, Diamond House, 1966, p. 122.
- 10 Jackson Pollock and Peter Blake at the 1949 Parsons Gallery show, with model in foreground., p. 126.
- 11 Blake Model, floor plan, p. 127. *Interiors*, January 1950.
- 12 Peter Blake, Pollock Museum model, 1949, p. 128. *Interiors*, January 1950.

- 13 Jackson Pollock show at the Betty Parsons Gallery, 1950, p. 132.
- 14 Philip Johnson, early scheme for Glass House, p. 134.
- 15 Plan of Four Seasons dining rooms at Seagrams Building.
- 16 From A. & P. Smithson, *Urban Structuring: Studies of Alison and Peter Smithson*, 1967, p. 156.
- 17 Alison and Peter Smithson, Golden Lane Housing System Applied to Coventry, 1952, p. 159.
- 18 Tony Smith, Church model, 1951, p. 162.
- 19 Interior, Rothko Chapel, Houston, p. 165.
- 20 Le Corbusier, *Still Life with Pile of Plates*, 1920, p. 168. Kunstmuseum, Basel.
- 21 Le Corbusier, Four Compositions, 1929, p. 169.
- 22 Roberto Burle-Marx, landscape plan for Tremaine House, p. 175. William Howard Adams, *Roberto Burle-Marx: The Unnatural Art of the Garden* (New York: Museum of Modern Art, 1991).
- 23 Marcel Breuer, Neumann House, 1953. Source: *Marcel Breuer: Sun & Shade*, ed. Peter Blake (New York: Dodd, Mead & Co., 1955), p. 91, p. 178.
- 24 Paul Nelson, Franco-American Hospital, Saint L , 1954; facade painted red, yellow, blue, and white, p. 179.
- 25 Peter Blake, Pinwheel House, Water Mill, Long Island, 1954, p. 183. Source: Blake, *No Place Like Utopia*, p. 117.
- 26 Roman Floor Mosaic., p. 186. Museo delle Terme, Rome.
- 27 Cubiculum from the Villa Boscoreale, Metropolitan Museum of Art, p. 187.
- 28 Klein Group model, p. 191.
- 29 Expanded Klein Group model, p. 193.

Collage and Architecture

- 1 Guy Debord, Naked City, 1957, p. 214.
- 2 Johannes Itten, Montage, 1927, p. 219. Source: Itten, *Mein Vorkurs*, p. 49.
- 3 Mies van der Rohe, collage for the Resor House, 1937, p. 236.
- 4 Mies van der Rohe, Museum for a Small City, 1942, p. 237.
- 5 Mies van der Rohe, Chicago Convention Center project, 1954, p. 239.
- 6 Mies van der Rohe, courthouse scheme, 1934; with cutout of Braque, *Fruit Dish, Sheet Music and Pitcher*, 1926, p. 240. Museum of Modern Art.
- 7 Mies van der Rohe, Resor House Project, 1937, p. 242.
- 8 Walter Peterhans, untitled photographs, prior to 1938. Source: Mies van der Rohe, *Architect as Educator*, p. 92., p. 243.
- 9 2nd year photomontage texture exercise, IIT, p. 245. Source: Blaser, *After Mies*, 43.
- 10 Student facade study, IIT, p. 246.

-
- 11 Burgoyne Diller, *Construction*, 1938, p. 250. Source: Museum of Modern Art catalogue, 120.
 - 12 Moholy-Nagy, p. 251. excerpt from *The New Vision*, p. 57.
 - 13 Le Corbusier, *Still Life with Pile of Plates*, 1920, p. 252. Kunstmuseum, Basel.
 - 14 George LeBoutillier, texture sketches from *Architectural Science* 201, 1948, p. 261.
 - 15 Richard Filipowski, poster design for the Institute of Design, 1948, p. 263.
 - 16 Picasso, *Guitar*, 1912, p. 265. Museum of Modern Art.
 - 17 Comparison between Hoesli (a) and Rowe/Slutzky's (b) representations of phenomenal and literal transparency., p. 269.
 - 18 Hoesli analytic diagrams, p. 270.
 - 19 Warren Clark, 3rd year exercise with George LeBoutillier, Harvard Graduate School of Design, 1941, p. 272.
 - 20 Frances Senska, collage, 1942, p. 276. Source: Moholy-Nagy, *Vision in Motion*, p. 13.
 - 21 Ralph Samuel, aerial photo, 1944, p. 276. Source: Moholy-Nagy, *Vision in Motion*, p. 136.
 - 22 Irving Philips, *Satellite City*, Houston, 1965, p. 277.
 - 23 O.M. Ungers, apartment project, Cologne, 1963. Source: Joan Ockman, ed., *Architecture Culture 1943-1968* (New York: Rizzoli, 1993), 363., p. 279.
 - 24 Frontispiece, *Collage City*, p. 280. Rowe and Koetter, *Collage City*.
 - 25 Paul Citroen, collage done under Johannes Itten at Bauhaus, 1921, p. 283. Source: Itten, *Mein Vorkurs*, p. 74.
 - 26 Pattern study, Arc. 610, University of Austin, Texas, c. 1955-57, p. 284. Source: Caragonne, *The Texas Rangers*, p. 299.
 - 27 Figure-ground study of Piazza S. Marco, Arc. 510; University of Austin, Texas, c. 1955-57. Source: Caragonne, 275, p. 284.
 - 28 Gyorgy Kepes, *China*, photocollage, 1942. Source: Kepes, *Language of Vision*, 209., p. 288.
 - 29 Colin St. John Wilson, *Moscow*, collage, 1966, p. 290.
 - 30 Richard Meier, Getty Center, Los Angeles, p. 291.

2426 - 48