

MODERNISM IN ARCHITECTURE

CHOICES, CONTEXT, AND CONSEQUENCES

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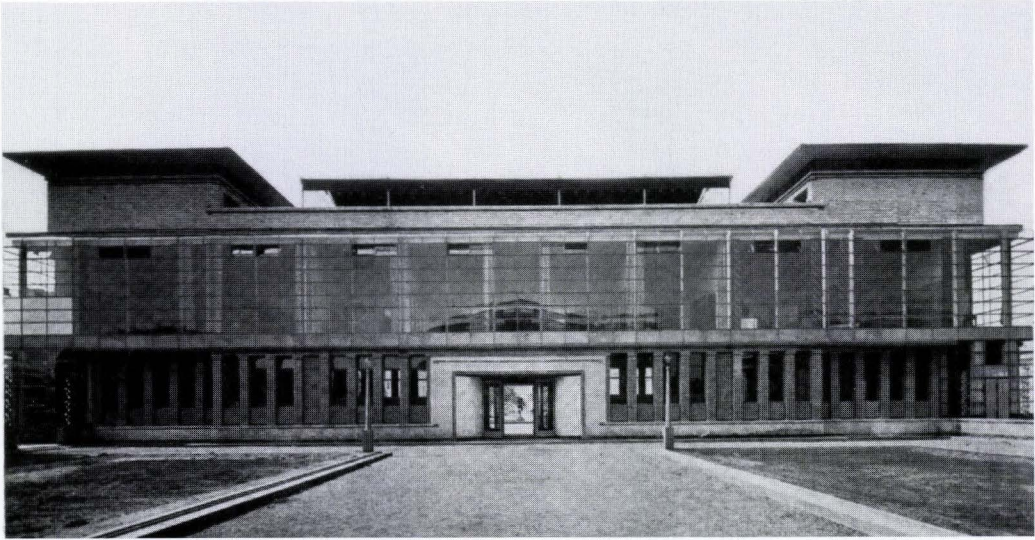
Cities and technologies are among the defining aspects of modern culture. We know that modern cities could not exist without the infrastructures of transportation, sanitation, communication, and information, let alone sources of food and energy. We sense that modern cities around the world are “alike” in many tangible ways with their car-friendly traffic arteries, their heavy energy consumption, and broadly similar ways of procuring clean water and disposing of waste. Yet as scholars and citizens we don’t know nearly enough about how the technological choices we made historically—and that we are making today—have enabled and constrained the development of cities. How much room do we have in negotiating different ways of life when we adopt a particular water system, transportation mode, or style of urban planning? Do our technologies strongly determine how our cities and how our lives work? Or do technologies merely set some elastic boundaries that we can easily live within?

We have been investigating these complex interactions in the Tensions of Europe research group devoted to cities. Tensions of Europe is an international research network that involves about 200 scholars from approximately two dozen countries. Ten different research groups are investigating the diverse roles of technology in shaping European history in the 20th century. While some research groups examine a technological domain, such as mobility, communication, or large technical systems, others investigate such historical processes as consumption and colonialism. In the cities group, we are looking especially at “narrative,” both in the way that historians use narrative strategies to interpret and understand the past as well as the ways in which varied city builders—politicians, planners, engineers, citizens—craft narratives about their own histories.

Investigating modernism in architecture and building technology in the Tensions of Europe framework requires us to confront

one of the strongest “master narratives” of the 20th century. This was the overarching theoretical stance within architecture known as the Modern style, International style, or simply “modernism.” From the 1920s through the 1960s, modernism was the strongest theoretical orientation within architecture—especially the urban architecture of public buildings, office blocks, factories, and hospitals. Modernism from its origin was much more than merely an “aesthetic” theory about how a building ought to look. The broader social and cultural visions embedded in architectural modernism interacted deeply with the wider fields of urban planning, interior and product design, and structural engineering.

As a social vision focusing on urban life, modernism directly or indirectly influenced virtually the entire array of technologies that created and shaped cities in the 20th century, most notably transport, energy, production/consumption, environment/waste, and information. At its widest, ar-



Exhibition Buildings, Cologne (1914). Architects: Walter Gropius, and the late Adolf Meyer, Berlin. Source: Bruno Taut, *Modern Architecture* (London, Studio, 1929).

chitectural modernism articulated a certain view of modernity. Modernity in this view was technological, large scale, optimistic, rational, efficient, centrally controlled, orderly—and not particularly attuned to human-scale subtleties like opening a window for a fresh breath of air. Tall office buildings built in the modern style—in New York or Chicago, Frankfurt or London, Shanghai or Kuala Lumpur—are vivid testimony to how deeply these powerful ideas resonated with the powerful men who built them. In Hong Kong’s Peninsula Hotel, the men’s stalls in the exclusive top-floor lounge are placed on the *outside* wall of the glass-curtained building so that patrons have the satisfaction of urinating on the lesser mortals beneath them.

Modernism as an aesthetic theory can be quite precisely defined as well as located in time and space. In fact the very definition of modernism as a distinctive “style” was part of a well-organized and self-conscious campaign, beginning in the 1920s and extending to the 1950s, to establish a certain set of architectural theories as the

dominant style in architecture. If for the moment we accept Mies van der Rohe’s slogan “less is more” as an influential credo of modernism, Robert Venturi’s rejoinder that “less is a bore” stands for the counter-movement by postmodernists. Venturi asked architects and designers to embrace “complexity and contradiction in architecture” (the title of his influential 1966 book). Visitors to Tom Hughes’ house in Philadelphia, which Venturi designed for his mother, can see how Venturi took many famous elements of modernist designs and quoted them, often playfully and ironically, in creating his postmodern design. Subsequently, postmodernism as a counter-movement in architecture wholeheartedly embraced what at least for orthodox modernists had for 50 years been anathema: exteriors of buildings with colors, decorative elements, even quotations from historical styles.

In architecture, modernists and postmodernists engaged in bitter polemics. In the early 1990s I had the opportunity to talk twice with Bruce Graham, the designer of Chicago’s tallest and most thoroughly mo-

modernistic skyscraper, the Sears Tower. He presented his pioneering Inland Steel Building (Chicago: 1956–58) as a material and idealistic argument in favor of a democratic and open society—in sharp contrast to the ornamented historical styles favored under fascism.¹ I had before dismissed Inland Steel as a small and not-very-interesting glass-box skyscraper. Yet it soon became clear that Graham's polemics were aimed less at the fascist architecture of Germany and Italy in the 1930s and 1940s than at that Philip Johnson. Decades earlier Johnson had been an early and influential backer of modernism but by then had lapsed into postmodernism. Graham maintained that all ornamented architecture was essentially and dangerously "authoritarian," a throwback to the aesthetic and political values of Imperial Vienna, while non-ornamented modernistic architecture was properly democratic and American. (With Graham's orthodox modernism it is difficult to locate Louis Sullivan, who practiced a highly ornamental "style" of architecture in the 1890s and termed it both American and democratic!)

The Modern or International style was consciously transnational. As such, it is something of an exemplar for the wider Tensions of Europe project whose ambition it is to develop historical methods for investigating transnational developments.² Modernism's international origins can be located in architectural movements in Italy,

the Netherlands, and especially Germany that interacted strongly in the 1910s–20s. Modernism also had a particular prominence in the countries of eastern and central Europe.³ The Modern movement in architecture came to the U.S. first in the Museum of Modern Art's defining exhibition of "The International Style" in 1932 and soon thereafter in the persons of Walter Gropius, Mies van der Rohe, Laszlo Moholy-Nagy, and other leading modernist figures escaping fascism in Europe. While modernism at its boldest asserted that it was a single all-embracing style appropriate to the modern world—in effect preaching a transcendent technological fundamentalism that dismissed other movements as errors or mistakes—postmodernism in architecture has also been loosely transnational in its borrowings from many cultures and times.

This studied transnational emphasis is expressed in our working bibliography. Many books treating the history of modern architecture are translated into the dominant languages (our bibliography is strongest in German and English works). This is the case for Leonardo Benevolo's 1972 history of architecture, which was translated into German (1984); Ulrich Conrads' 1964 collection of architectural programs and manifestos, which was translated from German into English (1970); and Kenneth Frampton's 1980 history of modern architecture, which was translated into German (1995). A large literature in Italian about

¹ One can find brilliant "modernistic" images of the Inland Steel Building: see William Jordy, *American Buildings and Their Architects*: volume 5: *The Impact of European Modernism in the mid-Twentieth Century* (Oxford University Press, 1972), p. 259.

² The assumption that modernism simply is international pervades writings on the subject. More valuable are actual studies such as Hans Ibelings, *Americanism: Nederlandse Architectuur en het Transatlantische Voorbeeld = Dutch Architecture and the Transatlantic Model* (Rotterdam: NAI, 1997).

³ The modernism of early Soviet art and architecture is well known. Recently,

a literature has emerged assessing modernism in central Europe: Wojciech Lesnikowski, *Eastern European Modernism: Architecture in Czechoslovakia, Hungary, and Poland between the Wars, 1919-1939* (New York: Rizzoli, 1996); Akos Moravanszky, *Competing Visions: Aesthetic Invention and Social Imagination in Central European Architecture, 1867-1918* (Cambridge: MIT Press, 1998); Karel Teige, *Modern Architecture in Czechoslovakia: Texts and Documents* (Los Angeles: Getty Research Institute, 2000); Timothy O. Benson, ed., *Central European Avant-Gardes: Exchange and Transformation, 1910-1930* (Cambridge: MIT Press, 2002).

Italian architecture (both modernist and fascist) has been selectively translated: for instance Manfredo Tafuri's 1986 history of Italian architecture, which was translated into English (1989). MIT Press has been at the forefront of U.S. publishers in these efforts. In addition to these transnational works, there are a very large number of works with a national or personal focus. In addition there is a more fragmented literature, with closer ties to engineering and industrial archeology, on "building construction".⁴

FOUNDING MODERNISM

Practitioners in many fields write "shadow histories" of one sort or another to set the stage for their own views. Stories of heroic chemists pushing back the dark secrets of alchemy helped define chemistry as a new, rational science and communicated this vision to successive generations of students and to the public. Likewise, engineers in the 19th and early 20th centuries crafted historical accounts to lead up to their own history.⁵ But to an even greater extent modern architecture was formed by programmatic, polemical, and historical writings on architecture. Often, commentaries on architecture have been as influential as the buildings themselves. In several instances, designs for buildings that were never built have been widely influential: Gropius' assertively modern (but unbuilt) design for the Chicago Tribune Tower is a much better known

image among architects than the actual neo-Gothic building that was built in Chicago.⁶ Hugh Ferriss's *The Metropolis of Tomorrow*, with its visionary drawings of a futuristic skyscraper city (1929) figures in almost every book on modern architecture—and may have inspired the Rockefeller Center complex as it took form in the 1930s. (There were in fact few skyscrapers built in a 'modern' style during the 1920s and few skyscrapers of any sort built between 1932 and 1950.) A set of influential books by Bruno Taut, Philip Johnson, Siegfried Giedion, and Nicolas Pevsner not merely described the Modern movement in architecture but also defined that style as the dominant one for the 20th century.

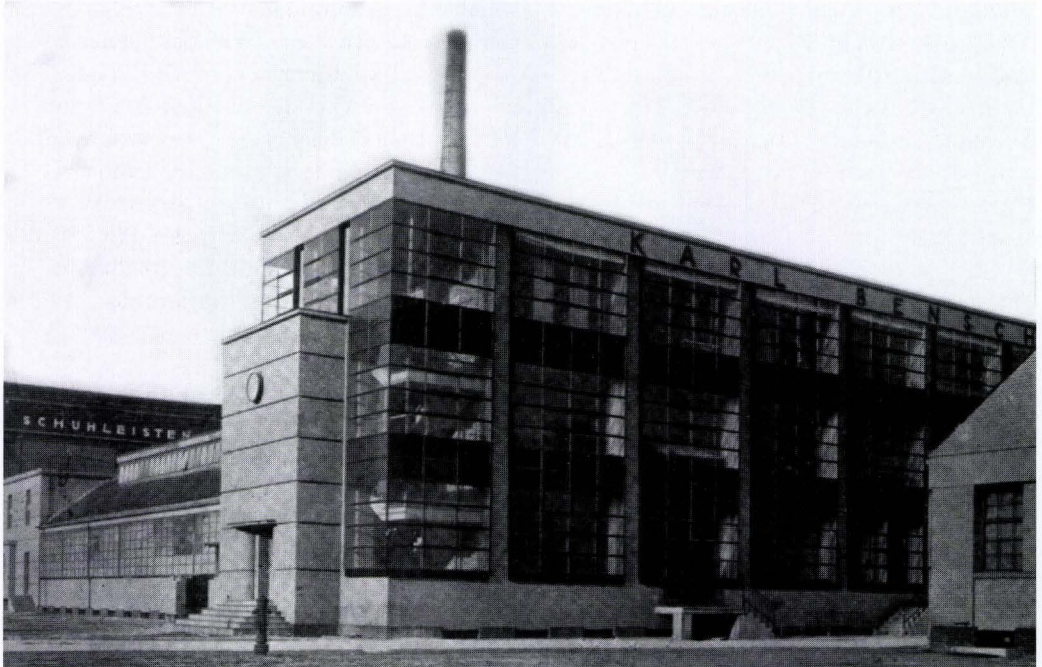
The German architect Bruno Taut was an early explorer of the aesthetic and architectural possibilities of glass and steel. After an architectural apprenticeship with AEG's legendary Peter Behrens—who helped train Mies van der Rohe, Bruno Taut, Le Corbusier, and Walter Gropius, all major figures in modernism—Taut built exhibition pavilions for the steel and glass industries (1913-14). While extant photographs of the steel-industry pavilion inevitable show it as dark, unattractive, and even foreboding, the images of the glass industry pavilion are rather attractive. In his *Modern Architecture* (London, 1929) Taut showcased with attractive images a house he built for himself (featuring a circular stairway enclosed by a glass-block wall), apartment blocks he and others had done in Berlin, and select images of Frankfurt's public housing program that

⁴ See the Construction History Society's serial *Construction History*. Other important studies are Marian Bowley, *The British Building Industry: Four Studies in Response and Resistance to Change* (Cambridge: Cambridge University Press, 1966); Tom F. Peters, *Building the Nineteenth Century* (Cambridge: MIT Press, 1996); Amy Slaton, *Reinforced Concrete and the Modernization of American Building, 1900-1930* (Baltimore: Johns Hopkins University Press, 2001).⁵ Edmund N. Todd, "Engineering Politics, Technological Fundamentalism, and German Power Technology, 1900-1936," in Michael Allen and Gabrielle Hecht, eds. *Technologies of Power* (MIT Press, 2001), pp. 145-74.

⁶ An entirely representative example is Kenneth Frampton's *Modern Architecture* (London, 1980) which lacks any illustration of the actual neo-Gothic Chicago Tribune Tower, but features an oft-reproduced drawing from Gropius and Meyer's modernistic entry to the Chicago Tribune competition (1922). On the original, see Katherine Solomonson, *The Chicago Tribune Tower Competition: Skyscraper Design and Cultural Change in the 1920s* (Cambridge: Cambridge University Press, 2001).

spotlighted its mass-production construction methods. Drawing on the modernist designs showcased at the Weissenhof exhibition (Stuttgart 1927), Taut defined mo-

influential Museum of Modern Art exhibition in 1932. The book they wrote to accompany the exhibition is firm and frank in defining the new style's essential qualities:



The first “modern” factory. The Faguswerke factory (1911–1913), designed by Adolf Meyer and Walter Gropius, made shoe lasts for shoemakers, but the photographs of the building made history. Modernists praised the glass-enclosed corner stairwell as an open and unbounded vision of space. Source: Bruno Taut, *Modern Architecture* (London, Studio, 1929), 57.

dernism as “flat roofs, huge sheets of glass, ‘en tout cas’ horizontal ribbon-rows of windows with pillars, which strike the eye as little as may be, by reason of black glass or dull paint, more sheets of concrete than are required for practical purposes, etc.”⁷

The embryonic modernism of the Stuttgart-Weissenhof exhibition was canonized as the International Style of architecture. A young Philip Johnson, in collaboration with the architectural critic Henry-Russell Hitchcock, defined, presented, and codified what they termed “The International Style” at an

There is, first, a new conception of architecture as volume rather than as mass. Second, regularity rather than axial symmetry serves as the chief means of ordering design. These two principles, with a third proscribing arbitrary applied decoration, mark the productions of the international style. (Hitchcock and Johnson 1932/1966: 20)

Their definition canonized certain prominent European figures (Le Corbusier, Oud, Gropius, Mies), and admitted select U.S. architects to be among the chosen few

⁷ Bruno Taut, *Modern Architecture* (London: The Studio, 1929), p. 6 (quote).

(Hood, Howe & Lescaze, Wright). For Raymond Hood's McGraw-Hill Building (New York: 1931), they chose illustrations so that one can see deeply into the building and note its internal structure (for modernists a praiseworthy mark of structural honesty). They wrote: "The lightness, simplicity and lack of applied verticalism mark this skyscraper as an advance [sic] over other New York skyscrapers and bring it within the limits [sic] of the international style." (Hitchcock and Johnson 1932/1966: 156)

Throughout their founding campaign, modernists deployed architectural photography to shape the images that circulated of the canonical buildings. "It can be shown, even on the internal evidence of their writings, that hardly any of those propagandists for the International Style had seen the building [Gropius's Faguswerke] other than in photographs," notes one recent author.⁸ For years, I had walked by another modernist icon (Howe & Lescaze's Philadelphia Savings Fund Society building) and never once recognized it as the raked-back, steeply vertical, towering skyscraper that is strikingly illustrated in Hitchcock and Johnson (p. 159). The building, as I experienced it from the street, was nothing like this modernistic photograph. To take just one example, the photograph was taken while the building was still under construction (1932)—and before the windows were put in the upper half of the building. Consequently, the building appears to have large, continuous dark bands running straight across the building on every one of these upper stories (anticipating the classic modernist signature of "horizontal ribbon-rows of windows with

pillars"). When the building's windows were put in, much of the modernist look vanished!⁹

In a series of influential books, Siegfried Giedion and Nicolas Pevsner propagated discussion of the "usual suspects" and spotlighted the technological, rational, and progressive aspects of their work. The lobbying efforts of the Congrès Internationaux d'Architecture Moderne, known as CIAM (founded in 1928), with its noisy conferences and polemical "charters," also shaped the contours of the modern style.¹⁰ These modernists knew what the future was destined to bring, and they worked hard to make sure that they were the ones who delivered it.

CELEBRATING MODERNISM

By the 1950s modernism was well established and there were few prominent dissenters either within architectural practice or in architectural criticism. Now that modernism was orthodoxy, the edgy avant-garde polemics of CIAM were difficult to sustain; its last official meeting was in 1956. Subsequently, most histories of architecture from the 1950s to the 1970s adopted a stance of celebrating modernism. These authors accepted the earlier generation's definitions of modernism as well as the earlier set of anointed figures. While their treatments elaborated the intellectual and architectural details, and often added new figures or shifted around favored buildings, they did not much question either the significance of the Modern movement or its main features,

⁸ Reyner Banham on Gropius's Faguswerke in *Concrete Atlantis*, p. 184.

⁹ The illustrations of the PSFS building that appear in Jordy's *Impact of European Modernism* (1972) accent the building's supposed adherence to modernist criteria.

¹⁰ On CIAM, see Eric Mumford, *The CIAM Discourse on Urbanism, 1928-1960*

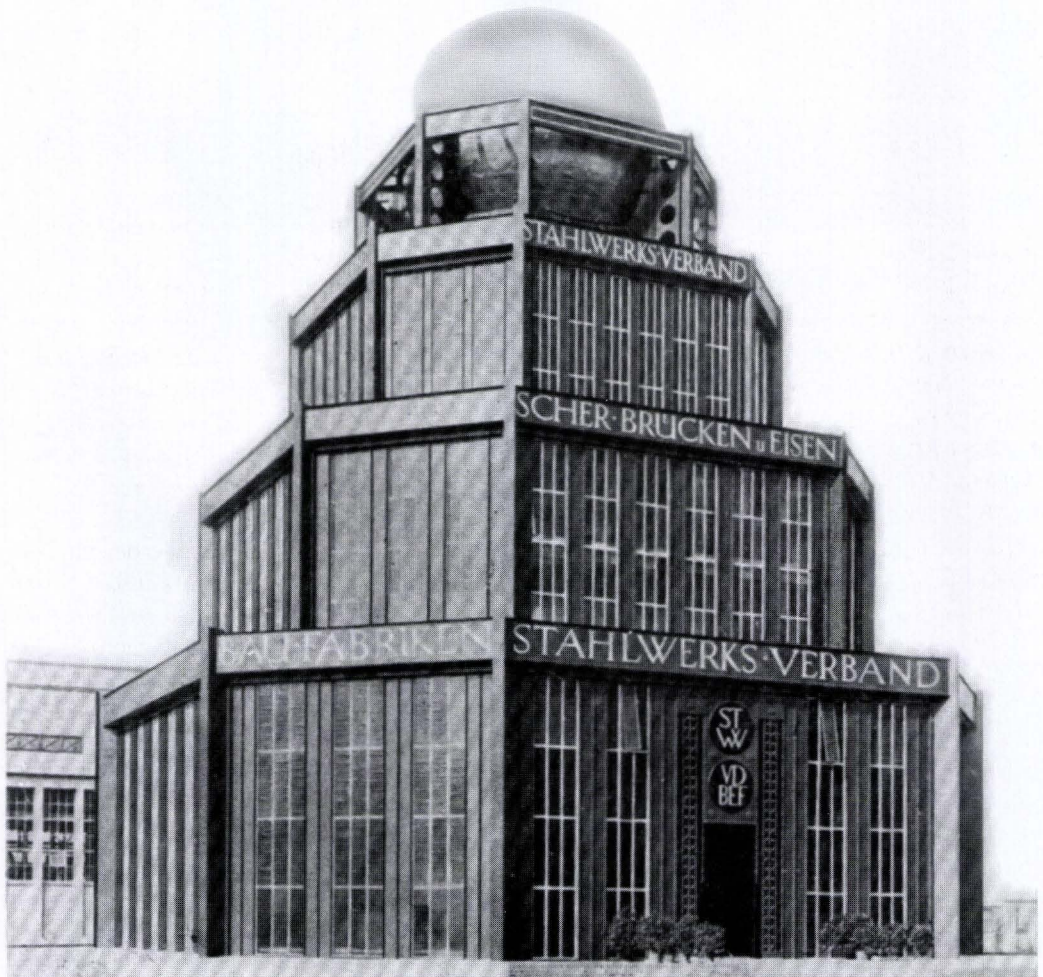
(Cambridge: MIT Press, 2000). On the campaign to create and shape a "modern" style, see Terry Smith, *Making the Modern: Industry, Art, and Design in America* (Chicago: University of Chicago Press, 1993); Wendy Kaplan, ed., *Designing Modernity: The Arts of Reform and Persuasion 1885-1945* (New York: Thames and Hudson, 1995).

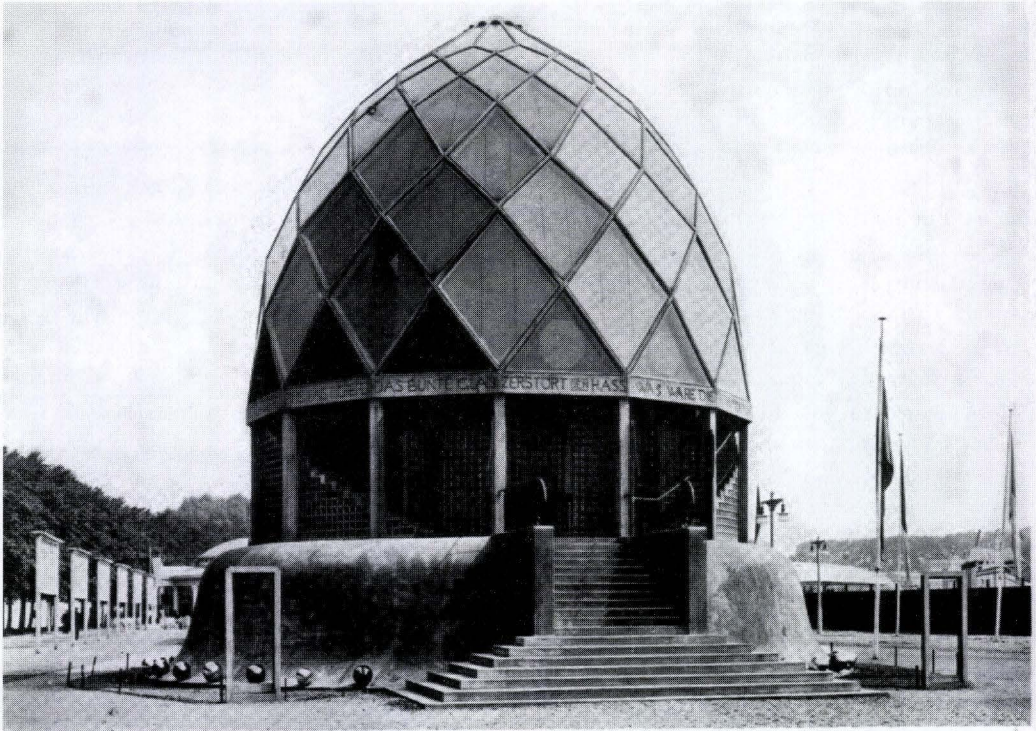
principal figures, and guiding philosophy. In the 1950s Reyner Banham and Carl Condit (respectively, from a European and an American perspective) conceived and wrote books that shaped the teaching and practice of architecture for a generation.

Reyner Banham's *Theory and Design in the First Machine Age* (1960) provides a detailed intellectual history of modernism while Carl Condit's *Chicago School of Architecture* explo-

red the U.S. origins of modern architecture. Banham's book remains a perennial seller: it tells a compelling story of the origins and genesis of modernism in architecture. (It also provides an intelligent commentary on many of the documents collected in Ulrich Conrads' architectural programs and manifestos.) In five sections, Banham carries the story—for there is a coherent story—from “predisposing causes” (e.g. elementary com-

Exhibition Building of the Steelworks Federation, Leipzig (1913). Architect: Bruno Taut, Berlin. Source: Bruno Taut, *Modern Architecture* (London, Studio, 1929).





The Glass House, Cologne (1914). Architect: Bruno Taut. Source: Bruno Taut, *Modern Architecture* (London, Studio, 1929).

position, factory aesthetics, the problem of ornament) through treatments of the Italian Futurists, the *de Stijl* movement in the Netherlands, Le Corbusier and Paris, to the “victory” of the new style with the German Bauhaus. Whereas Banham has only side-glances to the U.S.—which he greatly elaborated in his recent *Concrete Atlantis* (1986) discussed below—Carl Condit focused on the U.S. experience, specifically that of the “Chicago School” of architects.

At first reading, Condit appeared only to be providing a survey of Chicago’s commercial and public architecture from the 1890s through the 1920s. His intent is to show the emergence and coherence of the

so-called “Chicago school of architecture.” Their incipient style anticipated that of the European modernists: these were buildings that did *not* adopt historical, neo-classical, or highly decorated styles; the buildings were relatively plain and unornamented, and appeared to embrace functionality (a slippery code word that has recently gone out of fashion). Condit, in this early phase of his career, understood Louis Sullivan’s famous “form follows function” in a literal sense.¹¹ Condit praised buildings in proportion to their adherence to this criterion. Sullivan’s Wainwright building (St. Louis: 1890-91) and Guaranty building (Buffalo: 1894-95) are clear positive examples. Their three-

¹¹ Contrast Sullivan’s dictum with Carol Willis’ *Form Follows Finance: Skyscrapers and Skylines in New York and Chicago* (New York: Princeton Architecture Press, 1995) which argues that it was financial and building-code imperatives

(rather than stylistic or aesthetic considerations) that account for skyscrapers’ form in New York and Chicago.

part exterior clearly expresses the buildings' three distinct functions as urban space: the bottom two floors (large open public spaces as for a bank) and the top-most floor (for the needed mechanical apparatus) are architecturally distinct, while all the intervening floors, filled with identical floors of offices, are architecturally identical one to another. Condit praised Chicago buildings to the extent that they, too, captured this aspect of modernism. Condit was also writing in an effort to awaken Chicago's city leaders to the architectural gems in their midst: this was at a time when most of the city's Sullivan-designed buildings were knocked down or turned into parking garages.

A highpoint in celebrating modernism came in William Jordy's volume entitled *The Impact of European Modernism* (1972) which appeared in the acclaimed Oxford University Press series *American Buildings and Their Architects*. Jordy's book surveys 20th century modern architecture through a focused analysis of just five projects: Rockefeller Center; the Philadelphia Saving Fund Society building; Marcel Breuer's dormitory at Vassar College; Mies van der Rohe's Lake Shore apartments and Seagram building; Wright's Guggenheim Museum; and Louis Kahn's medical research building at the University of Pennsylvania. Jordy's theme is the European origins of modernism, its "impact" on American architecture, and (with Wright and Kahn) the transformation of European modernism into a distinctive American movement.

A number of the volumes in our working bibliography also can be located as celebrating modernism. While concerned less with architectural style and the aesthetics of individual buildings, Castex, Depaule, and

Panerai's *Formes urbaines* (1977) dutifully has chapters on Haussmann's Paris, the garden cities of London, Ernest May's Frankfurt building campaign, and Corbusier's "radial city." The chapter on Amsterdam deals with the modernistic urban planning of the city's south extension to 1940. Kenneth Frampton's "critical" history of modern architecture (1980 et seq.) deals, engagingly enough, with all the "usual suspects." While it offers critical appreciation, it stays firmly within the mindset of modernism.

The extent to which modernism became a fixed and rigid mindset within architecture is difficult to appreciate. I think that the founding figures (Gropius, Mies, et al.) understood that they were making choices about architecture and its place in the academy, the world of commerce, and in the wider society. It is not clear that the second generation that followed the founders maintained this same open perspective. Modernism became not merely a style (one among a range of possibilities) but also an "impersonal method of technical creation."¹² It is as if only one side was heard of Johnson and Hitchcock's statement concerning the need to balance coherence and flexibility: "There is now [in 1932] a single body of discipline, fixed enough to integrate contemporary style as a reality and yet elastic enough to permit individual interpretation and to encourage general growth." (p. 20)

In the early 1990s, when the shell of orthodox modernism had been cracked wide open and there were many exciting stylistic possibilities, at least one second-generation modernist was plainly baffled. After leading a tour of his own strictly Miesian modernist complex in Chicago, he was asked to reflect on the varied approaches and trends in ar-

¹² In the 1920s, J.J.P. Oud had written, of the emerging modern architecture, "In the sharpest contrast to the untechnically-formed and colourless products of momentary inspiration as we know them, its ordained task will be, in

perfect devotion to an almost impersonal method of technical creation, to shape organisms of clear form and proper proportions."

chitecture. If he were starting out as a young architect, today, what sort of designs would he find himself attracted to? “Frankly,” he said, “I wouldn’t know where to start.”



Flat Roofs and Ribbon Windows. Bruno Taut’s modernist apartment block in Berlin’s Neukölln district. Source: Bruno Taut, *Modern Architecture* (London, Studio, 1929), 111.

MODERNISM IN CONTEXT

From a historiographic point of view, the celebratory view of modernism had many problems. As species of Whig history, where historical developments are selected, evaluated, and narrated through a latter-day set of criteria, these celebratory accounts fail to “see outside the box” of modernism—or for that matter to probe within that box. The best recent writings on architecture adopt what I will label as “modernism in context.” These authors, beginning perhaps with Reyner Banham’s *Concrete Atlantis* (1986) seek to understand more fully the aesthetic choices made by the modernists, to recreate the social, technological, and intellectual context of their choices, and to more carefully survey the cultural consequences of modernism as a movement.¹³ A shift to a contextual history of architecture paralleled, and to a certain extent followed, a shift to a contextual history of technology.

Banham’s *Concrete Atlantis: U.S. Industrial Building and European Modern Architecture, 1900–1925* (1989) is one of the best contextual histories of architecture.¹⁴ Banham’s first book, *Theory and Design in the First Machine Age* (discussed above) was influential in celebrating modernism. But in *Concrete Atlantis*, his goal is to recover and trace meaningful intellectual relations between the advent of modernism in Europe and a set daylight factories and grain elevators in North America that served as prototypical modernist forms. Corbusier exclaimed “Let us listen to the counsels of American engineers. But let us beware of American architects!” As with many of the Europe-

¹³ Earlier works by John Willett, *The New Sobriety, 1917–1933: Art and Politics in the Weimar Period* (London: Thames and Hudson, 1978) and Barbara Miller Lane, *Architecture and Politics in Germany, 1918–1945* (Cambridge, 1968) dealt with the culture and politics of Germany during the modernistic 1920s, but did not really attempt to link the political and cultural developments with the theories and practices of architecture.

¹⁴ For other contextual histories, see Amy Slaton, *Reinforced Concrete and the Modernization of American Building, 1900–1930* (Johns Hopkins University Press, 2001); Emily Thompson, *The Soundscape of Modernity: Architectural Acoustics and the Culture of Listening in America, 1900–1933* (Cambridge: MIT Press, 2002).

an modernists, Corbusier was (in Banham's expressive words) drawn to "multi-story American industrial buildings with exposed concrete frames, filled in only by transparent glazing; buildings like X-ray images, their very bones on public display." (p. 23)

Banham recounts the history and construction of these daylight factories and grain elevators (many are in Canada, at least one from South America), but his main aim is to uncover how images of these buildings were *appropriated* into the modernist orbit. He finds there was plenty of selective editing and at least one instance of substantial dishonesty. Corbusier took an image (from Gropius) of a large Buenos Aires grain elevator, transplanted it to Canada and then furthermore "'censored' or 'modernized' [it] by having its numerous pediments whited out before publication." (p. 257 n8) Banham's real genius is to convey his genuine enthusiasm and modernist understanding of a large number of long-ignored North American structures as well as the famous classics of European modernism, such as Gropius' iconic Faguswerke. His description of the famous FIAT works at Turin-Lingotto (1914–26) is informed by his knowledge of American factory designs, European theorizing (and the interplay between the two), an eye for detail, and a gift for writing. The factory was unique for having on the upper-most floor, where the automobiles first emerged after assembly, a kilometer-long testing track. "To see it for the first time, as I did, through the windscreen of a moving car is a nerve-tingling experience. One is entering one of the sacred places of European modernism, sanctified and certified by the photographically documented presence of practically every European Futurist, modernist, or other progressive spirit of note throughout the twenties and early thirties. And the shock of recognition is reinforced by the fact that it still looks exactly as it did in those historic photographs." (p. 243)

While Banham's contextualism was rooted in his own vast knowledge of American and European architecture, a different sort of wide-ranging contextual knowledge is brought to bear in the multiple-author work, *Die Metropole: Industriekulture in Berlin im 20. Jahrhundert*, edited by Jochen Boberg, Tilman Fichter, and Eckhart Gillen (1986). (This volume appears in a series, "Industriekulture deutscher Städte und Regionen," published in München by C.H. Beck.) At first glance *Die Metropole* might seem to represent a "social" or "cultural" or "political" history of Berlin, as earlier works by Willett and Miller-Lane did for Germany. There are indeed such chapters, on the culture of the late-Imperial period, mass sport, and radical politics. But in the volume, as a whole presents the material, cultural, and industrial dimensions of Berlin; the chapters deals evenly with the first and second world wars, including Jewish life and the Nazi period, as well as the cold war.

Of particular interest to our cities theme are chapters on the "rhythms" of the city (on new patterns of working, shopping, transport), the relation of urban planning and mass transit, the movie cinema as a business, and the way Berlin was reconfigured for the automobile from the mid-1950s to 1970s. Artistic movements, and not only from the famous 1920s, have several chapters. One chapter dealing explicitly with East Berlin covers planning of the socialist center district, while another chapter discusses the Alexanderplatz district as the location of modernism in the 1920s. The volume also, in several chapters, deals with the building up, politics of, and recent ending of industry in the city. By focusing on Berlin as a unit of analysis, the volume is able to develop a contextual approach to this single city. It also has many wonderful photographs, and a good index.

If we put *Concrete Atlantis* and *Die Metropole* together, we might get some sort of

model for thinking about a transnational and contextual approach.¹⁵ Just as Banham was interested in the “reality” of certain North American industrial buildings as well as the “appropriation” by European modernists of these images—it is the interplay

of these images and their appropriation (1997).¹⁶ Arnold collects the accounts of European architects who traveled to the United States in the 1890s, and used their writings on Chicago to reflect on and clarify their own developing ideas on architecture. Various images of Chicago were thus ap-



View of the Stuttgart Exhibition, 1927. Source: Bruno Taut, *Modern Architecture* (London, Studio, 1929).

of the physicality and so to say mythicity that intrigues him—one might think of the way images of Berlin (as a preminent “Großstadt”) were taken up by figures and movements outside Berlin itself. At least one similar study comes to mind: Lewis Arnold, *An Early Encounter with Tomorrow: Europeans, Chicago’s Loop and the World’s Columbian Expo-*

propriated by European architects, even before the modernists came along. We would like to investigate how knowledge about and images of Berlin and other European cities circulated in various technical fields (e.g. sanitary engineering, traffic engineering, urban planning, architecture) as well as in more popular media.

¹⁵ An exemplar in analyzing the trans-Atlantic dimensions of social policy, including urban reform, is Daniel T. Rodgers, *Atlantic Crossings: Social Politics in a Progressive Age* (Cambridge: Harvard University Press, 1998).

¹⁶ Urbana: University of Illinois Press. H-NET Review <www.h-net.msu.edu/reviews/showrev.cgi?path=2770894487914>.

Our project is in effect seeking to combine the “transnational” sweep of the earlier studies of modernism with the “contextual” methods of these more recent studies. Doing a comparative study of urban architecture and planning is difficult enough. There is simply the practical issue of needing to know a great deal about the context—political, social, economic, cultural—of a particular city, or technology, let alone about additional comparative cases. What we are hoping to do in the Tensions of Europe framework is even more ambitious. We aim to tell a contextual story with a focus not on a single city, or pair of cities, but with the unit of analysis being “Europe,” understood broadly.

MODERNIST “GIGANTOMANIA”

I conclude with a brief discussion of published sources on the World Trade Center Towers (1970-2001). The modernist “gigantomania” they embodied and expressed took form in the 1960s, a project that was conceived by David Rockefeller and completed by the Port Authority of New York and New Jersey. The Port Authority was and is a powerful public corporation, with many wide-ranging powers, not least in that it straddled two states, New York and New Jersey, and so was subject to neither of their laws. The head of the Port Authority during the tower project’s formative years was Austin Tobin, a figure cut from much the same high modernist cloth as the flamboyant Robert Moses. Writings on the WTC towers frequently assert that they “stood for” the entirety of New York city, similar to how Michael Brooks’ frames his interpretation of the New York city subway.¹⁷

Even while the towers were going up, Leonard Ruchelman was at work on *The World Trade Center: Politics and Policies of Skyscraper Development* (1977). He gives a “policy formation” and “policy implementation” treatment of the towers, with everybody but Tobin (it seems) having a prominent role. The book is not lively, but does give an accurate portrait of the innumerable political bodies that the WTC project interacted with. “One important question that had to be resolved very early was whether cleaning services should be contracted out....,” he writes (p. 90) A detailed discussion of waste, recycling, rodents, and crime control ensues. Frustratingly, the book sidesteps the substantial controversy that the buildings provoked in their early years—“It out-ranks the Maginot line as the biggest planning fiasco in history,” fumed one such critic—opting instead to deal rather dryly with the so-called externalities of skyscraper development. After reading Ruchelman’s sober account, one eagerly takes up George Willig’s *Going It Alone* (1979) which recounts his successful climb of the south tower—all 110 stories—on 27 May 1977. From his detailed research and singular experience while climbing the building, Willig provides wonderful details about the building’s exterior cladding, the vertical rails for the window-washing machines, and the security for the complex. Curiously, his mother was among those injured when in July 1945 a B-29 bomber struck the 79th floor of the Empire State Building, an earlier instance of heavy airplanes hitting skyscrapers.

Eric Darnton’s *Divided We Stand* (1999) provides a breezy and sardonic study of the WTC, loosely inspired by the cultural analysis of Wolfgang Schivelbusch. Darnton writes that Tobin, desiring to control

¹⁷ “The subway is a vital part of the physical city which can easily be made to represent the urban whole,” writes Michael Brooks (*Subway City*, p. 2-3).

“The subway represents New York city as surely as the freeway represents Los Angeles.”

the project himself, turned down proposals from such luminaries as Walter Gropius, Philip Johnson, I.M. Pei, and Louis Kahn, as well as a clutch of established New York skyscraper builders. In the architect Minoru Yamasaki he found, as Darnton writes, “a kindred spirit ... an ambitious climber with the soul of an engineer.” “From Yamasaki’s drawing boards emerged a heroic, disastrous attempt to reconcile the real estate imperatives of his client, Austin Tobin, with the sculptural aesthetics of this guiding spirit, Mies van der Rohe.” (Darnton, 114) It goes on from here. Darnton’s book is flawed by his self-proclaimed ignorance of technical details, which undercuts his caustic pronouncements about the builders and much else.

Angus Kress Gillespie’s *Twin Towers* (1999) provides a more uplifting tale. You are forced into reading around, over, and through the author’s unflappable admiration of the men that “get things done,” such as his hero Tobin (who is favorably compared to Robert Moses). Gillespie deals with the political background of the Port Authority, the engineering and construction of the buildings themselves, and the eventual public successes of the towers. The project’s critics are relegated to the sidelines, and the WTC’s architecture is (in the author’s view) “beloved by all except the experts.” There are numerous drawings of construction details, including a clear view of the building’s really novel feature (on p. 79). The WTC’s internal load-carrying structure was a sharp departure from the evenly spaced columns that had been used by skyscraper architects for more than a century. Classic skyscrapers carried their weight to the ground through a veritable forest of columns, spaced between 15 and 20 feet apart, and placed in

regular horizontal and vertical rows like the intersecting lines on a sheet of graph paper. Instead, the WTC towers’ weight was supported by a set of interior “core columns” and an exterior load-bearing wall. The intervening open space, as much as 60 feet in width and totaling nearly an acre on each floor, had no columns and was supported by large beams—something like the truss of a small bridge—spanning the interior core and exterior wall. The external wall bore the building’s weight effectively because the truss-beams kept them in position. Even a piece of paper stood upright is amazingly stiff if it is kept perfectly vertical by a support.

In the weeks and months after September 11th, 2001, the *New York Times* published many articles on the collapse of the WTC towers, the resulting rescue, recovery, and clean-up efforts, and the on-going engineering investigations into the towers’ collapse.¹⁸ In their recent book, *Cities in the Sky: The Rise and Fall of the World Trade Center*, Times reporters James Glanz and Eric Lipton present an extensive history of the Lower Manhattan neighborhood, the Port Authority’s efforts to build the WTC, the September 11th attack itself, and the convoluted efforts at rebuilding.¹⁹ They are quite critical about a number of design decisions including the daring structure, the inadequate fireproofing, and the tragically exposed stairwells.

Glanz and Lipton offer many lessons that skyscraper builders should learn from the WTC collapse, and they also offer insight into why the most compelling question—why and how did the towers collapse?—may never be definitively answered. The WTC towers collapsed on September 11th, 2001, under one of two likely

¹⁸ I formed an archive on the WTC collapse, clean-up, and rebuilding using newspaper materials gathered from September 2001 to May 2002.

¹⁹ New York: Henry Holt/Times Books, 2003.

scenarios. In the “sagging floors” scenario, the burning jet fuel weakened the horizontal floor trusses, pulling them away from the exterior columns, which, since they then lacked lateral support, buckled disastrously. In the rival “core collapse” scenario, the internal structural core, weakened by the aircraft impact and the intense heat of the resulting fire, collapsed a moment before the exterior columns buckled, pulling the tower down. Amazingly enough, because of the city’s determination to quickly recycle the 200,000 tons of wrecked structural steel, the evidence available to investigators can never be complete.²⁰ Modernists will cringe at the thought, but as postmodernists tell us there are always limits on the certainty of our knowledge.

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MODERNISMI ARKKITEHTUURISSA: VALINNAT, KONTEKSTI JA SEURAUKSET

Thomas J. Misa

Kaupungit ja erilaiset teknologiat määrittävät suurelta osin modernia kulttuuriamme. Miten teknologiset valinnat, joita on historian saatossa tehty – ja tehdään yhä – ovat vaikuttaneet kaupunkien kehitykseen? Miten teknologiat määrittävät, miten kaupungit ja ihmisten elämä kaupungeissa toimivat? Miten joustavia teknologian rajat ovat?

Näitä kysymyksiä on pohdittu kansainvälisen tutkimusverkoston Tensions of European kaupunkitutkimusryhmässä. Tässä yhteydessä modernismin tutkimus arkkitehtuurissa ja rakentamisen teknologioissa on johtanut erään 1900-luvun ”suuren kertomuksen” kyseenalaistamiseen. 1920-luvulta 1960-luvulle modernismi oli arkkitehtuurin vahvin teoreettinen suuntaus, erityisesti kaupunki- ja julkisessa arkkitehtuurissa. Modernismi aatteena vaikutti myös niihin teknologisiin valintoihin, jotka muokkasivat kaupunkia 1900-luvulla. ”Uusi aika” oli tästä näkökulmasta teknologinen, optimistinen, rationaalinen, tehokas, keskitetyksi säädelty, järjestelmällinen, suuressa mittakaavassa toimiva. Tärkeitä eivät olleet sellaiset inhimillisen mittakaavan hienoudet, kuten saako ikkunoita auki raitista ilmaa varten. Lopulta modernismi paisui varsinaiseksi ”gigantomaniaksi”, mistä seurauksena olivat esim. New Yorkin World Trade Centerin kaltaiset pilvenpiirtäjäkompleksit.

Modernismi esteettisenä teoriana voidaan varsin helposti sekä määrittellä että sijoittaa ajallisesti ja paikallisesti. Modernismin määrittely selkeäksi tyyli-suunnaksi oli hyvin organisoitu kampanja tiettyjen arkkitehtuurin teorioiden

Jatkuu sivulla 52

²⁰ A recent summary of the on-going investigation into the collapse is <wtc.nist.gov/progress_report_june04/appendixq.pdf> (September 2004).